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THE
CYCLOPÆDIA;
OR,
Universal Dictionary
OF
ARTS, SCIENCES, AND LITERATURE.

VOL. III.

THE
CYCLOPÆDIA;

OR,

UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

BY

ABRAHAM REES, D.D. F.R.S. F.L.S. *S. Amer. Soc.*

WITH THE ASSISTANCE OF

EMINENT PROFESSIONAL GENTLEMEN.



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CYCLOPÆDIA:

OR, A NEW

UNIVERSAL DICTIONARY

OF

ARTS and SCIENCES.

(SECOND EDITION.)

ARTERY.

ARTERY, in *Anatomy*, from *αἰρ*, *air*, and *τηρεω*, *to keep*, is the name by which those vessels are distinguished through which the blood flows from the heart to every part of the body. The term was first adopted by the anatomists of the Alexandrian school, in consequence of the erroneous opinion which they entertained, that these vessels were designed for the distribution of air throughout the body.

ARTERIES, Structure of. The larger arteries have thick and elastic sides, so that they remain open when divided, and present a regularly circular aperture. The sides may be separated into three strata of dissimilar substances, which are technically called coats. The innermost, which is generally termed the cuticular coat, is very thin, but very strong and inelastic. Upon this circumstance depends the regularly circular form of an injected artery; for if the cuticular coat bursts from too great force being used in injecting, the exterior elastic coats are distended into an irregular and uncertain figure. The internal surface of this coat is perfectly smooth, so that the blood glides along it without impediment; the external surface is a little rough, and is connected by cellular substance to that coat which surrounds it. The middle or muscular coat consists of circular fibres which are scarcely visible in the largest arteries, but are very manifest and strong in the smaller ones; they are seen projecting in circular ridges, beneath the thin cuticular coat of a small artery, when it is slit open. The great increase of the muscular power of the small arteries is not only evident to the sight, but has been demonstrated by experiment. Mr. Hunter bled a horse to death, and afterwards examined the state of the arteries. The aorta was contracted about $\frac{1}{10}$ th part of its natural area, the iliac $\frac{1}{6}$ th, the radial $\frac{1}{2}$. (See his *Treatise on the Blood, Inflammation, &c.*) The external or elastic coat of the artery appears to be made of con-

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denser cellular substance; it is powerfully elastic, and abounds in the larger arteries, but gradually diminishes in quantity as the size of the vessel decreases; so that the small arteries are quite flaccid, and collapse when divided. It is easy to perceive the use of these various degrees of elasticity and muscular power, which are given to the different sets of arteries. In the large arteries, muscular power seems unnecessary, for the force of the heart is fully adequate to the propulsion of the blood; but in the smaller arteries, where the effect of the heart's action declines, a proportionate muscular power is allotted to the vessel to urge on the circulating fluids. The arteries have their nutrient arteries and veins, their absorbents, and their nerves. All the arteries proceed from one great vessel, as the branches spring from the trunk of the tree; and we proceed to notice certain circumstances observable in

ARTERIES, Ramification of the. 1. When a large artery gives off a branch, the conjoined areas of the two vessels make a greater space for the blood to move in, than the area of the original vessel. The increase of dimensions in the branches of a large artery is slight, but in those of a small one it is so considerable, that Haller has estimated it as surpassing by $\frac{1}{3}$ d that of the trunk from which they sprung. The conjoined areas of all the small arteries so greatly exceed that of the aorta, that the same anatomist, in opposition to former opinions, says, these vessels may be considered as conical, the basis of the cone being in the extreme arteries, and the apex in the heart.

2. When a large artery sends off a branch, its course does not, in general, deviate further from that of the trunk, than an angle of 45 degrees. Sometimes a branch, which has gone off at an acute angle, returns, and proceeds in a contrary direction to that of the trunk; and these arteries are

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generally

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generally called circumflex. Sometimes, indeed, a large artery does proceed from the trunk at a greater angle, nearly a right angle, as the renal arteries, &c. Though the large arteries generally ramify at acute angles, there is great diversity in the branching of the smaller ones,

3. Arteries, in general, do not pursue a straight, but serpentine course; in some instances it is remarkably the case; as in the spermatics, those of the face and occiput, and in most of the smaller arteries.

4. Though the ramification of arteries may be compared to the branching of trees, yet it differs materially in this particular, that the different branches frequently conjoin. This conjunction is technically termed, if we borrow the phrase from the Greek language, their "Anastomosis;" if from the Latin, their "Inosculation." This union of arteries rarely happens among the larger ones, but frequently among the smaller; and increases in number in proportion to the minuteness of the vessels. The utility of the inosculation of arteries is evident: were it not for this circumstance, if any arterious trunk were accidentally compressed, so that the current of blood in it should be for some time obstructed, the parts which it supplied must perish. But in consequence of the frequent communication of the arteries with one another, the blood can pass from the adjacent arteries into all the branches of any one accidentally obstructed.

When arteries inosculate, two currents of blood, moving in opposite directions, must come together, and retard each other's motion. This probably is the reason that larger arteries, through which it seems necessary that the blood should flow with rapidity, so seldom conjoin, whilst the small arteries, in which it is requisite the blood should move tardily, communicate in surprising numbers, and with a frequency proportionate to their minuteness. The very frequent communication of the minute arteries, almost as effectually prevents the prejudicial consequences of obstruction in the larger trunks, as if those arteries themselves were made to communicate by more direct and larger channels. All these minute arterious tubes are capable of enlargement, and it is an ascertained fact, that even the aorta itself may be gradually obstructed, without the parts which it supplies being deprived of nourishment. From an attentive consideration of all these circumstances, it has been concluded, that the moderate increase of the area of the branches of large arteries, the acute angles at which they divide, their nearly rectilinear course, and the rare occurrence of inosculation between them, are designed to facilitate the rapid motion of the blood in them, so that it may arrive unchanged and in the same state that it was projected from the heart, at that part of the body for the nourishment of which it is intended; whilst, on the contrary, the great increase of the area of the smaller vessels, the variety of their angles, their tortuous course, and their frequent communications, were designed to check the velocity of the blood's motion, when it has arrived at that part where secretion is to be performed, and nutrition is to take place. Contrary opinions have indeed been maintained; and for the further discussion of this subject, we must refer the reader to the *Circulation of the Blood*.

ARTERIES, Termination of. When the arteries have become very minute, they terminate in two ways; they either turn back again and become veins, and return the blood to the heart, or they send off fine vessels which abstract something from the circulating blood, and which are therefore called the *secerning arteries*. Though none but minute arteries are ever reflected so as to become veins, yet many of them are of sufficient magnitude to allow the passage of common waxen injection. The arrangement of the minute

veins can be demonstrated by impelling common waxen injection into the arteries, particularly if a degree of putrefaction be suffered to take place previously to the experiment. In the dissection of such a preparation, the continuity of the arteries and veins is very manifest. It seems therefore to follow from this facility of communication, that the mass of blood is constantly and freely circulating, in order to undergo that change which is effected in the lungs, whilst but a small part of it proceeds into the very minute arteries, for the purpose of having secretions made from it. For these arteries, however minute, must be considered large in comparison to the exility of others, which cannot be injected with wax, and even reject the red globules of the blood, or admit them in such small proportion, that they do not impart the red colour to the fluid which moves in these vessels. Now we may venture to affirm, that these globules do not much exceed, in diameter, the 150,000th part of an inch, which circumstance sufficiently shews the minuteness of the lesser arteries. See the article *BLOOD*. But however minute arteries may become, still they must all end in the same manner; they must be continued into veins, for that is the route which the blood, or subtile injections pursue, and from the most minute arteries those which perform secretion arise.

The *secerning arteries* are too minute to admit commonly of demonstration; they are however evident in some glands; in the kidney for instance, they may be seen continued into the excretory vessels or tubuli uriniferi. Subtile injections, when thrown into the larger arterial trunks, may be seen oozing out on the surfaces of membranes, and into the cellular substance, and they are generally supposed to be poured forth from the open orifices of the *secerning arteries*. Analogy therefore, rather than actual demonstration, leads us to believe, that the *secerning arteries* abstract the particles of nutrition, or the materials which compose the fabric of the body, from the circulating fluids, and deposit them from their open mouths, so as by this means to build up and keep in repair the structure of the body.

ARTERIES, Distribution of. The great artery, whose branches supply the whole of the body, is named the "aorta." It comes off from the upper and back part of the left ventricle, where it is surrounded for a short part of its course by the fleshy fibres of the heart. Its origin appears externally to be divided into three distinct eminences, which denote the situation of its femilunar valves.

The aorta emerges from the basis of the heart, between the pulmonary artery, and the right auricle. It ascends at first rather to the right, till it arrives at the upper edge of the second rib. Then it begins to bend backwards across the division of the pulmonary artery and of the trachea, till it reaches the left side of the spine, in which situation it descends from the fourth or fifth dorsal to the last lumbar vertebra.

By the "arch of the aorta," is meant that part of the vessel which arises from the heart, and bends across the chest. It sends off the following branches: viz. the two coronary arteries, whose mouths are situated just above the upper edge of the femilunar valves. They depart from the trunk at right angles, and are distributed to the heart itself. The most convex part of the arch sends off three large branches; first, the *arteria innominata*; secondly, the left carotid artery; and thirdly, the left subclavian artery. Varieties not unfrequently occur in the number of arteries which arise from this upper part of the arch: a long list of them may be seen in *Soemmerring de corporis humani fabricâ*, tom. v. p. 120.

The right coronary passes in the groove between the right auricle and ventricle, covered by fat, to the flat surface

fice of the heart. It gives off five large branches chiefly to the right ventricle; the last of these, which is the longest, anastomoses near the apex of the heart with the left coronary artery.

The left coronary artery is found between the pulmonary artery, and the left auricle. It divides into two branches. The anterior branch takes a serpentine course along the convex surface of the heart, in the direction of the septum ventriculorum; it communicates at the apex with the right coronary. The posterior branch passes between the left auricle and ventricle towards the left margin of the heart, and is distributed to the left ventricle.

Observation. Both the coronary arteries send branches to the roots of the great vessels, as they come off from the heart, and they communicate with the phrenic, internal mammary, and bronchial arteries.

The arteria innominata passes obliquely in front of the trachea, and behind the subclavian vein. After a course of an inch or an inch and a half, during which it gives off no branch, it divides into the right carotid and right subclavian arteries: the rest of the description of these arteries, is the same on both sides of the body.

The common carotid artery emerges from the chest by the side of the trachea, where it is covered by the insertion of the sternocleidomastoideus muscle. It mounts upwards in front of the vertebrae, and parallel with the trachea, till it reaches the upper margin of the thyroid cartilage, without giving off a single branch. During its course along the neck, it is closely connected to the internal jugular vein, and the eighth pair of nerves. At the upper margin of the thyroid cartilage, it divides into the external and internal carotid arteries, the former of which is distributed to the outside of the head, the latter to the brain.

The external carotid continues its course upwards between the ramus of the jaw and the ear, being imbedded in the substance of the parotid gland. About the middle of the ramus of the jaw, it divides into the superficial temporal, and the internal maxillary arteries.

The Branches of the External Carotid Artery.

The superior thyroideal is the first branch of the external carotid artery. It pursues a tortuous course downwards and forwards to the upper part of the thyroid gland, to which it is almost entirely distributed, communicating freely with the thyroid branch of the inferior thyroideal artery. It sends however a superficial branch under the os hyoides, which unites with its fellow of the opposite side. Another branch goes to the lower part of the thyroid cartilage, and is distributed to the neighbouring muscles. The laryngeal artery is the most constant branch of the superior thyroideal; it enters the larynx between the thyroid and cricoid cartilages, together with the recurrent nerve, or at a hole in the side of the thyroid cartilage, and is distributed to the muscles of the arytenoid cartilages, and to the membrane which lines the larynx.

The lingual artery comes off from the external carotid immediately above the former; it accompanies the lingual nerve, passing above the corner of the os hyoides, and within the hyoglossus muscle; it gives a branch (the ramus hyoideus of authors) to the muscles above the os hyoides; then it sends a pretty large artery (dorsalis linguæ) to the back of the tongue, epiglottis, &c. Afterwards the trunk divides into two branches: the sublingual, which passes between the sublingual gland and the geniohyoideus muscle to the chin, where it terminates superficially; and the raninal, which is the larger and more important branch: it continues its course along the inferior surface of the tongue, preserving a considerable size to the very apex.

The labial artery, which is also called the facial, external maxillary, or angular artery, arises from the external carotid under the digastric and stylohyoideus muscles; it advances in a tortuous manner to the basis of the jaw, passing through a deep fissure which is made for it in the submaxillary gland; by a bold and sudden turn it bends over the basis of the jaw at the anterior margin of the masseter muscle, and then follows a serpentine course over the cheek to the side of the mouth and nose, under the zygomatic muscles.

Before it passes over the jaw, it sends off the following branches. 1. The ascending palatine artery, goes under the styloid muscles to the pharynx, Eustachian tube, soft palate, and uvula. 2. An artery to the back of the tongue and tonsils. 3. A number of small branches to the submaxillary gland, the neighbouring lymphatic glands, the skin, the membrane of the mouth, &c. 4. The submental comes off just before the artery makes its turn; it runs forward on the mylohyoideus muscle towards the chin; there it turns over the symphysis of the jaw, and is distributed to the skin and muscles of the chin, communicating with the inferior labial artery.

When the artery has passed over the basis of the jaw, it sends off; 1. A branch to the surface of the masseter, which communicates with the masseteric branch of the temporal. 2. The inferior labial artery, which supplies the lower part of the lower lip, and communicates with the submental, and with the coronary artery of the lower lip. 3. The coronary artery of the lower lip, which pursues a winding course under the orbicularis oris, till it meets and anastomoses with its fellow of the opposite side. It is sometimes produced by the inferior labial. 4. The coronary artery of the upper lip may from its superior magnitude be considered as the continuation of the trunk; it follows the edge of the upper lip, lying on the membrane of the mouth, and in the middle of the lip has a large and free communication with the opposite artery; it sends off a large branch to the side of the nose, and two smaller branches which run along the front of the septum nasi; these communicate on the ala nasi with the branches of the ophthalmic and infra-orbital arteries. The branches which the labial sends off to the face vary much in size and number; sometimes it terminates in producing the coronary of the lower lip (vide Halleri Icon. fasc. ii. tab. arter. faciei); sometimes the nasal arteries are entirely given off from the ophthalmic; sometimes the nasal branches of the labial extend over the nose to the forehead; sometimes the branches of one side differ from those of the other.

The ascending pharyngeal artery of Haller (Halleri Icon. fasc. ii. tab. arter. pharyng.), which is the smallest branch of the external carotid except the posterior auricular, either arises from the back of the carotid opposite the lingual, or from the point of bifurcation. Its course along the neck is straight; it is found in front of the rectus capitis major, and on the side of the pharynx, being absolutely hidden by the two carotids. Its anterior branches supply the bag of the pharynx; its posterior branches go to the superior cervical ganglion of the great sympathetic nerve, to the paravagum, and sternomastoideus muscle: the termination of the trunk enters the skull at the foramen jugulare, and ramifies on the dura mater. The occipital artery is covered at its origin by the digastric muscle; it passes in front of the jugular vein, then gets between the mastoid process and the atlas, under the muscles of the neck. Arriving near the ligamentum nuchæ, it penetrates the complexus muscle, and becomes cutaneous. It sends off branches to the muscles along which it passes, one of which is much larger than

than the rest, descends along the outer side of the complexus, and communicates with the transversalis colli. A branch of the occipital artery enters the skull at the foramen jugulare, and supplies the dura mater of the cerebellum. The trunk of the occipital artery branches over the back of the scalp, being distributed to the occipital portion of the occipito-frontalis, and to the skin. Its branches communicate freely with those of the temporal artery.

The posterior artery of the ear, the smallest branch of the external carotid, is given off higher up than any of the above-mentioned branches. Indeed it does not arise until the trunk has entered the parotid gland. It follows the course of the digastric muscle, ascends behind the external ear, and distributes its branches to the ear and scalp, communicating with the temporal and occipital arteries. It sends off the arteria stylomastoidea, which entering the foramen of that name, supplies the internal ear.

The superficial temporal artery continues its course through the parotid gland; it mounts over the zygomatic arch, and distributes its widely spreading branches over the side of the head.

Branches of the Temporal Artery.

Branches to the parotid gland; one or two small twigs to the front of the ear, called the anterior auricular arteries; a branch to the articulation of the lower jaw; and one or two branches to the masseter muscle. The transverse artery of the face is given off by the temporal, while it is passing through the parotid gland; it emerges from that gland in company with the parotid duct, crosses over the masseter muscle, and advances to the corner of the mouth, communicating with all the arteries of the face. The middle temporal artery, which is to be distinguished from the superficial temporal on the one hand, and the deep-seated temporal on the other, runs under the temporal aponeurosis, and extends as far as the fronto-occipitalis muscle.

After the temporal artery has passed over the zygoma, it divides sooner or later into the anterior and posterior temporal branches; these communicate with each other; the anterior branch communicates also with the frontal and supra-orbital branches of the ophthalmic; the posterior branch communicates with the posterior auricular and occipital arteries.

The internal maxillary artery is much larger than the temporal, and should therefore, if size be adopted as the criterion, be considered as the continuation of the carotid. It passes forwards and downwards between the external pterygoid muscle and the jaw; then following a serpentine course, it arrives at the spheno-maxillary fissure, where it terminates by dividing into three branches.

Branches of the Internal Maxillary Artery.

A small twig entering the tympanum by the fissura Glaseri; another entering the skull at the foramen ovale.

The spinous or middle meningeal artery mounts straight upwards through the spinous hole of the sphenoid bone, and is distributed widely over the dura mater; it causes the deep grooves which impress the inner surface of the parietal bone; it communicates with the posterior meningeal vessels, which come from the vertebral and occipital arteries, and with the anterior ones from the ophthalmic.

The inferior maxillary artery enters the canal of the lower jaw, in company with the nerve of the same name; it sends branches to the teeth and to the substance of the jaws; arriving at the foramen mentale, it divides into two branches; one of these goes forwards to supply the incisor teeth; the other comes out at the foramen mentale, and anastomoses with the artery of the lower lip.

The pterygoid branches are distributed to the pterygoid muscles.

The deep temporal arteries are two in number, and ramify deeply in the temporal muscle.

The artery of the cheek (arteria buccalis) runs along the buccinator muscle, and communicates with the arteries of the face.

The alveolar artery, or artery of the upper jaw, bends round the tubercle of the jaw, and advances towards the face. Its chief branch enters a canal in the upper jaw, and supplies the teeth.

The infra-orbital artery enters and passes through the infra-orbital canal of the superior maxillary bone, and comes out upon the face at the infra-orbital foramen. It is distributed chiefly to the muscles of the face, and communicates with the coronary artery of the upper lip, and its nasal branches; with the transverse artery of the face, and the artery of the cheek.

The superior or descending palatine artery is one of the three branches, into which the internal maxillary divides at the spheno-maxillary fissure; it passes through the pterygo-palatine canal, and comes out at the posterior palatine foramen. After sending a branch backwards to the soft palate, the artery comes forwards under the arch of the teeth. A small branch of it passes by the foramen incisivum into the nose.

The upper pharyngeal artery is sent to the upper and back part of the pharynx.

The nasal artery, which is the continuation of the trunk, goes through the spheno-palatine foramen to the back of the nostrils; there it gives small twigs to the æthmoid and sphenoid cells, and larger branches to the septum and floor of the nostrils and antrum maxillare.

The internal carotid artery pursues a serpentine course along the front of the bodies of the vertebrae, till it arrives at the entrance of the carotid canal. It is connected with the par vagum, and the great sympathetic nerve, and also with the rectus anterior muscle. It follows the course of the canal of the temporal bone, passing first directly upwards, then turning horizontally forwards, and then ascending again in a straight direction, and entering the cavernous sinus. While in this sinus, it passes from the back of the sphenoid bone to the anterior clinoid process, where it suddenly doubles back upon itself, and branches out to the brain.

Branches of the Internal Carotid Artery.

While in the cavernous sinus, it sends off the two arteries of the receptaculum, which are spread upon the neighbouring parts of the dura mater.

Having risen to the anterior clinoid process, it sends off the ophthalmic artery, which enters the orbit with the optic nerve. The artery is situated at first on the outside of the nerve; entering the orbit, it crosses obliquely over the nerve, and arrives at the internal angle of the eye. It sends off the following branches.—The lacrymal artery supplies the lacrymal gland, and sends forward two small branches to the tarsus of the upper and lower eye-lid. The posterior æthmoidal artery passes through the posterior orbital hole to the æthmoid cells. The supra-orbital or superior muscular artery passes along the upper part of the orbit, supplies the levator palpebræ, the rectus superior, and rectus internus oculi, quits the orbit at the superciliary foramen, and communicates with the arteries of the scalp. The central artery of the retina plunges into the optic nerve, runs along its axis, and ramifies beautifully on the retina. One of its branches penetrates the vitreous humor, and is distributed to the crystalline lens. The ciliary arteries do not all come off from the trunk of the ophthalmic, but many are produced by

by its branches. They may be divided into three classes.—The posterior or short ciliary arteries surround the optic nerve; they divide into twenty or thirty branches, which perforate the back of the sclerotica, and are distributed to the choroid. The long ciliary arteries are two in number; they perforate the sclerotica at one third of the distance between the optic nerve and the cornea; arriving at the orbiculus ciliaris, they divide into two branches, which follow the outer circle of the iris, and communicating together, form the zona major of the iris; the branches of this form the zona minor on the inner circumference of the iris. The anterior ciliary arteries penetrate the front of the sclerotica, and contribute to the formation of the zones of the iris. These vessels in the fœtus produce the arteries of the membrana pupillaris. The inferior muscular artery goes to the muscles which are found beneath the globe of the eye; viz. the obliquus minor, the rectus inferior and externus. The anterior ethmoidal artery passes through the anterior orbital hole; and entering the skull, is distributed to the dura mater. The superior and inferior palpebral arteries are destined for the upper and lower eyelids. The trunk, arriving at the inner angle of the eye, splits into two branches: the nasal branch crosses the lacrymal bag, descends along the ala nasi, and communicates with the labial artery. The frontal branch is distributed to the scalp, and communicates with the temporal.

After the carotid has arrived at the anterior clinoid process, it sends off several small branches, some one of which goes to the choroid plexus.

Then it sends off the communicating artery, which meeting and anastomosing with a similar branch of the vertebral, contributes to form the celebrated circle of Willis.

The artery then divides into an interior and a posterior branch.

The anterior branch, or the artery of the corpus callosum, comes forward in the division between the two anterior lobes of the brain. Here it approaches the artery of the opposite side, and has a short but large communication with it just above the junction of the optic nerves. This communication completes the circle of Willis in front. The rest of the trunk passes first upwards, and then turns backward over the corpus callosum, and between the two hemispheres of the brain.

The posterior branch, or artery of the fissura sylvii, runs directly outwards, and enters the fissura Sylvii; its branches supply the middle part of the brain chiefly.

Observation. All the arteries of the brain and cerebellum ramify first upon the pia mater, and then enter the cortical substance of the brain. They do not follow the directions of the convolutions. They are composed of thinner coats than other arteries, whence the blood may be seen even through the coats of the larger arteries.

The subclavian artery ascends behind the head of the clavicle and the insertion of the sterno-cleidomastoideus muscle, towards the scaleni muscles; it passes between the anterior and middle scalenus, and then bends over the first rib into the axilla, where it takes the name of the axillary artery. The outer edge of the scalenus may be considered as the boundary between the subclavian and axillary portions of the vessel.

Branches of the Subclavian Artery.

The internal mammary artery comes off from the front of the subclavian; it passes behind the articulation of the sternum and clavicle, then goes along the middle of the cartilages of the ribs, and terminates on the rectus abdominis by communicating with the epigastric, intercostal, and lumbar arteries. It sends an artery to the thymus; a small branch which accompanies the phrenic nerve; two arteries

to the pericardium; and some small twigs to the anterior mediastinum, and back of the sternum. Other branches come off at the intervals between the cartilages of the ribs, communicate with the intercostal arteries, and then go out to the muscles on the outside of the chest.

The inferior thyroideal artery arises from the upper part of the trunk, where it is covered by the sterno-cleidomastoideus; it divides almost immediately into four branches. 1. The proper thyroid branch bends in a tortuous manner under the carotid artery, till it arrives at the thyroid gland, to which it is distributed communicating with the superior thyroideal artery. This branch sends one or two small twigs down along the trachea. 2. The ascending thyroid branch is a small but constant artery, which passes upwards in front of the transverse processes of the cervical vertebrae, and is distributed to the neighbouring muscles and nerves. 3. The transverse artery of the neck goes along the side of the neck, and is distributed to the trapezius and neighbouring muscles of the scapula. 4. The transverse artery of the shoulder (transversalis scapularis, or scapularis superior) passes along the root of the neck towards the scapula, giving off branches to the neighbouring muscles. The trunk passing through the notch in the superior costa of the scapula, takes the name of the supra-scapular artery; it sends off many branches to the supra-spinatus muscle, then descends under the acromion to the lower part of the scapula, where it communicates very largely and freely with the infra-scapular artery.

Observation. Sometimes the transverse artery of the shoulder is a branch of the superficial cervical artery. Sometimes it comes off as a distinct trunk from the axillary artery, and then the name of supra-scapular is applied to the whole of it. In these cases the fourth branch of the thyroideal is small, and only reaches to the surface of the trapezius, deltoid, &c.

The vertebral, which is an artery of great magnitude, arises from the upper part of the subclavian, behind the inferior cervical ganglion of the great sympathetic nerve: it ascends through the foramina of the transverse processes of the cervical vertebrae, entering at the sixth, fifth, or fourth vertebra. In passing from the second to the first vertebra, it makes a great turn; then it again bends backwards along that groove of the atlas which is destined to receive it. Entering the skull at the foramen magnum, it ascends along the basilar process of the occiput, and under the medulla oblongata to meet the artery of the opposite side at an acute angle; by the union of the two trunks the basilar artery is formed. The vertebral artery, as it passes through the transverse processes, gives off some branches to the spinal marrow. While it is passing through the occipital hole, it sends off the posterior meningeal artery, which supplies the dura mater on the occiput, and extends as far as the sphenoid bone. The inferior artery of the cerebellum arises immediately before, or after the union of the vertebrals; it comes off near the origin of the par vagum, and having distributed several branches to the inferior surface of the cerebellum, terminates in the fourth ventricle. The anterior and posterior spinal arteries are usually given off before the union of the vertebrals. They descend along the front and the back part of the medulla spinalis, and keep up their size almost to the bottom of it by means of frequent communications with branches from without. The basilar artery passes along the middle of the tuberculum annulare to its anterior margin, giving several small branches to its inferior surface. Then it divides into four branches, two for each side of the brain. The superior artery of the cerebellum bends round the crura cerebri, and is distributed to the upper part of the cerebellum; it also gives branches to

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to the crura cerebri, thalami, tubercula quadrigemina, and pineal gland. The deep-seated artery of the brain is separated from the former branch by the nerve of the third pair. Ascending between the cerebellum and posterior lobe of the cerebrum, it sends off the communicating branch, which, meeting and anastomosing with a similar branch of the carotid, completes the circle of Willis. The rest of the artery is distributed to the back of the brain.

The superior intercostal artery goes off from the back of the subclavian, and descends over the heads of the first and second ribs. It gives small twigs to the œsophagus; two branches to the spinal marrow; two others which penetrate to the muscles of the back; and two branches for the first and second intercostal spaces, which communicate with the inferior intercostal arteries.

These four branches are usually given off before the subclavian passes between the scaleni; the two following arise while it is passing, or immediately after it has passed.

The deep-seated cervical artery goes under the muscles of the neck, almost touching the vertebræ. It is entirely distributed to the surrounding muscles, and reaches almost to the occiput.

The superficial cervical artery is hidden under the brachial nerves; its first branches go to those nerves, and to the scaleni muscles; the rest of the trunk goes to the muscles behind the neck, as the splenius, complexus, trapezius, and levator scapulæ.

The artery, having left the scaleni muscles, recedes from the trunk of the body, and assumes the name of axillary; it bends obliquely downwards over the middle of the first and second ribs, and under the clavicle into the axilla. Emerging from under the clavicle, it is covered by the brachial nerves, by the axillary veins and glands; externally it is protected by the pectoral muscles. It is situated in the axilla, between the serratus anticus and subscapularis muscles; at the lower margin of the tendon of the latissimus dorsi, it changes its name for that of the humeral artery.

Branches of the Axillary Artery.

The first or upper thoracic artery arises near the upper margin of the pectoralis minor muscle, behind which it descends; its branches supply the serratus anticus, pectoral, and some of the intercostal muscles.

The long or second thoracic artery, which is sometimes a branch of the posterior circumflex, or infra-scapular arteries, passes also behind the pectoralis minor, as far as the sixth rib. Its branches go to the axillary glands and mammae, also to the serratus, pectoralis minor, and intercostal muscles.

These two thoracic arteries anastomose with the intercostals, and the internal mammary.

The thoracic artery of the shoulder (arteria thoracica humeraria) comes off near the second rib, and penetrating between the pectoralis major and deltoid is distributed chiefly to the former muscle, and the neighbouring integuments.

The deep or fourth thoracic branch (arteria thoracica alaris) supplies the axillary glands, the pectoralis minor, and subscapularis.

Observation. The thoracic arteries are subject to considerable variety in number, size, and distribution.

The infra-scapular, or subscapular artery, which is a very large trunk, comes off near the neck of the scapula. Its first branches go to the subscapularis, to the capsule of the shoulder joint, and to the muscles, which arise from the coracoid process. A very large muscular branch is distributed to the teres major and minor, the serratus, latissimus dorsi, subscapularis, &c. The principal part of the

trunk turns over the inferior costa of the scapula, and ramifies on the dorsum of the bone, supplying the infra-spinatus, and teres minor, and communicating with the suprascapular artery.

The posterior circumflex artery goes off between the teres major and subscapularis; it passes backwards between these, and under the long head of the triceps, and is reflected round the head of the humerus, being connected with the deltoid. Its branches go to the deltoid and other muscles about the scapula, and communicate with the profunda humeri.

The anterior circumflex artery is a much more slender branch; it goes under the biceps and coracobrachialis, and terminates on the deltoid.

The brachial or humeral artery leaving the axilla, pursues its course along the middle of the biceps muscle; it passes over the brachialis internus, and advances gradually towards the front of the arm. In this course the large median nerve lies in front of it. Arriving at the bend of the elbow, it goes under that production which the tendon of the biceps sends off to the fascia of the fore-arm, and is lodged deep in the hollow which is left between the two masses of muscles on the fore-arm, where it divides into the radial and ulnar arteries. The median nerve still remains in front of the artery; the cephalic vein is situated considerably on the outside of the artery; and the median vein crosses over it to join the cephalic.

Branches of the Brachial Artery.

Branches of little consequence go to the teres major, latissimus dorsi, triceps, coracobrachialis, biceps, and nerves of the arm.

The larger deep-seated artery of the shoulder (profunda humeri major or collateralis magna) arises high up in the arm, and is frequently given off by the inferior scapular, or posterior circumflex arteries. It bends backwards between the long and the external head of the triceps, giving many large branches to that muscle, and comes out at the back of the arm, where it divides into two branches; these communicate at the back of the elbow with the radial and ulnar recurrents.

The nutrient artery of the humerus comes off near the insertion of the coracobrachialis, and having distributed branches to the neighbouring muscles, enters the substance of the bone.

The smaller deep-seated branch, or branches, go to the outside of the brachialis internus, supinator radii longus, extensores carpi radiales, &c. and communicate with the recurrents of the fore-arm.

The great anastomosing branch (ramus anastomoticus magnus) comes off from the inside of the trunk, within a short distance of the joint, and proceeds towards the inner condyle; its branches communicate above with the profunda below with the recurrents.

The two last-mentioned branches, with one or two more which descend along the triceps to communicate with the arteries of the fore-arm, are sometimes described under the name of collaterales minores.

The radial artery, which is smaller than the ulnar, seems to be given off as a branch from the ulnar; it passes along the surface of the pronator teres, and then goes on the inside of the supinator longus to the wrist. It bends under the extensor tendons of the thumb, and penetrates the abductor indicis to arrive in the palm of the hand. Here it passes along the heads of the metacarpal bones, and having formed the arcus profundus volæ, communicates on the opposite side of the hand with a large branch of the ulnar.

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Branches of the Radial Artery.

The recurrent branch of the radial artery is reflected towards the outer condyle, between the brachialis internus and the radial extensors of the carpus; there it has numerous communications with the collateral arteries of the arm.

The superficial artery of the palm of the hand is given off just as the trunk begins to turn over the radius; it goes over the abductor pollicis, or through its fibres, to communicate with the ulnar, and thereby complete the superficial arch. This branch varies much in size; sometimes it is very small, and does not reach to the ulnar artery; sometimes it is so large, as to give off the branch to the outside of the thumb; or even to both sides of the thumb.

At the back of the hand, the radial gives off an artery or two to the back of the thumb, another to the back of the fore-finger, and a third to the back of the carpus (dorsalis carpi), which communicates with the interossei, and sends small branches between the metacarpal bones.

After the radial artery has entered the palm of the hand, it sends off the great artery of the thumb, which runs along the side of the first phalanx of the thumb, and then divides into three branches. Two of these are for the two sides of the thumb, and the third for the radial side of the fore-finger. The branches of the deep-seated arch are small, and supply the interossei muscles, and come out at the back of the wrist and hand.

The ulnar artery goes under the pronator teres, flexor carpi radialis, flexor digitorum sublimis, and palmaris longus, and passes within the edge of the flexor carpi ulnaris to the wrist. There it is situated just within the pisiform bone, bends across the palm of the hand, over the flexor tendons, so as to form the superficial arch of the palm of the hand, which is situated under the palmar fascia, and opposite to the middle of the metacarpal bones. It terminates at the opposite side of the palm by communicating with the superficial branch of the radial artery.

Branches of the Ulnar Artery.

The recurrent branch of the ulnar goes under the flexor muscles to the back of the internal condyle, where it communicates freely with the collateral arteries of the arm.

The interosseous artery comes off very soon from the ulnar: it immediately sends a large branch through the interosseous ligament to the back of the fore-arm; this branch gives off the interosseous recurrent, and then passes down the fore-arm to the wrist, supplying the extensor muscles. The trunk of the interosseous artery descends along the ligament to the pronator quadratus; there it perforates the interosseous ligament, and communicates with the other branch of the interosseous artery and with the dorsal branches of the radial and ulnar arteries.

An artery to the back of the hand (dorsalis manus), communicates with the interosseous arteries.

The deep palmar branch goes off just below the pisiform bone; it dips under the flexor tendons, and communicating with the radial artery, completes the deep palmar arch.

The convex part of the superficial arch then produces three large digital arteries, which, passing between the metacarpal bones, and arriving at the root of the fingers, divide each into two branches, which go along the side of the fingers to their very apex, where they communicate.

Observation. The arteries of the fore-arm are subject to great varieties. The brachial sometimes divides long before it arrives at the elbow, even as high as the axilla, in some subjects. Then the course of these arteries is natural in other respects. Sometimes, however, where this high division takes place, the ulnar artery, instead of going under the

muscles, which have been mentioned, goes over them and just under the skin. Sometimes the radial, ulnar, and interosseous arteries proceed straight into the palm of the hand, and are distributed to the fingers without forming any arches at all.

The aorta having formed its arch, passes gradually behind the lungs to the left side of the bodies of the vertebræ. It descends in a straight course along the back of the posterior mediastinum until it arrives at, and passes through, the crura of the diaphragm; this portion of the vessel is termed the thoracic aorta.

Branches of the Thoracic Aorta.

The common bronchial artery comes off high up from the front of the aorta; it divides into two branches, one for either lung.

The right and left bronchial arteries arise lower down: and often there is a fourth or inferior bronchial artery.

These arteries are destined for the nourishment of the substance of the lungs; they supply also the bronchial glands, and the roots of the great vessels, which come off from the heart. They are remarkable on account of their communications with the pulmonary artery.

The œsophageal arteries are about five or six in number: they run upon the surface of the œsophagus, and communicate below with the coronary artery of the stomach.

The lower intercostal arteries are nine or ten in number, according to the number of ribs, which are unsupplied by the intercostal branch of the subclavian artery. They arise from the back of the aorta, and follow the course of the lower or grooved edge of the ribs. The upper ones are the smallest, and ascend somewhat; the lower ones are nearly transverse in their course. The arteries of the right side are longer, as they have to pass over the bodies of the vertebræ. They all give off; 1. a branch which enters into the spinal marrow as the nerves pass out: 2. a larger branch, which goes to the muscles at the back of the spine: 3. an upper branch which, coming off at the angle of the rib, goes along the upper edge of the rib below. The continuation of the trunk communicates with the mammary and thoracic arteries above: with the epigastric and lumbar arteries below.

The aorta, having passed through the crura of the diaphragm, takes the name of the abdominal aorta. It is still situated on the left side of the bodies of the vertebræ; it is separated from the vena cava by the left lobe of the liver and the crus of the diaphragm. It approaches gradually to the middle of the vertebræ, and gets in company with the vena cava, a little above the kidneys. At the last lumbar vertebra, or at the interspace between the fourth and fifth, it divides into the two common iliac arteries.

Branches of the Abdominal Aorta.

The right and left phrenic arteries are the first branches of the abdominal aorta; sometimes they arise from the celiac artery; sometimes a single trunk, either from the aorta or from the celiac, produces both the right and left phrenic arteries: they cross over the crura of the diaphragm, and then bend round the central tendon, sending off branches to the flesh of the diaphragm in all directions: they give branches to the renal capsule and fat of the kidney.

The celiac is a large short trunk, coming off from the front of the aorta, while it is still between the crura of the diaphragm. It is surrounded by the lesser arch of the stomach; beneath it is the pancreas, and on the left side the lobulus Spigelii. After a course of a few lines, it divides into three branches; the coronary artery of the stomach, the hepatic, and the splenic arteries.

The coronary artery of the stomach is the central branch of the celiac; it mounts upwards towards the œsophagus, sends

sends a large branch to the great extremity of the stomach, and then returns along the lesser arch: its branches are distributed over both surfaces of the stomach, and it communicates in the neighbourhood of the pylorus, with the superior pyloric branch of the hepatic: sometimes the coronary artery is much larger than usual; then its trunk passes from the œsophagus to the left lobe of the liver.

The hepatic or right branch of the cœliac comes off behind the pyloric extremity of the stomach; it ascends towards the right, is contained in the left side of Glisson's capsule, and divides under the neck of the gall-bladder into the right and left hepatic arteries, which are distributed to the right and left lobes of the liver; where the coronary stomachic artery is continued to the liver, the hepatic artery only supplies the right lobe. The hepatic artery gives off the following branches. 1. The duodeno-gastric artery, which passes behind the duodenum, gives branches to the pylorus (pylorica inferior), duodenum (duodinales superiores), and pancreas (pancreatica transversa); it is continued under the name of the right gastric, or gastro-epiploic artery, along the greater curvature of the stomach; it gives branches, 1. to both surfaces of the stomach, and communicates by the termination of its trunk with the left gastric artery. 2. The superior pyloric artery is reflected towards the lesser arch of the stomach, and communicates with the coronary stomachic. 3. The cystic, which is generally a branch of the right hepatic, goes along the left side of the gall-bladder, which it supplies.

The splenic artery is the largest branch of the cœliac, in the adult. It pursues a tortuous course along the upper edge of the pancreas, then divides into six or eight branches, which enter the notch of the spleen. As the splenic artery passes along the pancreas, it sends off many short branches to the substance of that gland; also the posterior gastric arteries to the back of the great extremity of the stomach. The artery sends off, after its division, the vasa brevia, which are three or four branches to the great extremity of the stomach, and the left gastro-epiploic artery, which runs along the greater curvature of the stomach, and communicates with the right artery of the same name.

Observation. Both the gastro-epiploic arteries send many small branches to the omentum.

The superior mesenteric artery is the largest branch of the abdominal aorta, and arises a few lines below the cœliac: here it is situated between the pancreas, and the last turn of the duodenum, to both of which it gives branches; then it descends over the duodenum, and is received between the two layers of the mesentery: it bends from the left side of the spine towards the right groin, making a large arch, convex towards the left. From the left or convex side of this arch, are sent off from twelve to twenty arteries, each of which soon after divides into two branches: These communicating with each other form arches, from the convexity of which other branches come off, which divide and recommunicate in a similar manner. This is repeated a third, and when the branches are long, a fourth, and even a fifth time, until the last branches go straight to the intestines, divide and surround them. From the opposite or concave side of the artery are sent only two branches. 1. The middle colic artery passes along the mesocolon to supply the ascending and transverse parts of the colon: the left branch of this has a very large communication with the left colic artery; the right branch communicates with the ileocolic artery. 2. The ileocolic artery goes to the conjunction of the ileum with the cæcum. It sends an ascending branch to communicate with the middle colic artery; and a descending branch, which communicates with the termination of the superior mesenteric trunk.

The renal or emulgent artery arises from the side of the aorta, between the superior and inferior mesenteric arteries. The left renal artery passes over the vein near the kidney; the right renal artery goes under the vena cava, and is covered by its corresponding vein. The artery divides into three or four branches, which enter at the notch of the kidney. The renal artery gives branches to the renal capsules, to the fat of the kidney, and ureter.

The spermatic artery is a long slender vessel, arising from the front of the aorta. On the left side it frequently comes from the renal artery; it pursues a tortuous course, and gets into company with its vein upon the psoas muscle. In men, it goes through the abdominal ring at the back of the chord, and supplies the testes. It sends off branches to the fat of the kidney, and to the ureter.

The spermatic artery of females passes along the ligament of the uterus to the ovary. Its posterior branches supply the ovary; its anterior ones pass on with the Fallopian tube to the uterus, where it communicates with the uterine arteries.

The inferior mesenteric artery comes off low down from the left side of the aorta. It descends a little on the left side of the two bodies of the vertebræ, and sends off the left colic artery. This supplies the descending colon, and by communicating with the middle colic artery forms the famous mesenteric arch. The continuation of the trunk, under the name of the internal hæmorrhoidal artery, goes along the back of the rectum; its branches reach almost to the extremity of that intestine, and communicate with the middle and external hæmorrhoidal arteries.

As the arteries of the renal capsule vary much in size and number, they may be divided into three classes: the upper capsular arteries are branches of the phrenic; the middle ones generally arise from the side of the aorta, between the cœliac and mesenteric arteries; the lower ones are from the renal arteries.

The adipose arteries are those which supply the renal fat; they arise above from the capsular arteries; below from the renal and spermatic arteries, and from the aorta.

The ureteric are also derived from various sources: the upper ones are from the renal and spermatic arteries; the middle from the aorta or common iliac artery; and the lower ones from one of the vesical arteries.

The lumbar arteries are five in number, arising from the back of the aorta, at the intervals of the vertebræ, as the intercostal arteries do in the chest. They supply the muscles in the circumference of the body; they give branches to the spinal marrow, and others which penetrate to the muscles of the back; the last lumbar artery communicates with the ileolumbar artery.

The common iliac artery of the right side passes over the lower part of the vena cava; on the left side, it is situated exteriorly with respect to its vein: it passes obliquely downwards and outwards, and divides over the sacro-iliac symphysis into the internal iliac, or hypogastric, and the external iliac arteries.

The middle sacral artery usually arises from the point of bifurcation of the aorta; it descends along the middle of the sacrum to the coccyx, and communicates on both sides with the lateral sacral arteries.

The internal iliac artery descends immediately into the pelvis. In the adult it is of the same size as the external artery, but in the fœtus it is four or five times larger; and after having descended into the pelvis, becomes attached to the side of the bladder, and rises again to reach the umbilicus, under the name of the hypogastric artery. At this period, the arteries of the pelvis are small branches coming

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coming from the lower or convex part of the hypogastric. Where the artery approaches the bladder in the adult, it is converted into a fibrous substance, which still remains pervious to a certain extent.

Branches of the Internal Iliac Artery.

The ileolumbar artery ascends between the psoas magnus and iliacus internus, towards the crista of the ilium. Its branches are distributed to the neighbouring muscles, and communicate with the last lumbar artery.

The lateral sacral arteries vary in number from one to three, four, or even five. They descend on the side of the sacrum, communicate with the middle sacral artery, and send branches through the sacral holes to the cauda equina.

The vesical arteries are three or four in number, arising from that part of the hypogastric which still remains pervious, as it approaches the bladder. One or more of these, which goes to the bottom of the bladder, and gives branches to the vesiculæ raminales, prostate, &c. in men, to the rectum and vagina in women, is distinguished by the name of the lower vesical artery.

The middle hemorrhoidal artery comes off between the pudendal and gluteal branches, passes along the front of the rectum, and communicates with the external arteries. It sends branches to the bottom of the bladder, &c. in men; and a large one (which sometimes comes off distinctly from the internal iliac) to the vagina in women.

The uterine artery comes off near the former; it sends a branch down to the vagina, then ascends along the side of the uterus, on which it communicates with the spermatic artery.

The obturator artery, which frequently arises from the epigastric, passes along the side of the pelvis, at the upper edge of the obturator internus, accompanied by the nerve and vein of the same name, and goes through the passage which is left for it at the upper part of the thyroid hole. Having quitted the pelvis, it divides into an external and an internal branch, which are distributed to the obturator muscles, to the capsule of the hip, and to the origin of the triceps. They communicate with the internal circumflex branch of the profunda femoris.

The gluteal or posterior iliac artery is the largest branch of the internal iliac. It arises from the back part of the trunk, bends downwards and backwards, and quits the pelvis at the upper margin of the pyriformis muscle. It sends a large branch between the gluteus maximus and medius. Another branch, more deeply seated, goes under the gluteus medius, and sends an artery close to the dorsum of the ilium at the origin of the gluteus minimus.

The ischiatic artery goes out of the pelvis at the lower margin of the pyriform muscle, together with the great ischiatic nerve: it is here covered by the gluteus maximus, and descends towards the thigh: it sends off a coccygeal branch, which turns back between the sacro-ischiatic ligaments towards the coccyx. The other branches of this artery are distributed to the gluteus maximus, and other muscles at the back of the thigh, and are remarkable on account of their numerous communications with the circumflex branches of the profunda.

The pudendal artery goes out of the pelvis in company with the ischiatic: it is smaller, and situated further from the sacrum: it merely passes over the great sacro-ischiatic ligament, and enters the pelvis again at the smaller sacro-ischiatic hole. Then it goes along the inside of the tuberosity and ramus of the ischium. It sometimes sends off small branches before it quits the pelvis to the rectum, prostate, &c. While it is passing over the sacro-ischiatic ligament, and the tuberosity of the ischium, it gives off branches

which communicate with the circumflex arteries; also the external hemorrhoidal arteries to the fat of the perinæum, sphincter ani, &c. which communicate with the middle and internal hemorrhoidal arteries. At the ramus of the ischium the artery divides into, 1. The perinæal artery, which ascends between the accelerator urinæ and erector muscles, and supplies the muscles, skin, and fat of the perinæum. 2. The artery of the penis, which is the continuation of the trunk. At the symphysis of the pubis it divides into, 1. The dorsal artery of the penis, which runs along the back of that organ as far as the glans, the root of which it encircles. 2. The deep-seated artery of the penis, which enters the corpus cavernosum of its own side, into the cells of which it opens, and gives branches to the spongy substance of the urethra. The vessel, which is analogous to the artery of the penis of males, is termed the clitoridea in females. Its distribution to the clitoris is the same as that of the above-mentioned artery is to the penis.

Observation. The branches of the internal iliac artery are constant in their destination, but vary much in the order and manner of their origin.

The external iliac artery passes along the inner edge of the psoas muscle, being situated on the outside of its vein. It is surrounded by the lymphatic vessels, which come up from the lower extremity, and by the glands, through which they pass. It descends under Poupart's ligament, still keeping to the inner edge of the psoas muscle, and there it takes the name of the femoral artery. Here the vein lies close on the inside of it, and the anterior crural nerve is situated on the outside, but at some distance from the artery.

Branches of the External Iliac Artery.

The epigastric artery arises from the inner side of the trunk, near Poupart's ligament; frequently indeed its origin is absolutely below the ligament. It is reflected upwards and inwards behind the spermatic chord; then crossing the upper part of the abdominal ring, it gets behind the rectus muscle, and ascends to the navel. The epigastric artery generally sends a pretty large branch down the spermatic chord, which communicates with the spermatic artery. The other branches of this artery are merely muscular ones: the trunk communicates at the upper part of the rectus abdominis with the internal mammary artery.

The circumflex artery of the ilium arises opposite to the epigastric; it turns back, and runs along the crista ilii, between the attachments of the obliquus internus and transversalis abdominis muscles, as far as the back of the bone, where it communicates with the lumbar and ileolumbar arteries. Its branches are distributed to the neighbouring muscles.

The femoral artery is surrounded below Poupart's ligament by the inguinal glands, and much fat. After a course of an inch and a half or two inches, it divides into two branches of nearly equal magnitude. The branch which continues in the direction of the trunk retains the name of the femoral artery; while the other, which descends amongst the muscles of the thigh, is named the deep-seated artery of the thigh (arteria profunda femoris). The common trunk sends off some trivial branches to the integuments, lymphatic glands, and neighbouring muscles: two or three larger branches supply the skin and fat of the pudenda.

The profunda comes off from the back of the femoral artery: it passes backwards, and descends for a short space, then gets between the heads of the triceps muscle, and sends its branches through that muscle.

Branches of the Profunda.

The external circumflex artery, which is the first branch of the profunda, goes under the sartorius and rectus muscles,

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cles, towards the root of the great trochanter. It sends off in its course numerous branches to the muscles along which it passes. Some of its branches communicate with the internal circumflex and perforating arteries at the back of the thigh. A large branch descends along the inside of the vastus internus to the knee, and communicates with the superior articular, and with the great anastomotic branches.

The internal circumflex artery comes from the opposite part of the trunk. It goes backward to the trochanter minor, and turning round the bone, appears between the quadratus femoris and triceps muscles. Its branches are distributed to the muscles on all sides; they communicate with the obturator, ischiatic, and gluteal arteries.

The two perforating branches of the profunda (the second is the continuation of the trunk) pierce the triceps muscle, to which they give branches, and are distributed to the flexors of the leg. They communicate above with the circumflex arteries, and below with the articular arteries. The inferior perforating branch gives off the great nutritious artery of the thigh-bone.

The femoral artery passes from the front of the thigh gradually towards the inside. It is at first covered by the lymphatic glands, then it goes under the sartorius muscle, and arrives at the tendon of the triceps, through which it penetrates into the ham, and takes the name of the popliteal artery. During this course, the femoral artery sends off small branches to the glands, to the sartorius, rectus, and other muscles. The great anastomosing branch comes off as the trunk enters the tendon of the triceps muscle; it plunges into the substance of the vastus internus, from which it emerges at the knee to communicate with the articular arteries, and also with the descending branch of the external circumflex. Two branches go through the tendon of the triceps to the muscles at the back of the thigh; they are called by Murray the superior and inferior perforating branches of the femoral. They communicate with the perforating branches of the profunda.

The popliteal artery passes from the tendon of the triceps through the middle of that space which is termed the ham, and arrives at the upper extremity of the soleus muscle, where it divides into the anterior and posterior tibial arteries. In this course it lies between the flexor muscles, and almost close to the bone. It descends between the condyles of the thigh-bone and the heads of the gastrocnemius, in contact with the capsule of the knee. It gives off small muscular branches to the flexor muscles, and other larger ones to the gastrocnemius and soleus. The articular branches of the popliteal are five in number: three of them come off above the joint, and are therefore called the superior articular arteries, the middle of these three is distributed to the back of the capsule; the other two bend round the former just above the external and internal condyles. The inferior articular arteries are two in number, one for the inside, the other for the outside of the joint. The four last-mentioned branches arrive in front of the knee, where they form a vascular net-work by their numerous communications with each other, and with the recurrent branch of the anterior tibial, the anastomotic branch of the femoral, and the descending branch of the external circumflex.

The anterior tibial artery comes off at the lower margin of the popliteus muscle, and immediately penetrates the interosseous ligament. It descends in the front of this ligament between the tibialis anticus and the extensor pollicis longus, becoming more and more superficial as it approaches the ankle. It passes under the transverse ligament of the ankle in company with the extensor tendons, then goes between the extensor pollicis longus and the extensor digitorum pedis longus to the root of the first metatarsal bone,

where it plunges into the sole of the foot, and terminates by a large communication with the external plantar artery.

Branches of the Anterior Tibial Artery.

The recurrent branch is given off immediately after the trunk has passed through the interosseous ligament. It goes through the tibialis anticus muscle to the front of the knees, where it communicates with the articular arteries.

Small muscular branches arise throughout the whole course of the artery along the leg.

The external and internal malleolar arteries supply the ankle joint and neighbouring part of the tarsus. The external malleolar artery communicates with both the anterior and posterior branches of the peroneal artery. The tarsal artery goes under the extensor digitorum brevis along the second phalanx of tarsal bones. It gives small branches to the ankle-joint, extensor brevis, &c. It also sends off three arteries, which run along the intervals of the metatarsal bones to the roots of the toes, where they join the digital arteries at the point of bifurcation.

The metatarsal artery runs along the heads of the metatarsal bones, and varies in size according to the magnitude of the tarsal artery. Sometimes it is large, and produces all the branches which have been described as coming from the tarsal artery.

The artery of the back of the great toe comes off just before the anterior tibial descends into the sole of the foot; it runs between the first and second metatarsal bones, and is distributed to the back of the great toe and of the second toe.

The posterior tibial artery is situated under the soleus muscle, and between the flexor communis digitorum and the tibialis posticus. It descends to the lower extremity of the tibia in this situation; then becoming more superficial, it bends behind the inner ankle, and enters the sole of the foot between the abductor pollicis pedis and the concave surface of the os calcis; here it divides into the external and internal plantar arteries.

Branches of the Posterior Tibial Artery.

Large muscular branches to the soleus.

The nutritious artery of the tibia.

The peroneal or fibular artery, which varies much in size, descends between the tibialis posticus and flexor longus pollicis, giving branches to those muscles in its passage to the bottom of the leg, where it divides into an anterior and a posterior branch. The posterior branch descends in the direction of the trunk to the outside of the os calcis, where it communicates with the external plantar and external malleolar arteries. The anterior branch comes through the lower part of the interosseous ligament, and advancing to the ankle, communicates with the external malleolar artery.

Branches throughout the course of this artery to the neighbouring muscles.

Two large branches to the bottom of the os calcis.

The external plantar artery is the largest branch of the posterior tibial; it runs along the inside of the abductor minimi digiti till it reaches the fifth metatarsal bone: there it bends inwards to the first metatarsal bone, where it anastomoses with the tibialis anticus, and forms the plantar arch. This artery sends off many branches to the adjacent muscles, and to the bones of the tarsus. The convexity of the arch gives off four arteries, which pass between the metatarsal bones to the roots of the toes, where each of them divides into two; these are distributed along the sides of the toes. The arch also sends off three or four branches, which penetrate to the back of the foot.

The internal plantar artery keeps along the inside of the foot in the direction of the abductor pollicis; it terminates by

by communicating with those branches of the external planter which supply the great toe.

ARTERY, *wounded*. See ANEURISM.

ARTHA, in *Geography*, a river of South Wales, which runs into the sea about ten miles south of Aberystwith in Cardiganshire.

ARTHEDON, in *Ancient Geography*, an island of Asia Minor, upon the borders of the Troade. Pliny.

ARTHEL, something cast into a court, in Wales, or its marches; whereby the court is letted or discontinued for the time. The casting of arthel is prohibited by 26 Hen. VIII. cap. 6.

Arthel is a British word, more correctly written *Arddelw*, or *Ardbel*, and signifies to *avouch*; as if a man were taken with stolen goods in his hand, he was to be allowed a lawful *arthel*, or voucher, to clear him of the felony. This was part of the law of Howel Dha, according to whose laws, every tenant, holding of any other than the prince, or the lord of the fee, paid a fine "pro defensione regiâ," which was called *arian ardbel*.

ARTHEMIS, in *Zoology*, a genera of worms in the *Mollusca* tribe established by Poli in his work on the shells of the two Sicilies. See VERMES.

ARTHE'S, in *Geography*, a town of France in the department of the Lower Pyrenées, and chief place of a canton in the district of Orthes, five leagues north-west of Pau. The place contains 2078 and the canton 10,278 inhabitants: the territory includes 195 kilometres and 21 communes.

ARTHRITICA, in the *Materia Medica*, medicines suited to cure the diseases of the joints, particularly the gout; but the term is so vague and of so indeterminate a meaning as to be altogether improper.

ARTHRITIS, formed from *ἄρθρον*, *articulus*, *joint*, in *Medicine*, a disease better known under the name of the GOUT.

ARTHROCE, in *Surgery*, is a disease of the joints, or the extremities of bones, more commonly named SPINA VENTOSA, which see. When this disorder affects children, it is called PERDARTHROCE. We do not recollect any author to have distinctly treated of this complaint before Rhazes the Arabian physician, who has entered at large into the consideration of diseased joints.

ARTHRODIA, formed from *ἄρθρον*, *articulus*, and *δέχομαι*, *recipio*, *I receive*, in *Anatomy*, a species of articulation, admitting of a very small degree of motion; as each bone composing the joint must have nearly a plain surface. Such is the articulation of the humerus with the scapula. See ARTICULATION.

ARTHRODYNIA, in *Surgery*, is a chronic rheumatic affection of the joints. This name was first imposed by Dr. Cullen, in his *Synopsis Nosologiæ Methodicæ*. See RHEUMATISM and WHITE SWELLING.

ARTHROPUOSIS, is a suppurating of the joints, or at least a strong tendency to form pus. In this case there is a deep-seated inflammation, obtusely painful, sometimes throbbing, and accompanied with febrile symptoms. The treatment is described under the articles, ABSCESS, SPINA VENTOSA, WHITE SWELLING, INFLAMMATION, and RHEUMATISM.

ARTHROSIS, formed from *ἄρθρον*, *articulus*, in *Anatomy*, a juncture of two bones designed for motion; called also articulation.

ARTHUR, in *Biography and History*, the most remarkable name among the Britons. As a hero and a consummate warrior, he appears illustrious in our history; but as a being of romance, his splendour has dazzled the world. It has been generally inferred that the great achievements of the hero created those illusory actions and scenes de-

picted in the Mabinogion, or Juvenile Tales; and some authors, with such phantoms playing before their eyes, have denied existence to such a person altogether. But that there was a prince of this name, who often led the Britons successfully to battle against the Saxons, in the commencement of the sixth century, there ought not to be any doubts; for he is mentioned by cotemporary writers, whose works are still extant; namely, Llywarc, Merzin, and Taliessin; and he is likewise often recorded in the Triads, which are documents worthy of credit; but neither by these poets, nor in the Triads, is he in any respect exalted to that rank in which the world now beholds his name, or extolled above other princes who held similar stations in the country.

About the year 516, or 517, Arthur was elected by the states of Britain to exercise sovereign authority, as other princes had been chosen, in dangerous times; and he obtained that pre-eminence in consequence of his superior abilities and bravery; being until that time only a chieftain of the Silurian Britons. He continued to present a successful opposition to the increasing power of the Saxons, until a fatal dissension broke out between him and Medrod; a radical evil among the Britons, in consequence of their being divided into many small states; and which, about the year 540, kindled into a civil war; and Medrod joined his power with the Saxons, which ultimately produced the battle of Camlan, equally fatal to the leaders on both sides, and which brought disastrous ruin on the Britons.

Such was the career of Arthur, as exhibited by the bards and the Triads. The hero under the same name in the dramatic tales called Mabinogion, is totally of different features, and in fact is a distinct personage altogether. The last is then a mythological character of times so remote as to be far beyond the scope of history: his attributes in the dramatic tales before mentioned point him out as such. Memorials of this being, and of several others connected with him, have been traditionally preserved in various and very distant parts of the world; and if we mistake not, their memorials are written in the heavens, and some of the constellations bear their names. Arthur is the Great Bear, as the epithet literally implies: and perhaps this constellation being situated so near the north pole, and visibly describing a circle in a small space of the heavens, in the true origin of the famous round table.

By confounding the Arthur of history with that of mythology, the chroniclers of the middle ages have committed a monstrous anachronism; and thus have blended the real feats of the former with the allegorical attributes of the other; and this confusion is still increased by all the succeeding writers of romance.

There are some very extraordinary things related concerning the mythological Arthur, in the Mabinogion, and particularly in the story of the pursuit of Olwen: therein we recognise the Indian Menu, exactly by name, and with similar attributes, acting as one of the agents of Arthur to recover Olwen, the representative of the fecundity of nature.

To the above rational and credible account, for which the editor is indebted to an ingenious writer, it may not be improper to subjoin, for the gratification of the curious reader, some other particulars, transmitted by Geoffrey of Monmouth, and other historians, of more doubtful authenticity.

From them we learn, that Arthur was the son of Uther, the pendragon or dictator of the Britons, by an adulterous connection with Igera, wife of Gorlois duke of Cornwall, favoured by the aid of Merlin's magical skill. Upon the death of Uther, in 516, Arthur, at the age of 15, or, ac-

cording to Buchanan, 18 years, ascended the throne. With a competent army, which his extraordinary fame enabled him speedily to raise, he routed Colgrin, the Saxon duke, and all his forces, consisting of Saxons, Scots, and Picts, who were committing horrid devastations in Britain. Having pursued him to York, he was obliged, in consequence of the succour afforded to Colgrin by Cordic, king of the Saxons, to raise the siege and to march to London. Assisted by a supply of troops, furnished by his nephew, Hoel, king of Armorica or Brittany, he marched to Lincoln, which was besieged by the Saxons, whom he defeated; and he then compelled the survivors to surrender, on condition of being allowed to leave the kingdom. These men, after having embarked, repented, and relanded on the western coast; and proceeding to lay siege to Badon, or Bath, Arthur was obliged to decline his intended pursuit of the Scots and Picts, and to make forced marches for the relief of the city. After a very obstinate and severe engagement which lasted two days, Arthur, having performed extraordinary feats of valour, took their camp, and slew Colgrin, and another of the principal leaders. He then hastily returned to relieve his nephew Hoel, who was invested by the Scots and Picts at Dumbritton in Scotland. Having succeeded in this enterprise, he directed his course to York; where he is said to have established the Christian worship on the ruins of the Pagan, and to have married a lady called Guanhumara, who, under the name of Guenever, became the subject of various metrical romances. Fabulous history reports, that he invaded and subdued Ireland, Iceland, Gothland, and the Orkneys; and having finished these exploits, governed his kingdom for 12 years with undisturbed tranquillity, and very extraordinary splendour. At this time he instituted his famous order of knights of the round table. Having also, as fable relates, conquered Norway and Denmark, invaded France, and taken Paris, and in nine years made himself master of the whole kingdom, the provinces of which he distributed among his domestics, he returned, and held a grand assembly of his tributary kings and nobles at Caerleon in Monmouthshire, where he was solemnly crowned. Whilst he was afterwards pursuing his conquests, and marching for Rome, his nephew, Modred, who in his absence had prevailed on his queen, Guanhumara, to marry him, set up the standard of revolt, and called in to his assistance the Saxons and other barbarians. Arthur hastily returned, and three battles were fought between him and Modred; in the last of which, Arthur though victorious, received so many wounds, that, retiring to the isle of Avalon, he died, A. D. 542, and was buried in that place. "Every nation," says Gibbon (Hist. vol. vi. p. 392), "embraced and adorned the popular romance of Arthur and the knights of the round table; their names were celebrated in Greece and Italy."—At length the light of science and reason was rekindled; the talisman was broken; the visionary fabric melted into air; and by a natural, though unjust reverse of the public opinion, the severity of the present age is inclined to question the *existence* of Arthur." Mr. Whitaker (Hist. Manchester, vol. ii. p. 31–71.) has framed an interesting, and even probable narrative of the wars of Arthur: though it is impossible to allow the reality of the round table. He supposes him to have been the *Arth-uir*, great man, or Sovereign of the Silures, and to have fought under the auspices of Ambrosius, the pendragon of the Britons, who sent him to the relief of the northern Britons, oppressed by the Saxons. After great success in those parts, he fought his twelfth battle in the south of England, after he was elected to the pendragonship, against Cerdic the Saxon. Mr. W. believes in

the reality of his institution of a military order, the origin of all others of a like kind on the continent of Europe. He speaks in high terms of the glories of his reign, at length fatally terminated by the civil wars, which put an end to the hero's life. Biog. Brit.

ARTHUR KULL, or *Newark Bay*, in *Geography*, lies on the coast of New Jersey, in America, and is formed by the union of Passaic and Hackinsack rivers.

ARTIACA, in *Ancient Geography*, a town of Gaul, in the road from Milan to Gessioracum, by the Cottian Alps.

ARTICENA, a country of Asia, which made part of the kingdom of Parthia. Ptolemy.

ARTICHOKE, in *Botany*. See CYNARA.

ARTICHOKE, *Jerusalem*. See HELIANTHUS.

ARTICLE, ARTICULUS, a little part or division of a book, writing, or the like.

ARTICLE is also applied to the several clauses or conditions of a contract, treaty of peace, or the like.

In this sense we say, articles of marriage, articles of capitulation, preliminary articles, &c.

ARTICLES of the clergy, *ARTICULI cleri*, are certain statutes touching persons and causes ecclesiastical, made under Edward II. and III.

The statute made in the reign of Edw. II. A.D. 1316, was made for terminating the disputes between the temporal and spiritual courts, about the limits of their respective jurisdiction. As this statute was procured by the clergy at a time when their assistance was much needed, it was very favourable to their shameful and exorbitant claims of exemption from civil authority. By the last chapter it is granted, that when clerks confess before temporal judges their heinous offences, as theft, robbery, and murder, they cannot be judged or condemned by those temporal judges upon their own confession, without violating the privilege of the church; and that the privilege of the church being demanded in due form by the ordinary shall not be denied. This statute was actually pleaded, and admitted in favour of a bishop of Hereford, A.D. 1324, under accusation of high treason. The statute *de clero*, 25 Edw. III. ft. 3. c. 4. provided, that clerks convicted for treasons or felonies touching other persons than the king himself, or his royal majesty, should have the privilege of holy church.

ARTICLE of faith is by some defined a point of Christian doctrine, which we are obliged to believe, as having been revealed by God himself, and allowed and established as such by the church.

The thirty-nine articles of the church of England were founded, for the most part, upon a body of articles compiled and published in the reign of Edward VI.

The articles of king Edward were 42 in number, and framed by archbishop Cranmer and bishop Ridley; and after having been submitted to the correction and amendment of the other bishops and learned divines, they were reviewed by the archbishop, and then presented to the council, where they received the royal sanction. These articles, though not brought into parliament, nor agreed upon in convocation, as the title seems to express, and as they ought to have been, were announced as "Articles agreed upon by the bishops, and other learned men in the convocation held at London in the year 1552, for the avoiding diversity of opinions, and establishing consent touching true religion." In the reign of queen Elizabeth, they were reviewed by the convocation, and the 42 articles were reduced to the present 39; the following articles were omitted: viz. Art. 39. "The resurrection of the dead is not passed already." Art. 40. "The souls of men deceased do neither perish with their bodies, nor sleep idly." Art. 41. "Of the Millea-

Millenarians." Art. 42. "All men not to be saved at last." Some of the other articles underwent a new division, two being joined into one, and in other parts one is divided into two; but without any remarkable variation of doctrine. It has been a subject of dispute, whether the first clause of the 20th article, viz. "The church has power to decree rites and ceremonies, and authority in controversies of faith," was a part of the article which passed the synod, and was afterwards confirmed by parliament in 1571. It is certain it did not make a part of king Edward's articles, nor is it in the original MS. of the articles subscribed by both houses of convocation with their own hands, and preserved in Bennet college library. The dispute, however, is of little consequence to the present subscribers, as this clause made a part of the article confirmed by parliament in 1562. These articles, having passed the convocation, Jan. 31, 1562, were subscribed immediately by most of the members of both houses of convocation; but they did not pass into a law, and become a part of the establishment, till nine years after this time. In the year 1571, an act was passed, confirming all the doctrinal articles agreed upon in the synod of 1562; and enjoining subscription on all persons ordained to be deacons or priests, and on all who held any ecclesiastical livings, as well as licensed lecturers and curates. 13 Eliz. c. 12. It has been said (Neal's Hist. Puritans, vol. i. p. 179, 4to.), that this act established only the doctrinal articles; those, as they are expressed, "which only concern the confession of the true faith, and the doctrine of the sacraments;" and, therefore, that the articles of the church, which relate to its discipline, were not designed to be the terms of ministerial conformity. These articles were ratified by parliament at the restoration of Charles II., in 1662; and subscription to them enjoined on the heads of colleges, chancellors, officials, and commissaries, and also on schoolmasters, 13 and 14 Car. II. c. 4.

By 1 W. & M. st. 1. c. 18. commonly called the toleration act, dissenting teachers are to subscribe all these articles except the 34th, 35th, and 36th, and part of the 20th; and in the case of anabaptists, except also part of the 27th; or, if they scruple subscribing the same, they shall make and subscribe the declaration prescribed by stat. 19 Geo. III. c. 44. professing themselves to be Christians and protestants, and that they believe the Scriptures to contain the revealed will of God, and to be the rule of doctrine and practice; otherwise they are exempted from the benefits of the act of toleration. Dissenting schoolmasters are excused from subscription to the articles by the same act. See TOLERATION.

Concerning these articles, very different opinions have been entertained by those who subscribe them; and they have also differed in their sentiments and views with regard to the nature and extent of subscription. Some have interpreted them more laxly, and others more rigidly; and they have not been agreed as to the strictness or latitude with which they may be subscribed. For the reasons that have been urged in favour of subscription, and against it, and the manner in which it has been interpreted and understood, see SUBSCRIPTION.

ARTICLES, *Lambeth*, were nine articles on the subject of predestination, perseverance, and the limitation of saving grace, drawn up by archbishop Whitgift and other learned divines, subscribed by them, and enjoined on the students of the university of Cambridge, in consequence of a complaint occasioned by a debate in that university, which commenced with a sermon of a Mr. Barret, who attacked the believers of predestination with great fervor. The primate, in his letter to the university, represents them not

as new decrees, but as an explication of certain points, "corresponding to the doctrine professed by the church of England, and already established by the laws of the land." But as they had not the queen's sanction, who, however, is said to have been fully persuaded of their truth, he desired that they might not become a "public act," but used privately and with discretion.

ARTICLES, *Statute of the six, or bloody statute*, was an act for abolishing diversity of opinion in certain articles concerning the Christian religion; 31 Hen. VIII. c. 14. By this law, the doctrine of the real presence, the communion in one kind, the perpetual obligation of vows of chastity, the utility of private masses, the celibacy of the clergy, and the necessity of auricular confession, were established. The denial of the first article subjected the person to death by fire, and to the same forfeiture as in cases of treason; and admitted not the privilege of abjuring; a severity unknown to the inquisition itself. The denial of any other of the five articles, even though recanted, was punishable by the forfeiture of goods and chattels, and imprisonment during the king's pleasure; an obstinate adherence to error, or a relapse, was judged to be felony, and punishable with death. The marriage of priests was subjected to the same punishment; their commerce with women was, on the first offence, forfeiture and imprisonment, on the second, death. The abstaining from confession, and from receiving the eucharist at the accustomed times, subjected the person to fine and imprisonment during the king's pleasure; and if the criminal persisted after conviction, he was punished by death and forfeiture, as in cases of felony. The rigour of these articles was somewhat abated by the 35th Hen. VIII. c. 5. in consequence of the interference of Cranmer. By this statute persons were not to be convicted but upon the oaths of 12 men; the prosecution was required to be within a year; and a person who preached against them, was to be informed against within 40 days. Nevertheless several were burnt at this time for denying the doctrine of transubstantiation. Upon the accession of Edw. VI. the statute of the six articles was repealed.

ARTICLES of War, in *Military Language*, denote certain regulations for the better government of the army in the kingdoms of Great Britain and Ireland, dominions beyond the seas, and foreign parts dependent upon Great Britain. These may be altered and enlarged at the king's pleasure. In certain cases they extend to those that are not military persons; as when, by proclamation, any place is put under martial law, or when people follow any camp or army for the sale of merchandize, or serve in any menial capacity. It is ordained, that the articles of war shall be read in the circle of each regiment belonging to the British army every month, or more frequently if the commanding officer thinks proper. A recruit or soldier is not liable to be tried by a military tribunal, unless it can be proved that the articles of war have been duly read to him.

ARTICLES of the Navy, are certain express rules and orders directing the method of ordering seamen in the royal fleet, and keeping up a regular discipline; first enacted by the authority of parliament soon after the restoration, stat. 13 Car. II. st. 1. c. 9. but since new modelled and altered by stat. 22 Geo. II. c. 23. amended by 19 Geo. III. c. 17. In these articles of the navy almost every possible offence is set down, and the punishment thereof annexed; in which respect the seamen have much the advantage over their brethren in the land service; whose articles of war are not enacted by parliament, but framed from time to time at the pleasure of the crown. Judge Blackstone suggests, that this distinction proceeded from the perpetual establishment

of the navy, which rendered a permanent law for their regulation expedient, and the temporary duration of the army, which subsisted only from year to year, and might therefore with less danger be subjected to discretionary government. He adds, "whatever was apprehended at the formation of the MUTINY *Act*, the regular renewal of our standing force at the entrance of every year, has made this distinction idle. For if from experience past we may judge of future events, the army is now lastingly engrafted into the British Constitution, with this singularly fortunate circumstance, that any branch of the legislature may annually put an end to its legal existence, by refusing to concur in its continuance." *Bl. Com.* vol. i. p. 420.

ARTICLES, *Lords of*, in *Scots History*, a committee of ancient institution in the Scottish parliament, existing as far back as records enable us to trace the constitution of parliaments in Scotland. It was their business to prepare, and to digest all matters which were to be laid before the parliament; every motion for a new law was first made there, and approved or rejected by them at pleasure; what they approved of was formed into a bill, and presented to parliament; what they rejected could not be introduced into the house. The lords of articles, then, not only directed the whole proceedings of parliament, but possessed a negative before debate. The committee was chosen and constituted in such a manner as put this valuable privilege entirely in the king's hands. It is extremely probable, that the king once had the sole right of nominating the lords of articles. They were afterwards elected by the parliament, and consisted of an equal number out of each estate; and most commonly of 8 temporal and 8 spiritual lords, of 8 representatives of boroughs, and of the 8 great officers of the crown. Capable either of influencing their election, or of gaining them when elected, the king commonly found them no less obsequious to his will, than his own privy council; and by means of his authority with them, he could put a negative upon his parliament before debate as well as after it. James VI. in order the more effectually to preserve his influence over the lords of articles, obtained an act appointing four persons to be named out of each estate, who should meet twenty days before the commencement of parliament, to receive all supplications, &c. and rejecting what they thought frivolous, should engross in a book what they thought worthy the attention of the lords of articles. This select body would of course be appointed by the king. In 1633, when Charles I. was beginning to introduce those innovations which gave so much offence to the nation, he dreaded the opposition of his parliament, and in order to prevent it, used an artifice for securing in favour of the crown the lords of articles. The temporal peers were appointed to choose 8 bishops, and the bishops 8 peers; these 16 met together, and elected 8 knights of the shire, and 8 burghesses, and to these the crown officers were added as usual. In this way all the lords of articles would be the tools and creatures of the king. This practice, so inconsistent with liberty, was abolished during the civil war, and the statute of James VI. was repealed. After the restoration parliaments became more servile than ever; and what was only a temporary device in the reign of Charles I. was soon converted into a standing law. Upon the accession of king William III. this practice was abolished, with many other oppressive and despotical powers, which had rendered our nobles abject slaves to the crown, while they were allowed to be tyrants over the people. *Robertson's Hist. of Scotland*, vol. i. p. 83.

ARTICLE, *articulus*, in *Anatomy*, denotes a joint or juncture of two or more bones of the body.

ARTICLE of *Death*, *articulus mortis*, the last pangs or agony of a dying person. The pope usually sends his benediction to the cardinals, &c. *in articulo mortis*.

ARTICLE, in *Arithmetic*, signifies the number 10, or any number justly divisible into ten parts; as 20, 30, 40, &c. — These are sometimes called decades, and sometimes round numbers.

ARTICLE, in *Grammar*, denotes a particle used in most languages for the declining of nouns, and denoting the several cases and genders thereof.

The use of articles arises chiefly hence, that in languages which have no different terminations to express the different states and circumstances of nouns, there is something required to supply that office.

The Latins have no articles; but the Greeks, and most of the modern languages, have had recourse to them for fixing and ascertaining the vague signification of common and appellative names.

The Greeks have their *ὁ*, the eastern tongues their *le emphaticum*, from which, perhaps, the Greek article was derived, unless we derive the Greek *ὁ*, *η*, *το* from the relative *οὗτος*, or both, by a kind of contraction very common in words much used, from the demonstrative *ἐκεῖνος*. The Spaniards and the Italians have their *il*, *lo*, and *la*, which appear to be the Latin *ille*. The French their *le*, *la*, and *les*, seemingly derived from either the Spanish or Italian. The Germans their *der*, *das*, *dat*. The English have also two articles, *a* and *the*; which being prefixed to substantives, apply their general signification to some particular things. See letter A.

Some grammarians make the article a distinct part of speech; others will have it a pronoun; and others a noun adjective. See *SPEECH*, and *PRONOUN*.

Articles, in the distribution of the ingenious Mr. Harris, belong to the species of words which he denominates definitives; because, being associated with a noun, they serve to define, determine, or ascertain any particular object, so as to distinguish it from others of the class to which it belongs, and, of course, to denote its individuality. Although there be a near relation between pronouns and articles, and it may be sometimes doubted concerning particular words to which class they ought to be referred, yet they may be commonly distinguished by this rule; the genuine pronoun always stands by itself, assuming the power of a noun, and supplying its place; whereas the genuine article never stands by itself, but appears at all times associated to something else, requiring a noun for its support, as much as attributives or adjectives. Mr. Harris distributes articles into these strictly and properly so called, and the pronominal articles, such as *this*, *that*, *any*, &c. The reason and use of the former he illustrates in the following manner. When a certain object occurs, with which as an individual we are unacquainted, we refer it to its proper species, and call it *dog*, *horse*, *lion*, or the like. If none of these names suit it, we refer it to the genus, and call it *animal*. But the object which we are contemplating, is perhaps neither a species nor a genus, but an individual. Of what kind? *known* or *unknown*? seen now for the first time, or seen before, and now remembered? In this case we shall discover the use of the two articles *a* and *the*. *A* respects our primary perception, and denotes individuals as *unknown*. When an object passes by which I never saw before, I say, "There goes a beggar with a long beard." When the same man returns at some future time, I say: "There goes the beggar with the long beard." The article only is changed, the rest remains unaltered. The individual once vague, is now recognised as something known, and that merely by the efficacy of this

this latter article, which tacitly insinuates a kind of *previous* acquaintance, by referring the present perception to a like perception already past. The articles *a* and *the* are both of them definitives, as they circumscribe the latitude of genus and species, by reducing them for the most part to denote individuals; with this difference, that the article *a* leaves the *individual itself unascertained*, whilst the article *the* *ascertains the individual also*; and on that account is the more accurate definitive of the two. Hence the former article *a*, being applied to objects or names taken in their more vague and general signification, is called *indefinite*; and accordingly some have derived it by contraction, from *any*; whereas the article *the* is called *definite*, because it appropriates or fixes the sense of the word to which it is prefixed to one individual thing.

Besides, the article *a*, as it separates one individual from the class to which it belongs, cannot be applied to plurals; but the article *the*, specifying or defining objects distinct from others of the same class, is alike applicable to both numbers. To this rule, however, there is an exception, as in the use of the adjectives *few* and *many*, which, though joined with plural substantives, yet admit of the article *a*, as *a few* men and *a great many* men. Mr. Lindley Murray (Grammar, p. 31.) observes, after Lowth Eng. Gram. p. 34. that the reason of this is manifest; from the effect which the article has in these phrases, it means a small or great number collectively taken, and therefore gives the idea of a whole, that is, of unity.—Thus likewise, a dozen, a score, a hundred, a thousand, is, one whole number, or an aggregate of many collectively taken; and therefore still retains the article *a*, though joined as an adjective to a plural substantive. The indefinite article is much more limited in its use than the definite: and therefore the Greek and Hebrew languages have it not, though they both have the definite article. The Greek δ corresponds precisely to our *the*: as δ βασιλεὺς, the king, το δῶρον, the gift; however they differ in this respect, that the Greek article admits of variation adapted to number and gender, whereas the English *the* is invariable. It has been already observed, that the article has no meaning but when it is associated to some other word; and the words to which it may be annexed are those which, though indefinite, are yet capable by means of the articles of becoming definite. Upon this principle it is absurd to say O Ego , the I, or O Tu , the thou, because nothing can make those pronouns more definite than they are. The same is true of proper names. By the same rule we cannot say in Greek Οι Αμφότεροι , or the both, because these words are in their own nature perfectly defined; hence the numeral *two*, when it is indefinite, is found to assume the article whenever it would become definite: thus the *two* in English, and $\alpha\iota \Delta\upsilon\omicron$ in Greek, mean nearly the same thing as *both*, or Αμφότεροι . As some words admit of no article, because they are by nature as definite as may be, there are others that do not admit it, because they are not to be defined at all: of this sort are all interrogatives. Upon the whole, the natural associates with articles are all those common appellatives which denote the several genera and species of beings. The definite article *the* is frequently applied to adverbs in the comparative and superlative degree, and its effect is to mark the degree more strongly, and to define it the more precisely; as “*the* more I examine it, *the* better I like it.”—“I like this *the* least of any.” Besides the articles already enumerated, which are articles strictly so called, there are the *pronominal articles*, such as *this*, *that*, *any*, *other*, *some*, *all*, *no*, or *none*, &c. which may be sometimes taken as pronouns, and sometimes as articles; but if it be the essence of an article to define and ascertain, they are much more properly articles than any thing else. See PRONOUN. Harris's Hermes, p. 214, &c.

Articles are of great service in a language, as they contribute to the more neat and precise expressing of several properties and relations, which must otherwise be lost. Without articles, or some equivalent invention, men could not employ nouns to any of the purposes of life, or indeed communicate their thoughts at all. And hence one great disadvantage of the Latin above other languages which have articles, is, that the article being either expressed, or left out, makes an alteration in the sense, which the Latins cannot distinguish. Thus, when the devil said to our Saviour, “*fi tu es Filius Dei*,” it may either be understood, “if thou art a Son of God, or, “if thou art *the* Son of God.”—Scaliger, from the want of articles in the Latin, has concluded them useless, and bestowed upon them opprobrious language, calling the article, “*otiosum loquacissimæ gentis instrumentum*,” and the abbé Girard has degraded them to the humble station of “*avant-coureurs*,” merely to announce the approach or entrance of a noun. Mr. Horne Tooke, “*Diversions of Purley*,” has vindicated the honour of the article, and endeavoured to restore it to its primitive dignity. For this purpose he recurs to the reasonings of Mr. Locke, on the use and importance of general terms; and he observes, that it is the business of the article to reduce the generality of terms, and, upon occasion, to enable us to employ general terms for particulars. If in combination with a general term, it is a substitute, yet it is a necessary substitute, which (he adds) is more than can be said of ABBREVIATIONS that have been advanced into distinct parts of speech, for they are not essential to the communication of our thoughts. The Italians even prefix articles to proper names, which do not naturally need any, because they of themselves signify things individually.—Thus they say, *il Ariosto, il Tasso, il Petrarca*.—Even the French join the article to the proper names of kingdoms, provinces, &c. as *la Suede, la Normandie*.—And we likewise annex it to the names of certain mountains and rivers; as the *Rhine, the Danube, the Alps*, &c.

Fa. Buffier distinguishes a third kind of articles in French, which he calls *intermediate* or *partitive*, serving to denote part of the thing expressed by the substantives they are added to: as, “*des scavants ont cru*,” “some learned men have supposed,” &c.; I want “*de la lumiere*,” “some light,” &c. The use and distinction of the definite and indefinite articles *le* or *la*, and *de* or *du*, make one of the greatest difficulties in the French tongue, as being utterly arbitrary, and only to be acquired by practice.—We may add, that in the English, though the articles be so few, yet they are of such frequent use, that they easily discover any stranger from a natural Englishman.

ARTICULARIS, in *Medicine*, an epithet applied to a disease which more immediately infects the articuli, or joints. The morbus articularis is the same with the Greek $\alpha\rho\theta\rho\iota\varsigma$, and our gout.

ARTICULATE Sounds are those which express the letters, syllables, &c. of any alphabet or language.

Brutes cannot form articulate sounds, or they cannot articulate the sounds of their voice; excepting some few birds, as the parrot, pye, raven, starling, &c.

ARTICULATED Libel, *libellus articulatus*, that wherein the parts of a fact are set forth to the judge in short distinct articles. This amounts to much the same with what is otherwise called *libellus positiionalis*.

ARTICULATED Leaf. See LEAF.

ARTICULATED Radius, in *Natural History*. See RADIUS Articulatus.

ARTICULATION, $\alpha\rho\theta\rho\omega\iota\varsigma$, in *Anatomy*, the juncture or connection of two bones. Articulation is technically divided into diarthrosis, or moveable articulation: synarthrosis,

or immoveable; and amphiarthrosis, which is defined to be a compound of both the others. The immoveable connection of bones is said to be by Symphysis, Harmonia, Suture, Gomphosis, Scindelefsis, Synchondrosis, Syneurosis or Syndesmosis, and Syssarcosis; for the explanation of which we refer to the separate articles. The moveable articulations, which alone appear to deserve that term, are divided into Enarthrosis, Ginglymus, and Arthrodia. When the spherical head of one bone is received into a corresponding cavity of another, a joint is formed, which admits of motion in every direction; this is Enarthrosis, which is called in English a ball and socket joint, and of which the hip joint is a good specimen. When the articular surface of one bone has a middle groove with lateral eminences, and the corresponding bone has a middle ridge with lateral depressions, a joint is formed which admits of motion backwards and forwards only, like a hinge; this is called ginglymus, and the elbow joint, as far as the ulna is concerned in its formation, or the second and third joints of the fingers and toes, exemplify this mechanism. Mr. Winslow divides ginglymus into the angular ginglymus, or that joint by which the first vertebra turns round upon the second; and he applies the same term to distinguish the articular connections of bones at different parts, as happens between the radius and ulna in the forearm. When two bones forming a joint are applied together by nearly plain surfaces, they may glide a little upon one another, but no extent of motion can take place. This is called arthrodia; and the junction of the collar-bone to the acromion, and the metacarpal bones to the bones of the carpus, may be mentioned as specimens of this kind of articulation.

ARTICULATION, in *Botany*, denotes the connection of parts that consist of joints or knees, such as the pods of French honey-suckles, which, when ripe, divide into as many parts as there are knees or joints, and which usually send forth branches.

ARTICULATION, in a *general sense*, is that form or character which the voice acquires, by means of the mouth and its several organs, the teeth, the tongue, the lips, &c. The voice by articulation is not made more loud or soft, which are its primary qualities, but it acquires, in addition to these characters, certain others, which may co-exist with them. The simplest of these new characters are those acquired through the mere openings of the mouth, as these openings differ in giving the voice a passage, and from the various configurations of these openings proceed VOWELS. There are other articulate forms which the mouth makes, not by mere openings, but by different contacts of its several parts; such, e.g. as it makes by the junction of the two lips, of the tongue with the teeth, of the tongue with the palate, and the like. These contacts are preceded or immediately followed by some opening of the mouth; and the articulations so produced are called CONSONANTS. There are other subordinate distinctions of these primary articulations, which are denoted in the language of grammarians, by the name of ELEMENT; because articulations of every other kind are derived from them and resolved into them. Under their smallest combination, they produce a SYLLABLE; syllables properly combined produce a WORD; words duly combined produce a SENTENCE; and sentences properly combined produce an ORATION or DISCOURSE. Thus it is, says Mr. Harris (*Hermes*, p. 324.), that to principles apparently so trivial as about twenty plain elementary sounds, we owe that variety of articulate voices which have been sufficient to explain the sentiments of so innumerable a multitude as all the present and past generations of men. See Dr. Hutton's paper on the subject of articulation, in *Edinb. Transf.* vol. ii. p. 7. See also CONSONANTS.

ARTICULATION, in a more *confined sense*, is a branch of Elocution; and in this sense, a good articulation consists in giving every letter in a syllable its due proportion of sound, according to the most approved custom of pronouncing it; and in making such a distinction between the syllables of which words are composed, that the ear shall, without difficulty, acknowledge their number, and perceive at once to which syllable each letter belongs. Where these points are not observed, the articulation is proportionably defective. Exactness in founding the words rightly, corresponds to propriety in spelling; and the articulation should be so clear and distinct, that the hearer may with ease keep pace with the speaker. Among the Greeks and Romans, who paid particular attention to speaking, and regularly taught it, the smallest error in pronouncing was equally disgraceful in them, as false speaking is with us. A good articulation is the foundation of a good delivery, in the same manner as the founding of the simple notes in music with exactness, is the foundation of good singing. As for the grosser faults of articulation, such as fluttering, hesitation, liping, and inability to pronounce certain letters, they can never be cured by mere precept, but require the constant aid of a person skilled in the causes of those faults, who by teaching each individual how to use the organs of speech rightly, and by shewing him the proper position of the tongue, lips, &c. may gradually bring him to a just articulation. Demosthenes, it is said, when he first spoke in public, could not pronounce the first letter of his art, "Rhetoric;" but by indefatigable pains he overcame the difficulty, and supplied this deficiency in his eloquence, even after he had arrived at the age of manhood. The first and most essential point in articulation is distinctness, and its opposite is the greatest fault. The chief source of indistinctness is too great precipitancy of speech. To this hasty delivery, which drops some letters, and pronounces others too faintly; which runs syllables into each other, and clusters words together, is owing that thick, mumbling, cluttering utterance, of which examples are too frequent. Demosthenes had this fault; and this, it is not improbable, was the impediment or defect of speech, which he remedied by exercising himself in declaiming with pebbles in his mouth. For curing any imperfections in speech arising originally from too quick an utterance, the most effectual method will be to employ an hour every morning in reading aloud, in a manner much slower than is necessary; let a friend or some person attend, whose business it shall be to remind the reader, if he should quicken his pace and recur to his old habit of rapid utterance. Those words should be marked which are passed over most hastily, and they should be repeatedly pronounced every morning slowly and distinctly. As in our language, words of more syllables than one have one syllable accented, and peculiarly distinguished from the rest, either by a smart percussion of the voice, or by dwelling longer upon it, the other syllables are often negligently articulated. In order to bring those, whose utterance is so rapid, to a due medium, they should accustom themselves to pronounce the unaccented syllables more fully, and to dwell longer upon them. See Sheridan's *Lectures on Elocution*, p. 19—29.

ARTICULATION, in reference to *Grammar*, is that part of it which treats first of sounds and letters, then of their combinations, for the composing of syllables and words. Hence he who pronounces his words clearly and distinctly, is said to pronounce them *articulately*.

ARTICULATION, in *Vocal Music*. This word, which belongs to every kind of elocution, as well as music, is too familiar to be called technical. Yet, as it is extremely important, and much neglected, it shall furnish an article.

Mr. Fra-

M. Framery (Encycl. Meth.) says, that "in France, it has for some time past been imagined, that the Italians, particularly the women, scarcely ever *articulate* their words in singing; they even suppose inarticulation favourable to the melody; that it is even necessary to connect and smooth the sounds; and that in an art where all the consonants of a language are sacrificed that the vowels only may be heard, melody is rendered more sweet and enchanting by this means."

This does not indeed seem to have been an idea which the English have cherished, systematically; for the *Banti*, in her recitative, is admired even by those who are totally ignorant of the Italian language, for the firm, pointed, clear, and *articulate* manner in which she pronounces the words. Yet our own vocal performers are so deficient in this particular, that it is difficult to discover in what language they are singing.

It is not merely the softness of the Italian language, which renders it so much fitter for song than any other that is known; but the neatness and energy of articulation of the inhabitants of Italy, in speaking it. The number of nasal sounds in the French, of gutturals in the German, and of harsh terminations of our words by consonants, obstruct sound and respiration. (See a list of these in the Essay on the Euphony of Languages, Hist. Mus. vol. iv.) In Dryden's sublime Ode for Music on St. Cecilia's day, the letter *d* predominates, terminating, in the course of the poem, no less than three and thirty lines. The letter *t*, like a gag at the end of a word, not only stops all sound, but respiration. A clear and distinct articulation, without harshness, is perhaps difficult in all languages; but there is a degree of distinctness possible, without injuring the melody, even in our harsh language, which Mrs. Sheridan possessed, and for which Mr. Incedon is justly admired, that conveys both sense and sound uninjured to the ears of an audience. We wish our public singers, who have merit of other kinds, would take this circumstance into consideration in the course of their studies: as *the not understanding the words* in our theatres and concerts, however the voice and manner of singing may be approved, is a general complaint.

The Italians carry articulation, perhaps, to the extreme, by not only pronouncing all the consonants in their several words, according to the genius of their language, which has no nasal or guttural sounds, but even adding a kind of mute *e* at the end of words, terminated by contraction with a consonant; as thus, in singing

La pace del mio cor —
Voglio vederti almen —
Mi fanno delirar —

They pronounce the last syllable as if it were written *cor-è, almen-è, delirar-è*. But they will tell you, that these words originally end with a vowel; as *cor* at full length is *cuore*; *almen*, *almeno*; and the infinitive mood of the last word, *delirar*, is *delirare*; and that it is for the sake of euphony that they soften the termination of contracted words by a mute *e*.

For the articulation of notes in the performance of instrumental music, see STACCATO and SCIOLTO.

ARTICULATION, *diseases of the*, in Surgery. See JOINTS.

ARTIER, in Geography, a river of France, in the late province of Auvergne, which runs into the Allier.

ARTIFICERS, those who work with the hands, and manufacture any kind of commodity in iron, brass, wood, &c.

Artificers are the same with what we otherwise call handicrafts and mechanics: such are smiths, carpenters, tailors, shoemakers, weavers, and the like.

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The Roman artificers had their peculiar temples, where they assembled, and chose their own patron, to defend their causes: they were exempted from all personal services. Tarruntius Paternus reckons thirty-two species of artificers, and Constantine thirty-five, who enjoyed this privilege. The artificers were incorporated into divers colleges or companies, each of which had their tutelary gods, to whom they offered their worship; and several of these, when they quitted their profession, hung up their tools, a votive offering to their gods. Artificers were held a degree below merchants, and *argentarii*, or money-changers, and their employment more sordid. Some deny, that in the earliest ages of the Roman state, artificers were ranked in the number of citizens; others, who assert their citizenship, allow that they were held in contempt, as being unfit for war, and so poor that they could scarce pay any taxes. For which reason they were not entered among the citizens, in the censor's books; the design of the census being only to see what number of persons were yearly fit to bear arms, and to pay taxes towards the support of the state. It may be added that much of the business of artificers was done by slaves and foreigners, who left little for the Romans to mind but their husbandry and war. Dion. Hal. lib. ii. By means of the arts, the minds of men are engaged in inventions beneficial to the community; and thus prove the grand preservative against the barbarism and brutality which ever attend on an indolent and inactive stupidity.

By the English laws, a stranger being an artificer in London, &c. shall not keep above two stranger servants; but he may have as many English servants and apprentices as he can get. 21 Hen. VIII. c. 16. And as to artificers in wool, iron, steel, brass, or other metal, &c. persons contracting with them to go out of the kingdom into any foreign country, are to be imprisoned three months, and fined in a sum not exceeding one hundred pounds. And such as going abroad, and not returning on warning given by our ambassadors, &c. shall be disabled from holding lands by descent or devise, from receiving any legacy, &c. and be deemed aliens. Stat. 5 Geo. I. c. 27. By 23 Geo. II. c. 13. § 1. penalty of 500*l.*, and of imprisonment for twelve months, for the first offence; and for the second, of 1000*l.* and of imprisonment for two years, is also inflicted on persons seducing artificers to go abroad. By 14 Geo. III. c. 71: 15 Geo. III. c. 5. and 21 Geo. III. c. 37. heavy penalties are inflicted on masters of ships assisting in such seduction. See MANUFACTURERS.

Ramazini has a treatise on the diseases of artificers.

ARTIFICER *by fire*, a denomination sometimes given to chemists and workers in metal.

ARTIFICIAL, something made by art; not produced naturally, or in the common course of things.

ARTIFICIAL is also frequently used for *fallacious*. Thus we have artificial sal ammoniac, artificial borax, &c.

ARTIFICIAL fireworks are compositions of inflammable materials; chiefly used on solemn occasions, by way of rejoicing.

ARTIFICIAL Grasses, in Agriculture, are such grasses as are introduced into field husbandry, and cultivated either for the purpose of being made into hay, or for being fed off by cattle. Clover, lucerne, saintfoin, trefoil, rye-grass, and some others are of this nature. See these different heads.

The cultivation of artificial grasses has been practised in some districts of the kingdom for more than a century, while in others it has only been attended to within these few years, and there are still others that have but just begun to introduce these kinds of grasses. Wherever they have, however, been properly cultivated, so various and so manifest have been

found the advantages arising from them, that they form a very lucrative branch of husbandry, and are consequently grown in abundance in many parts of the kingdom. Those which, according to the author of the Synopsis of Husbandry, are most usually propagated and found to bring the most considerable profit to the farmer, are saintfoin or cinquefoil, clover, trefoil, hop-clover or non-such, and lucerne. One or other of these different species of grass may indeed be beneficially cultivated on almost every soil; as where the poverty of the ground will not admit of sowing either lucerne or clover, saintfoin or trefoil, from their requiring a less depth of mould, may turn out a weighty crop. Saintfoin, clover, and trefoil, are indeed now so universally raised from seed of English growth, that they have become in a manner naturalized to the soil, there being scarcely any country in Europe where larger crops are grown than in this. Lucerne, though it be sometimes reserved for seed here, is most successfully raised from seeds of foreign growth. In respect to burnet, spurry, and timothy grass, which are by some considered as artificial grasses, although their virtues have been highly celebrated by many, they have, perhaps, but seldom, it is observed, been found to answer in the cultivation in any degree equal to the sanguine commendations bestowed on them.

It is judiciously remarked by Mr. Kent, in the Agricultural Survey of Norfolk, that artificial grasses should always be chosen agreeably to the soil. Saintfoin should, says he, be introduced where there is a chalky, marly, or even a gritty bottom. White clover should be the principal grass, where land is designed to be laid for a continuance. Trefoil and burnet upon high and poor uplands, designed for sheep-walks. Perennial dandel, or what the farmers call rye-grass, is, he thinks, proper upon light arable land, for though it is an exhauster, it serves better than any other to brace the surface. A few acres of lucerne he likewise recommends to every farmer who has a piece of loamy tillage, and near his house.

And in the survey of the County of Somerset it is remarked, that on the stone-brash and free-stone-grit soils saintfoin takes the lead; and that though the seed is very expensive, the quantity and quality of its produce, together with its durability, make an ample return of profit, particularly if sown when the land is clean. Next to saintfoin, rye-grass, marl-grass, and white Dutch clover, are in deserved repute, when the land is intended to remain some years in grass; but when it is intended to be ploughed again in the course of a year or two, broad clover is preferred to all other artificial grasses. It is remarked, however, in the able Survey of Northumberland, that there few of the artificial grasses are ever grown alone, except red clover, when intended to continue only one year, and even then a small portion of rye-grass, as from one to three gallons per acre, are generally sown with it; and the writers suppose, with much propriety, as it not only comes early in the spring, but thickens the crop and facilitates making the clover into hay. When the land is intended to continue for three or more years in grass, they are generally mixed in the proportion of eight or ten pounds of red clover, four pounds of white clover, and half a bushel of rye-grass seed per acre; to the above quantities are sometimes, it is observed, added three or four pounds of rib-grass and hopmedick, as the soil suits. See GRASS.

ARTIFICIAL Lightning. See ELECTRICITY, and LIGHTNING.

ARTIFICIAL Lines on a sector or scale, are certain lines so contrived, as to represent the logarithmic sines and tangents; which, by the help of the line of numbers, will

solve all questions in *trigonometry, navigation, &c.* pretty exactly.

ARTIFICIAL Magnets. See MAGNETS.

ARTIFICIAL Music, that which is composed according to the rules of art. There is no natural music but the warbling of birds, which is confined to the melody of the aviary, of which the tones are too high, and the intervals too minute for our appreciation. Rigorously speaking, all music is a work of art, particularly instrumental, in which the instrument itself is an artful contrivance for imitating vocal tones, and the hand of the performer must be guided by art. But the artifices of composition and performance are innumerable. In composition, fugues, canons, double counterpoint, ingenious and elaborate accompaniments, are included in artificial music; and in the performance upon instruments, the artifices of bowing on the violin, fingering on keyed instruments, double tonguing on the German flute, &c. are only known and taught by great masters. The generating musical tones from glasses and other substances, not included in the three expedients for producing sounds by instruments, which the ancients as well as the moderns have confined to three several species, as strings, pipes, and percussion, is doubly entitled to the epithet artificial. The harmonies of a single string on the *Æolian* harp, have, perhaps, a better claim to the title of natural music, than any other sounds produced without human assistance.

ARTIFICIAL Pastures, in *Agriculture*, such pasture grounds as have been cultivated and sown down with plants of the artificial grass kind, or such others as are capable of affording a large proportion of green food for the feeding of cattle and other animals. See PASTURE.

ARTIGIS, in *Ancient Geography*, a town of Spain, in the country of the Turduli, supposed to be the present *Alabama*, between Grenada and the sea.

ARTIGNI, ANTHONY GACHET, in *Biography*, a writer of literary history, was born at Vienna, and became censor of the archiepiscopal church of that city. His work, intitled, "*Memoires d'Histoire de Critique et de la Littérature*," published in seven volumes 12mo. at Paris in 1749, manifests considerable talents for literary research and criticism. He died at Vienna in 1769. *Nouv. Dict. Histor.*

ARTIK-ABAD, in *Geography*, a town or district of Asiatic Turkey, in the government of Siwas, between the town of Siwas and that of Tocat or Tokai; abounding with grain and fruit.

ARTILLERY is originally a French word signifying *archery*. In a general sense, it denotes the offensive apparatus of war, particularly of the middle kind; and in modern acceptation, is more immediately applied to fire-arms mounted on carriages, and ready for action, with their balls, bombs, grenades, &c. In a more extensive meaning, the term includes the powder, matches, utensils of ordnance, the machines which facilitate their motion and transport them, the vehicles over which they traverse rivers, every thing necessary to them, and all that enters into the form of a train of artillery. The same word, still farther extended in its meaning, likewise comprehends the men destined for the service of the artillery, the people who provide the artillery with materials and implements when engaged, the cannoniers, the bombardiers, the officers of every rank, and engineers of every kind. By artillery is likewise understood the science which the officers of artillery ought to possess. See ENGINEERING.

In the most ancient times, when war was made with quickness and impetuosity, the use of artillery was unknown. Something like military engines seem hinted at in the book of Deuteronomy (chap. xx. v. 20.); but the earliest

liest precise mention of artillery is in the second book of Chronicles (chap. xxvi. v. 15.), where we are told, that Uzziah, who began his reign 809 years before the Christian æra, "made in Jerusalem engines invented by cunning men, to be upon the towers and upon the bulwarks, to shoot arrows and great stones withal." This also is particularly mentioned by Josephus, who represents Uzziah's care of Jerusalem as toward the end of his reign.

The Greeks, who were desirous of appropriating to themselves every improvement of science they gathered from the East, would fain have been believed the inventors of artillery. But so far from being in possession of artillery, they had not in their early times, if we may judge from Homer's writings, one military engine that was calculated to shake a wall. The earliest instance in profane history is probably to be sought for in the siege of Mitya, about 370 years before Christ, where Dionysius, having battered the fortifications with his rams, advanced to the walls towers rolled upon wheels, whence he galled the besieged with continual volleys of arrows and stones thrown from his catapults. (Anc. Univ. Hist. vol. vi. p. 401.) The next memorable instance that occurs is the siege of Rhodes by Demetrius Poliorcetes, where even Grecian ingenuity was exhausted in the invention and improvement of artillery. (Diod. Siculus, l. xx.) Another instance of notoriety occurs when Hannibal besieged Saguntum, 219 years before the Christian æra; and the Saguntines hindered his soldiers from using the battering-ram, by an incessant hurling of darts, stones, and other missile weapons. See the account in Livy (l. xxi. c. 7. edit. Freinsh.), who has also supplied us (l. xxvi. c. 46, 47.) with a curious inventory of the warlike engines which Scipio, eight years afterwards, found among the stores of Carthage. There were no less than an hundred and twenty catapults of the larger size, two hundred and eighty-one of the smaller; of the greater balistæ twenty-three, of the lesser fifty-two; beside an innumerable quantity of scorpions of different sizes, arms, and missile weapons. Two years, however, previous to this, Marcellus had laid siege to Syracuse, a city proverbially fatal to the armies that attacked it. Archimedes was at that time resident in Syracuse; and at the earnest solicitation of Hiero, king of Sicily, exerted the powers of his mind in the invention of artillery and other warlike engines. Marcellus had brought with him an amazing engine called *sambuca*, upon eight galleys; which the mathematician destroyed by discharging single stones of enormous weight upon it, while it was at a considerable distance from the walls. The chief instruments he used were balistæ, a sort of crow lowered by a lever, which hoisting the ships of the Romans by the prow, plunged them to the bottom of the sea; grapples; and scorpions. Archimedes, however, left no account of these military engines in writing; because he considered all attention to mechanics as mean and sordid, placing his whole delight in those intellectual speculations which, without any relation to the necessities of life, have an intrinsic excellence arising from truth and demonstration only; and reckoning such inventions but among the amusements of geometry. See the life of Marcellus in Plutarch.

To multiply the enumeration of ancient sieges where artillery was used, would not only be tedious but endless. Every siege, it is probable, gave rise to some invention or improvement. Tacitus indeed mentions an extraordinary instance (Hist. l. iii. c. 23. 29.) of an engine with which the fifteenth legion fought against the troops of Vespasian, at Cremona. It was a balistæ of an enormous size, which the Vitellians played off with dreadful execution; and dis-

charged massy stones of weight to crush whole ranks at once. Inevitable ruin, we are told, must have followed, if two soldiers had not signalized themselves by a brave exploit. Covering themselves with the shields of the enemy, which they found among the slain, they advanced undiscovered to the battering engine, and cut the ropes and springs. At last, after a vigorous assault from Antonius, the Vitellians being no longer able to sustain the shock, and enraged at their disappointment, in a fit of despair, rolled down their battering-engine on the heads of the besiegers. Numbers were crushed by the fall of such a prodigious mass. It happened, however, that the machine drew after it a neighbouring tower, the parapet and part of the wall affording the besiegers an easier access to the city. The continued use of these enormous engines must be remembered by every reader of history; as well as that the Romans had regular batteries both of balistæ and catapults.

The credit of introducing artillery into our own country must undoubtedly be given to the Normans, whom William of Malmesbury describes (l. iii. p. 57. col. 2.) as having a peculiar delight in war, and assures us, that they excelled in all the arts of attacking their enemies, when their forces were sufficient. The Normans first introduced among our castles the keep, placed upon a mount, whence they annoyed the surrounding enemy with their darts, stones, and other offensive weapons. (Strutt's Manners and Customs of the English, vol. i. p. 93.) Their method of attacking castles seems generally to have been by mere force; blockade was little practised; and the iron ram, which the Romans found so serviceable, was rendered in a great measure useless by the deep ditches which surrounded their fortifications. The principal machines which the Normans employed, were of course of the projectile kind; and they were not only used in regular sieges, but occasionally so contrived as to be used on ship-board. See Matt. Paris, p. 1091.

Machines for throwing stones occur so early as in the battle of Hattings (Will. Pictaviens. p. 201.); and Robert de Brunne, in his wars against the Saracens, informs us, that when Richard the First set out against the Holy Land, he had in his barges and galleys mills turned by the wind which by force of the sails threw fire and stones.

The benefit which the English manners derived from the crusades, is a topic on which we shall have other opportunities of enlarging; but the accessions to the knowledge of our ancestors in the art of war were singularly conspicuous. From the Saracens they obtained a sort of wild-fire of so subtle a composition, that there was no method of extinguishing it but by smothering it with heaps of dust or vinegar. It was by this device that the Black Prince set fire to Remorentine; and it was often thrown in pots from the catapulta.

The Greek and Roman writers afford us many instances of the superior force which the catapults and balistæ of the ancients could occasionally display; nor are parallel instances wanting in the annals of Britain. Camden informs us, that with the mangonels, trebuches, and bricolles, our forefathers used to cast forth mill-stones: and Holinshed (p. 539.) relates, that when Edward the First besieged Strively castle, he caused certain engines of wood to be raised against it, which shot off stones of two and three hundred weight.

The catalogue of projectile machines in the eleventh and twelfth centuries, exclusive of the balistæ, catapulta, onager, and scorpion, were the mangonel, the trebuchet, the petrary, the robinet, the mategriffon, the bricolle, the bugle or bible, the espringal, the matafunda, the ribaudequin, engine a verge, and the war-wolf (Grose Milit. Hist. vol. i. p. 381.).

whose form, construction, and particular history, will be described under their respective articles. Singular, however, as it may seem, not only the form of these curious instruments, but even the method of using them, is entirely lost. And so defective have our historians been in this particular, that after all the strict examinations that have been made, little more of some of them can be collected than their names.

The connection between the modern and the old artillery need hardly be prefaced by recapitulating the discovery of gunpowder. For some time after that singular composition was applied to military purposes, the machines and pieces of ordnance were very ponderous and unwieldy, and of course unfit for expeditious service. Military people at that time possessed but a small share of learning of any kind, and almost none at all of a mechanical or mathematical nature. What they did in their profession was entirely the effect of practice. The form of their artillery, as well as of the warlike engines and instruments for conducting it, was only such as the most obvious hints suggested, or the rudest and most uncultivated invention dictated. Their first pieces were not only clumsy and unmanageable, but as they succeeded to the machines of the ancients, they were employed like them in throwing stones of a prodigious weight, and therefore were necessarily of an huge and enormous bore, consisting usually of pieces of iron fitted together lengthways, and hooped with iron rings. Some of them were so large that they could not be fired above four or five times a day. Such were those with which Mahomet II. battered the walls of Constantinople in 1453, being some of them of the calibre of no less than twelve hundred pounds; and Guicciardin, in the first book of his History, informs us, that so large a portion of time interfered between the different chargings and dischargings of one of those pieces, that the besieged had sufficient time to repair at their leisure the breaches made in their walls by the shock of such enormous stones. (See Glennie's Hist. of Gunnery, p. 1.)

After such a relation we cannot be surprised to find that not only the moveable towers, but catapults of various descriptions, were retained in use. The extreme awkwardness visible in the construction of cannon, and the great cost of gunpowder, added to the difficulty of procuring it, account for the preference which was still given to the old engines for discharging stones. Henry V. in the fourth year of his reign, employed the tripget, which shews that cannon had not then superseded the old artillery. (Strutt's Manners and Customs, vol. ii. p. 32.)

Under Henry III. of France, the use and practice of artillery was not advanced beyond its infancy. D'Etrees, who occupied the post of master-general of the ordnance, in 1558, at the siege of Calais by Francis duke of Guise, and who eminently contributed to its capture, was the first person among the French who made any considerable progress in the construction of batteries. Anterior to D'Etrees, continual accidents took place from the bursting of cannon; and it was customary to cool them with vinegar, in order to prevent misfortunes. Armies were then but slenderly provided with artillery, which was considered as more requisite for sieges, than indispensable for the operations of the field. (See Wrexall's Hist. of France, vol. ii. p. 249, 250.) In England, however, the science of artillery had occupied attention at a more early period; and lord Herbert observes, that in 1544, king Henry VIII. had himself invented small pieces of artillery to defend his waggons.

The length and diameter of cannon were by degrees much diminished, and of course their weight; and practice and experience in time discovered how much might be re-

duced with propriety from their magnitude, without hurting the grand effects which it was necessary on some occasions they should produce. See CANNON, GUNNERY, and PROJECTILES.

Dr. Smith observes (Wealth of Nations, vol. iii. p. 70.), that the great change introduced into the art of war by the invention of fire-arms, has enhanced still farther both the expence of exercising and disciplining any particular number of soldiers in time of peace, and that of employing them in time of war. Both their arms and their ammunition have become more expensive. A musquet is a more expensive machine than a javelin or a bow and arrows; a cannon or a mortar, than a balista or a catapulta. The powder which is spent in a moderate review is lost irrecoverably, and occasions a very considerable expence. The javelins and arrows which were thrown or shot in an ancient one, could easily be picked up again, and were besides of very little value. The cannon and the mortar are not only much dearer, but much heavier machines than the balista or catapulta, and require a greater expence, not only to prepare them for the field, but to carry them to it. As the superiority of the modern artillery too, over that of the ancients, is very great, it has become much more difficult, and consequently much more expensive to fortify a town so as to resist even for a few weeks the attack of that superior artillery. In modern times, many different causes contribute to render the defence of society more expensive. The unavoidable effects of the natural progress of improvement have, in this respect, been a good deal enhanced by a great revolution in the art of war, to which a mere accident, the invention of gunpowder, seems to have given occasion.

ARTILLERY-Park, the place in the rear of both lines in the army for encamping the artillery, which is drawn up in lines, of which one is formed by the guns; the ammunition waggons make two or three lines, sixty paces behind the guns, and thirty distant from one another; the pontoons and tumbrils make the last line. The whole is surrounded with a rope, which forms the park; the gunners and matrosses encamp on the flanks; and the bombardiers, pontoon-men, and artificers, in the rear. Of late, when an army has been upon the point of engaging, or in expectation of an action, the artillery has been encamped in two parks, upon both flanks.

ARTILLERY, Trail, or Train of, a certain number of pieces of ordnance mounted on carriages, with all their furniture, fit for marching.

ARTILLERY Company, the, had its origin about 1585, when London being wearied with continual mutters, a number of its gallant citizens who had served abroad with credit, voluntarily exercised themselves, and trained others to the ready use of war. The ground they used was at the north-east extremity of the city, nigh Bishopsgate, and had before been occupied by the "fraternity of artillery," or gunners of the Tower. Within two years there were near three hundred merchants and others sufficiently skilled to train common soldiers; and in 1588, some of them had commissions in the camp at Tilbury; but their association soon after fell to decay. (Ellis's History of Shoreditch, p. 341.) From the company's register, the only book they saved in the civil wars, it appears that the association was revived in 1611, by warrant from the privy council; and the volunteers soon amounted to six thousand. Three years after this they made a general muster, when according to contemporary authority, the men were better armed than disciplined. (See Niccoll's London Artillerie, p. 104.) In 1622 they erected an armoury, towards

towards which the chamber of London gave above 300 *l.*; it was furnished with five hundred sets of arms of extraordinary beauty, which were all lost in the civil wars. Their captain, during a part of those affrighted times, was a Mr. Manby, who irrecoverably detained, for his own purposes, the arms, plate, money, books, and other goods of the company. The protector was in vain solicited to enforce their being restored. (Ellis's Hist. of Shored. p. 349.) In 1640 they quitted their old field of discipline, and entered upon a plot of ground in Bunhill-fields, leased to them by the city.

This company, at present, forms a regular battalion of infantry, consisting of a grenadier, light infantry, and bat divisions; together with the matros division for the use of two field pieces, presented in the year 1780, by the city. There is also kept up a division of archers; archery being the art cultivated by the company in days when the bow was an instrument of war. The command of the battalion is vested in officers who are annually elected. This municipal corps is authorized and privileged by many royal patents and warrants; and particularly by one of his present majesty, under the royal sign manual, wherein his royal highness the prince of Wales is declared captain-general. It consists of gentlemen of character and property, bound by a solemn declaration and obligation of attachment and fidelity to the king and constitution, and of readiness to join in supporting the civil authority, and defending the metropolis. It is regulated by a court of assistants, consisting of a president, vice-president, treasurer, the field officers; the lord mayor, aldermen, and sheriffs for the time being, and twenty-four elective members. (See the company's address to the inhabitants of London.)

ARTILLERY is also used for what we otherwise call *pyrotechnia*, or the art of fire-works, with the instruments and apparatus belonging to it.

ARTINGAL, in *Geography*, one of the PELEW Islands in the Pacific ocean.

ARTIS, in *Ancient Geography*, a place of Asia Minor, in Ionia.

ARTISAN. See ARTIST, and also ARTIFICERS, and MANUFACTURERS.

ARTISIGA, in *Ancient Geography*, a village of Africa, in Mauritania-Cæsariensis, situate on the sea-coast north-west of the mouth of the river Malva, about 27 miles west of Siga.

ARTISCUS, in *Medicine*, from *αἶσος*, bread, denotes a *troche*, but more particularly that prepared of viper's flesh, mixed up with bread, to be used in the composition of Venice treacle. These are more particularly called *artifici theriaci*, or *theriacal troches*. They were formerly in great vogue, and brought with much parade from Venice; but Zwelfer discovered their vanity; since which time viper's powder has been generally substituted for them, in the preparation of the treacle.

ARTISON, in *Natural History*, a common name among the French for various kinds of insects that injure furniture, skins, stuffs, &c. such as the Dermestes, Mites, &c.

ARTIST, in a general sense, a person skilled in some art; or, according to Mr. Harris's definition, a person possessing an habitual power of becoming the cause of some effect, according to a system of various and well-approved precepts. In this sense, we say, an excellent, a curious artist. The pre-eminence is disputed between ancient and modern artists, especially as to what relates to sculpture, painting, and the like. At Vicenza, we are told of a privilege granted to artists, like that of clergy in England; in virtue of this, criminals adjudged to death save their lives, if they can

prove themselves the most excellent and consummate workmen in any useful art. This benefit is allowed them *in favorem artis*, for the first offence, except for some particular crimes, of which coining is one. The exception is just, since here the greater the artist, the more dangerous the person. Evelyn's Disc. of Medals; ch. vii. p. 237, &c.

Artists are persons who practise those arts which must necessarily be combined with a considerable degree of science, distinguishing them from such as are properly artificers or mechanics. Artists are particularly those who study and effect what are termed the polite arts, *i.e.* painting, sculpture, and architecture, to which may be added engraving. An account of the most eminent artists, ancient and modern, will be found in this work alphabetically arranged, to which our readers are referred. It appears that all civilized nations in every age have produced artists, and that with a degree of excellence generally answerable to their civilization and opulence. In every nation where the arts have flourished, the artists have made but rude essays, and by degrees they have been nurtured up to excellence, except in such instances where they have been transplanted, as from Greece to Rome. It is universally acknowledged respecting statuary and architecture, that ancient Greece has produced the best artists in the world; their works which have escaped the ravages of time are the standing monuments of their fame, and are still considered as the models of perfection; there is however an uncertainty whether their painters were equally skilled with their statuaries. With some reason, many judicious persons have supposed they were not, while others contend, that so much excellence produced in one branch, must have contemporary artists who would excel in the other also. While we cannot doubt of the genius of the Grecian artists, and of their ability to produce works of excellence, yet it may not be allowed that this argument will be found to be so conclusive as it may at first appear, since Chinese and Indian models are found in a more perfect state than either their drawings or paintings. Sir Joshua Reynolds has given a hint upon this subject in his notes to Mr. Mason's translation of Du Fresnoy, which may be consulted upon one side of the question; and Mr. Webb, on the other, will not fail to interest any reader who may be inclined to believe in favour of ancient painters. When the Goths overran Italy, the arts were destroyed; and, with Grecian architecture, painting, and sculpture, lay in one common grave forgotten, until they revived under some artists in the twelfth and thirteenth centuries, who ought not to be named as artists, but for the succeeding effects to which their efforts prepared the way, and in a short time after produced Michael Angelo, Raphael, Corregio, Titian, Algardi, Bernini, &c. painters, sculptors, and architects, to whose works the living artists are almost as much indebted as these illustrious characters were to the ancient monuments they dug from the ruins of old Rome. While painters continued to pursue their wretchedly dry and barbarously Gothic method of design, prior to these enlightened artists, even then, the bronze gates of the baptistery of the church at Florence were produced; upon a sight of which, M. Angelo cried out with emotion when he saw them, that they deserved to be the gates of paradise! Casts of these gates may be seen in the Royal Academy in London. This we notice to justify a remark which we have made, that painting does not always accompany with equal steps the efforts of sculpture.

An Englishman will observe with pleasure the progress which has lately been made, and is still making under the protection of our gracious sovereign, in this once barren land, by artists in painting, sculpture, and architecture.

ARTIST, *artista*, in an academical sense, denotes a philosopher or proficient in the faculty of arts. See ARTS.

ARTIST is more peculiarly understood of a chemist or alchymist. In which sense it is that Paracelsus and other adepts use the word.

ARTIZOOS, from *αἰσ*, *short*, and *ζωή*, *life*, is used by some ancient physicians for an infant short-lived, by reason of a difficult birth, whereby he was long detained in the passage from the womb.

ARTOARTA, in *Ancient Geography*, a town of India on this side of the Ganges. Ptolemy.

ARTOBRIGA, a town of Vindelicia, mentioned by Ptolemy, and supposed by some to be Altburch in Bavaria on the Danube, below Ingolstadt; but by Cluverius, to be Labenau, on the Saltzbach, below Lauffen, in the archbishopric of Saltzburgh.

ARTOCARPUS, in *Botany*, bread-fruit tree (from *αἶρος* and *καρπος*). Linn. gen. Schr. 1393. Supp. 61. Forst. gen. 51. Juss. 402. *Sitodium Soland.* Gært. t. 71, 72. *Radermachia Thunb.* Nov. Gen. 24. Class, *Monocotyledon monandria*. Nat. Ord. of *Urtica*. Juss. Gen. Char. * Male flowers, *Cal.* none; ament cylindrical, all covered with florets. *Cor.* to each two petals, oblong, concave, blunt, villose. *Stam.* filament single, within each corolla, filiform, the length of the corolla; anther oblong. * Female flowers, on the same tree. *Cal.* and *Cor.* none. *Pist.* germs very many, connected into a globe, hexangular; style to each, filiform; stigma single or two, capillary, revolute. *Per.* fruit ovate, globular, compound, mucate. *Seed* for each germ solitary, oblong, covered with a pulpy aril, placed on an ovate receptacle.

Ess. Gen. Char. Male, ament, calyx none. *Cor.* two-petalled. Female. *Cal.* and *Cor.* none; style one; berries one-seeded, connected, and forming a roundish mucate fruit.

Species, 1. *A. incisa*, bread fruit tree. Forst. Escul. Anst. 23. *Sitodium incisum*. Thunb. Phil. Trans. v. lxi. p. 465. *Radermachia incisa*. Thunb. Act. Holm. vol. xxxvi. p. 250. Le Rima, ou fruit à pain. Sonnerat Voy. 99. t. 57—60. See also the voyages of Dampier, Anson, Hawkw. Cook, King's Narr. Ellis Monogr.

α *Fructu apyreno. fruit without seeds.*

β *Fructu semifero, with seeds in the fruit.*

Leaves gashed. Forster, whose description of this tree appears to be more complete than that of any other writer, says it is the thickness of a man, and upwards of forty feet high; the trunk is upright, the wood soft, smooth, and yellowish, the inner bark white, composed of a net of stiffish fibres, the outer bark smooth, but full of chinks, pale ash-colour, with small tubercles thinly scattered over it. Wherever the tree is wounded, it pours out a glutinous milky liquor. The branches form an ample almost globular head; the lower ones, which are the longest, spring from the trunk ten or twelve feet above the ground, spreading almost horizontally, scattered, and in a sort of whorl; twigs ascending, bearing flowers and fruit at their ends. Leaves alternate, petioled, ovate, deeply divided above the middle into seven or nine lanceolate acute lobes, with rounded sinuses; they are otherwise quite entire, smooth on both sides, even, spreading, bright green, paler underneath, membranaceous, a foot and a half in length, eleven inches wide, veined, having a thick nerve to each lobe, diverging from the common rachis. The younger leaves, like all the more tender parts of the tree, are glutinous to the touch; petioles roundish, even, ascending, two inches in length; stipules in pairs, involving the younger leaves, lanceolate, acuminate, concave, entire, smooth within, hairy on the outside, deciduous, three inches long; peduncles at the ends of the twigs, and in the

axils of the upper leaves, solitary, round, upright, having a few hairs, and two inches in length. The male flowers are among the upper leaves; and the female flowers at the ends of the twigs. The male ament is club-shaped, fleshy, upright, a span long, covered with innumerable small, sessile florets. The proper perianth is very small, two-valved; valves equal, oblong, blunt, concave, closely adhering, shut, yellowish-brown. These have no spathes. The female flowers have bivalve spathes, ovate-lanceolate, compressed, acuminate, upright, bent at the tip, soft, a span in length, at first closed, then deciduous, placed at the end of the peduncle; spadix globular, covered with many connate germs, these are obconical, immersed in the receptacle, somewhat convex at the top; styles scarcely any; stigmas projecting points, withering; in some varieties these are bifid, according to Thunberg. The fruit is a globular berry, smoothish, marked with hexagons on the surface, pale green, often nine inches in length, filled with a white, farinaceous, somewhat fibrous pulp, which, when the fruit is ripe, becomes juicy and yellow; it is fastened to a club-shaped, fleshy receptacle, which is longitudinally fibrous, and a hand in length.

In captain Cook's voyage it is observed, that the bread-fruit tree is about the size of a middling oak; its leaves are frequently a foot and a half long, oblong, deeply sinuated like those of the fig-tree, which they resemble in consistence and colour, and in exuding a milky juice when broken. The fruit is the size and shape of a child's head, and the surface is reticulated not much unlike a truffle; it is covered with a thin skin, and has a core about as big as the handle of a small knife; the eatable part lies between the skin and core; it is as white as snow, and of the consistence of new bread. It must be roasted before it is eaten, being first divided into three or four parts; its taste is insipid, with a slight sweetness, somewhat resembling that of the crumb of wheaten bread mixed with Jerusalem artichoke. The fruit not being in season all the year, there is a method of supplying this defect, by reducing it to four paste called *mahie*; and besides this, cocoa-nuts, bananas, plantains, and a great variety of other fruits, come in aid of it.

This tree not only supplies food, but also clothing, for the bark is stripped off the suckers, and formed into a kind of cloth. To procure the fruit for food costs the Otaheiteans no trouble or labour but climbing a tree; which though it should not indeed shoot up spontaneously, yet, as captain Cook observes, "if a man plant ten trees in his life-time, he will as completely fulfil his duty to his own and future generations, as the native of our less temperate climate can do by ploughing in the cold winter, and reaping in the summer's heat, as often as these seasons return; even after he has procured bread for his present household, he should convert a surplus into money, and lay it up for his children. But where the trees are once introduced in a favourable soil and climate, so far from being obliged to renew them by planting, it seems probable that the inhabitants will rather be under the necessity of preventing their progress; for young trees spring abundantly from the roots of the old ones, which run along near the surface. Accordingly they never plant the bread-fruit tree at Otaheite." The bread-fruit is distinguished into that which is destitute of seeds, and that in which seeds are found. The natives of Otaheite reckon at least eight varieties of trees which produce the former. The most common of these is named *uru* or *coroo*, bearing a globular, smooth, even fruit. The *maira* has an oval, smooth fruit, with the leaves more deeply cut. The *patea* has a fruit oblong and rough, with a scaly appearance. The *tatarra* has an oval fruit, with mammillary germs, mucated by the permanent style.—Probably, by extending the culture

culture to distant countries, the varieties may be still farther increased. The parts of fructification in those trees which bear fruit without stones, are said to be defective, as the ament never expands, and the styles are also deficient. In the variety β , the fruit contains a considerable number of seeds, almost as large as chestnuts, oblong, somewhat angular, produced into a point at each end. They are farinaceous like the chestnut, and are eaten in some places by the savage inhabitants, either boiled, or roasted in embers. It will easily be supposed that this fruit, abounding less in pulp, and being both more fibrous and less juicy than that which has no seeds, must be much inferior as an article of food; and, accordingly, before the discovery of the South Sea islands, the bread-fruit had not acquired that degree of reputation which it is now found to deserve. It has been long known in many parts of the East Indies, but not being wanted there for food, and consequently not having received any degree of cultivation, it has continued nearly in its natural state, without receiving that improvement from the care of men, which probably necessity first urged them to exercise. Accordingly, captain Cook remarked the great inferiority of the *fecum* which he found at Batavia, to the *coroo* of the South Sea islands.

This most useful tree is distributed very extensively over the East Indian continent and islands, as well as the innumerable islands of the South Seas. It was found by Dampier in the Ladrone islands: it is a native of Amboina, Banda, and others of the Molucca islands: of Java and others of the Maldivy islands: of Timor, Balega, and Madura, of Prince's island, &c. M. Sonnerat conveyed some of the trees from the island of Luçon to the isle of France. M. Poivre naturalized them both there and in the isle of Bourbon: and they are cultivated both in Malabar and Coromandel. In the South Seas both varieties are still found in the Marian islands, in the New Hebrides, and Friendly islands; but most abundantly in the Society, Marqueza, and Sandwich islands. In Otaheite however, and some others, the evident superiority of the seedless variety for food, has caused the other to be neglected, and it is consequently almost worn out. We are informed by captain King, that in the Sandwich islands these trees are planted and flourish with great luxuriance on rising grounds; that they are not indeed in such abundance, but that they produce double the quantity of fruit which they do on the rich plains of Otaheite; that the trees are nearly of the same height, but that the branches begin to strike out from the trunk much lower, and with greater luxuriance; and that the climate of these islands differs very little from that of the West Indian islands, which lie in the same latitude.—This reflection probably first suggested the idea of conveying this valuable tree to our islands in the West Indies. For this purpose, his majesty's ship the *Bounty* sailed for the South Seas, on the 23d of December 1787, under the command of lieutenant William Bligh. But a fatal mutiny prevented the accomplishment of this benevolent design. His majesty, however, not discouraged by the unfortunate event of this voyage, and fully impressed with the importance of securing so useful an article of food as the bread-fruit to our West Indian islands, determined, in the year 1791, to employ another ship for a second expedition on this service, and in order to secure the success of the voyage as much as possible, it was thought proper that two vessels should proceed together on this important business. Accordingly, a ship of four hundred tons, named the *Providence*, was engaged for the purpose, and the command of her given to captain Bligh; and a small tender called the *Assistant*, commanded by lieutenant Nathaniel Portlock. Sir Joseph Banks, as in the former voyage, directed the

equipment of the ship for this particular purpose. Two skilful gardeners were appointed to superintend the trees and plants, from their transplantation at Otaheite, to their delivery at Jamaica, and captain Bligh set sail on the second of August 1791. He arrived at Teneriffe on the twenty-eighth, at St. Jago on the thirteenth of September, and at the Cape of Good Hope on the sixth of November. He sailed from thence on the nineteenth of December; arrived at Adventure's Bay on the ninth of February 1792, and at Otaheite on the eighth or ninth of April. The business of procuring and embarking the bread-fruit trees, &c. took up three months and nine days; though the natives of Otaheite gave all possible assistance to Captain Bligh and the gardeners. They sailed on the eighteenth or nineteenth of July; arrived at Coupang in Timor on the second of October; at St. Helena on the seventeenth of December, and at St. Vincent's on the twenty-second of January 1793. Here they stayed seven days, to leave a part of their cargo, and on the fifth of February they arrived at Jamaica, and delivered the remainder. The number of plants taken on board at Otaheite, was 2634, in 1281 pots, tubs, and cases; and of these 1151 were bread-fruit trees. When they arrived at Coupang, 200 plants were dead, but the rest were in good order. Here they procured ninety-two pots of the fruits of that country. They arrived at St. Helena with 830 fine bread fruit-trees, besides other plants. Here they left some of them, with different fruits of Otaheite and Timor, besides mountain rice and other feeds; and from hence the East Indies may be supplied with them. On their arrival at St. Vincent's, they had 551 cases, containing six hundred and seventy-eight bread-fruit-trees, besides a great number of other fruits and plants to the number of 1245. Near half this cargo was deposited here under the care of Mr. Alexander Anderson, the superintendant of his majesty's botanic garden, for the use of the Windward Islands; and the remainder, intended for the Leeward Islands, was conveyed to Jamaica, and distributed as the governor and council of Jamaica pleased to direct. The exact number of bread-fruit-trees brought to Jamaica was 352, out of which five only were reserved for the botanic garden at Kew. Though the principal object of this voyage was to procure the bread-fruit tree, yet it was not confined to this only, for the design was to furnish the West Indian isles with the most valuable productions of the South Seas and the East Indies. Accordingly, the gardeners were instructed to procure plants of sweet plantain called *meia*, the Otaheitean apple or *avee*, the root called *peab*, of which the islanders make a kind of pudding, and a species of yam much larger and better than any in the West Indies. They were also to obtain at Timor and other places in the East Indies such plants and fruits as are used for food or otherwise by the natives, as the *lanfa*, *mangoslan*, *durion*, *jambou*, *nanca*, *tcham padha*, *blimbing*, *jambolan*, *boabidarra*, *salac*, *bleck*, long pepper, &c. together with some bushels of dry or mountain rice, which is cultivated without being overflowed with water; and they were to make themselves acquainted with the mode of managing it in order to communicate the same to the inhabitants of the West Indies. Captain Bligh had the satisfaction, before he quitted Jamaica, of seeing the trees which he had brought with so much success, in a most flourishing state; inasmuch that no doubt remained of their growing well and speedily producing fruit; an opinion which subsequent reports have confirmed. But though the fruit has been produced in great abundance, it is said not yet to have arrived at that high state of perfection in which it is described to be at Otaheite. Thunberg sent seeds of the East Indian bread-fruit tree from Batavia

to the botanic garden at Amsterdam, in 1775. In 1777, he sent some small living plants; and the year following, he brought with him to Europe a great number of plants, both of this and the following species. But the true seedless sort, from the South Seas, was first introduced into the islands of St. Vincent and Jamaica, and into the botanic garden at Kew, by Captain Bligh, in 1793.

The bread-fruit, when perfectly ripe, is pulpy, sweetish, putrescent, and in this state is thought to be too laxative; but when green it is farinaceous, and esteemed a very wholesome food, either baked under the coals, or roasted over them. The taste is not unlike that of wheaten bread, but with some resemblance to that of Jerusalem artichokes or potatoes. It was mentioned before that a sort of cloth was made of the inner bark: to this we may add, that the wood is used in building boats and houses; the male catkins serve for tinder; the leaves for wrapping their food in, and for wiping their hands instead of towels; and the juice for making bird lime, and as a cement for filling up the cracks of their vessels for holding water. Three trees are supposed to yield sufficient nourishment for one person. In the Malay language the bread fruit is called *socun*, in Java *souku*, in Amboina *sün* or *sune*, in Macassar *bakar*, in Ternate *gomo*, in Tinian *rima*; the Dutch call it *suckusboom*, the Germans *brodbaum*, the French *rima* or *fruit à pain*.

2. *A. integrifolia*, Indian Jaca tree; "leaves entire;" *Sitodum macrocarpon*, Thunb. Phil. Transf. v. 69, p. 254. *Sitodum caudiflorum*, Gærtn. fruct. 1. 345. *Soccus arboreus* nanca, Rumph. Amb. 1. t. 30—31. *Tsjacca-maram*, f. Jacca, Rheed. Mal. 3. t. 26, 27, 28. The East Indian Jacca, or Jack-tree, is about the same size as the foregoing, or perhaps larger. Branches alternate, spreading; the twigs hirsute with long stiff hairs; leaves alternate, petioled, ovate-oblong, blunt, obscurely serrate, undivided, nerved, bright-green, and very smooth on the upper surface, paler beneath, and hirsute with stiff hairs, spreading, a span in length. The younger leaves are evidently toothed, but the teeth disappear. The foot stalk is somewhat triangular, smooth, an inch in length; stipules as in the foregoing; flowers male and female distinct on the same stem or branch; peduncle either simple or branched, pendulous an inch thick, and a foot long; pedicels three, five, or more, the length and thickness of a finger. The fruit weighs thirty pounds and upwards; it has within it frequently from two to three hundred seeds, three or four times as big as almonds; they are ovate-oblong, blunt at one end, sharp at the other, and a little flattened on the sides. These two species of *artocarpus* cannot be distinguished with certainty either by the form of the leaves, or the situation of the fruit; for the leaves in this are sometimes lobed as on that; and the situation of the fruit varies with the age of this tree, being first borne on the branches and then on the trunk, and finally on the roots. The Jacca tree is a native of Malabar and the other parts of the East Indies. The fruit is ripe in December, and is then eaten, but is esteemed difficult of digestion; the unripe fruit is also used pickled, or cut into slices and boiled, or fried in palm-oil. The nuts are eaten roasted, and the skin which immediately covers them, is used instead of the areca nut in chewing betel. The wood of the tree serves for building. No less than thirty varieties of the fruit are enumerated in Malabar. It was introduced into the royal botanic garden at Kew, in 1778, by sir Edward Hughes knight of the bath.

Propagation and Culture. Those varieties which bear seeds may be propagated by them, sown in a pot of rich earth, and plunged in the bark-bed. Those which have no seed in the fruit may be increased by suckers, in which they abound very much, or by layers. In hot climates

they succeed best in a rich soil; for though they will grow in an indifferent one, yet they by no means arrive at that magnitude, nor is the fruit so well flavoured as when they are planted in a good one. In the East Indies they thrust a fruit of the Jacca into the ground whole, and when the numerous seeds germinate and grow up, they tie the stems altogether with withes, and by degrees they form one stem, which will bear fruit in six or seven years if not placed in too wet a situation. See Martyn's Miller's Dict.

ARTOIS, in *Geography*, a province of France before the revolution, is one of the most fertile and most productive of grain and fruit in the whole kingdom. It was formerly one of the seventeen provinces of the Netherlands; but since the revolution it is principally included in the department of *pas de Calais*, or straits of CALAIS. The chief city is ARRAS. This province is about twenty-three leagues long, and twelve broad; and is bounded on the west and south by Picardy, on the north-east by Flanders, and on the east by Hainault and Cambresis. The name of *Artois* is derived from the *Atrebatii*, who occupied this part of Gallia Belgica in the time of Cæsar. From the dominion of the Romans it passed to that of the French kings, who possessed it in 863; in 1237 it was erected into a Comté by St. Louis, and given to his younger brother Robert I. It was surrendered by Charles VIII. the son and successor of Louis XI. to Maximilian of Austria, by the treaty of Senlis, in 1493. The houses of Austria and of Spain possessed it in succession till the year 1640, when Louis the XIII. obtained it by conquest from Philip IV. king of Spain; and from his time it has been subject to France. The peace of the Pyrenées, in 1659, secured it to him, with the exception of the towns of Aire and St. Omer, which, together with their respective territories, were reserved to Spain, but afterwards ceded to Louis XIV. in 1678, by the treaty of Nimeguen, confirmed by subsequent treaties, and particularly by that of Utrecht in 1713. Its commerce consists principally in grain, flax, hops, wool, and linen cloth.

ARTOLICA, in *Ancient Geography*, a town of the Salassi, in Gallia Cispadana, at the foot of the Alps, now called *la Tuile* by the inhabitants, a hamlet of Savoy, in the duchy of Aoust, at the foot of mount St. Bernard the Less.

ARTOMELLI, from *artos*, bread, and *μελι*, honey, in *Ancient Pharmacy*, a kind of cataplasm prepared of bread and honey, applied chiefly to the præcordia.

ARTON, in *Geography*, a town of France, in the department of the Lower Loire, and chief place of a canton in the district of Paimbœuf, seventeen miles south-west of Nantes.

ARTONNE, a town of France, in the department of Puy de Dome, and chief place of a canton in the district of Riom, five leagues north of Clermont, and two and a half north of Riom.

ARTOTYRITES, or ARTOTYRITÆ, in *Ecclesiastical History*, a branch of the ancient *Montanists*, who first appeared in the second century, chiefly in Galatia.

They use bread and cheese in the Eucharist, or perhaps bread baked with cheese.—Their reason was, that the first men offered to God not only the fruits of the earth but of their flocks too.

Hence, according to St. Augustine, came their name, which is composed of *artos*, bread, and *τυρος*, cheese.

The Artotyrites admitted women to the priesthood and episcopacy; and Epiphanius says, that it was common to see seven girls enter at once into their church, in white robes with torches in their hand, where they bewailed with tears the miseries of human life.

ARTRO, in *Geography*, a river of North Wales, which runs into the sea near Lanbeder in Merionethshire.

ARTUSI, GIO. MARIA, of Bologna, in *Biography*, though he is ranked only among the minor writers on music, yet if his merit and importance are estimated by the celebrity and size of his volumes, certainly deserved the attention of students and collectors of musical tracts. In his "Arte del Contrappunto ridotta in tavole," published at Venice, 1586, he has admirably analysed and compressed the voluminous and diffused works of Zarlino and other anterior writers on musical composition, into a compendium, in a manner almost as clear and geometrical as that in which M. d'Alembert has abridged the theoretical works of Rameau. In 1589, Artusi, who, like most of the musical writers of Italy, was an ecclesiastic, published a second part of his "Arte del Contrappunto," which is a useful and excellent supplement to his former compendium. And in 1600 and 1603, this intelligent writer published at Venice the first and second part of another work, "Delle Imperfettioni della moderna musica." Here the author gives a curious account of the state of instrumental music in his time; and in describing a grand concert that was made by the nuns of a convent at Ferrara, in 1598, on occasion of a double wedding between Philip III. king of Spain with Margaret of Austria, and the archduke Albert with the infanta Isabella, the king's sister, he enumerates the several instruments that were employed, and points out their excellencies and defects. Among these, though the violin is just mentioned, yet nothing is said of its properties, while the cornet, trumpet, viol, double-harp, lute, flute, and harpsichord, are honoured with particular remarks, both on their construction and use: but among these, the cornet, which has been supplanted in the favour of the public by the hautbois, seems to have stood the highest in the author's estimation. The elder Doni, in his dialogue written about fifty years before, mentions the cornet more frequently than any other instrument: "Il divino Antonio, da cornetto perfettissimo—et M. Battista dal Fondaro con il suo cornetto anchora; che lo suona miracolosamente."

I have not been able, says Dr. Burney, to discover what instrument is to be understood in this dialogue, when Girolamo Parabosco says, "Io suonerò lo strumento:" and when it is said, "M. Gio Vaniacopo Buzzino suonando di violone il soprano, come egli fa miracolosamente," I am utterly unable to guess what instrument is meant, unless the word *violone*, by a typographical error, has been printed for *violino*. But to return to Artusi's remarks upon instruments: his hero on the cornet was Girolamo da Udine. In speaking of defects in the intonations of different instruments, I expected the violin would be celebrated for its superior perfection in that particular; but by the author's silence on that subject, I am convinced that it was either then but little used in concert, or was very ill played. Burney's Hist. Mus. vol. iii. p. 174.

ARTYMNESUS, in *Ancient Geography*, a town of Asia, in Lycia, where the Xanthians are said to have established a colony.

ARTZ, in *Geography*, a district of the island of Zealand, belonging to Denmark, in the prefecture of Kallundborg, which includes nine churches.

ARTZBACH, a river of Germany, which runs into the Ens, four miles south of Reiffing, in the duchy of Stiria.

ARTZBERG, a town of Germany, in the archduchy of Austria, near the Ens, twelve miles south-east of Steyr.

ARTZFELDT, a town of France, in the department of the Forêts, and chief place of a canton in the district of Bittbourg. The place contains 503, and the canton 6054 inhabitants: the territory comprehends 322½ kilometres and 12 communes.

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ARU, or ARIOE, a small island in the Indian sea, between the island of Sumatra and the peninsula of Malacca. See ARROO.

ARU, in *Ichthyology*, a name by which the Russians distinguish a species of mackerel found in the seas about Kamtschatka; the natives call it *kara*.

ARUA, in *Ancient Geography*, a town of Spain, in the district of Hispalis, now *Alcala*, a citadel of Andalusia on the Bætis or Guadalquiver, seven leagues above Seville.

ARVA, in *Geography*, a town and castle of Hungary, the capital of a county which extends to Poland, between the frontiers of Silesia and mount Crapack, fourteen miles north of Rosenbergh.—Also, a river of Hungary, which runs into the Waag, eleven miles north of Arva.

ARVAD, in *Ancient Geography*. See ARAD.

ARVALES FRATRES, in *Roman Antiquity*, were priests in ancient Rome, who assisted in the sacrifices of the *Ambarvalia*, offered every year to Ceres and Bacchus for the prosperity of the principal fruits of the earth, viz. the corn and wine.

They were instituted by Romulus, and were twelve in number; all of them persons of the first distinction; the founder himself having been of the body. They constituted a college called *collegium fratrum arvalium*.

The mark of their dignity was a garland, composed of ears of corn tied with a white ribband: this, Pliny says, was the first crown in use at Rome.

According to Fulgentius, Acca Laurentia, Romulus's nurse, was the first founder of this order of priests: she, it seems, had twelve sons, who used to walk before her in procession to the sacrifice; one of whom dying, Romulus, in favour of his nurse, promised to take his place; and hence, says he, came this sacrifice, the number twelve, and the name of brother.—Pliny (lib. xvii. cap. 2.) seems to indicate the same thing, when he mentions that Romulus instituted priests of the fields, after the example of Acca Laurentia, his nurse.

ARUANUS, in *Conchology*, a species of the MUREX genus, that inhabits New Guinea. It is a coarse and heavy shell, usually of a black or bluish colour, and encircled with rings; the aperture is angulated; the tail rather long, and spire pointed. The specific character is thus defined: tail patulous; spire crowned with spines. *Obs.* This is the *buccinum aruanum* of Rumphius.

ARVARI, in *Ancient Geography*, an ancient people of India, on this side of the Ganges.

ARVAS, a town of Asia in Hircania. Q. Curtius.

ARUBA, in *Geography*, one of the Little Antilles islands in the West Indies, subject to the Dutch; it lies near the coast of Terra Firma, fourteen leagues west of Curaçoa, is uninhabited, and produces little else besides corn and wood. N. lat. 12° 30'. W. long. 67° 35'.

ARUBA, a town of Persia, in the province of Mecran, near a cape of the same name in the Indian ocean, thirty leagues east of Mecran.

ARUBIUM, or ARRUBIUM, a town of Lower Mæsia, on the Danube.

ARUBO, a river on the coast of Guiana, west of Issiquibo gulf.

ARUBOTH, or ARABOTH, in *Ancient Geography*, a town or country of Palestine, in the tribe of Judah.

ARUCCI NOVUM, a town situate on the confines of Lusitania and Bætica, placed by Antonine thirty miles from *Pax Julia*; now *Moura*, a small town of Portugal, near the confluence of the Ardila and Guadalquiver.

ARUCCI VERUS, a small town of the Turdetani, in Bætica; now *Aroche*, a hamlet of Andalusia, on the confines of Portugal and Estramadura, on the river Gana,

E. seven

seven leagues to the east of *Arucci Novum*. A mountain in its vicinity called *Arucitanus* derives its name from it; now *la Sierra d'Aroche*.

ARUCIA, a town of Illyria, in the interior parts of Liburnia. Ptolemy. According to some, it is now *Bregna*; but according to others, *Ottobatz*, a citadel of Morlachia.

ARUDIS, a town of Asia, in Syria, situate on the Euphrates, south-east of Samosata. Ptolemy.

ARUDY, in *Geography*, a town of France, in the department of the Lower Pyrenées, and chief place of a canton in the district of Oleron, 11 miles south of Pau. The place contains 1756 and the canton 10,696 inhabitants: the territory includes 260 kilometres and 12 communes.

ARVE, a sonorous and violent river of Savoy, which rises from the Alps, in the county of Faucigny, and runs into the Rhone near Geneva.

ARVEDORUM MONTES, in *Ancient Geography*, mountains of India, on this side of the Ganges. Ptolemy.

ARVENSIS, in *Entomology*, a species of *CURCULIO* described by Müll. Zool. Dan. It is grey, with three lines on the thorax; wing-cases rufous, and faintly tessellated.

ARVENSIS, a species of *CICADA* found in Denmark. It is yellow; front, abdomen beneath and sides black. Müll. Gmel. &c.

ARVENSIS, a species of *PHALÆNA* (*Noctua*, Linn.) The wings are brown, with a transverse yellow spot in the middle; margin brown. Gmel. Fab. &c.—*Noctua brunnea* of Wien. Schmettler. This insect is of the middle size, and the under side is brown; the larva is naked, brown and spotted with white; the lateral line is bluish; head black, with two white lines.

ARVENSIS, a species of *VESPA* that inhabits Europe. It has four yellow bands on the abdomen, the third of which is interrupted. Linn. Fn. Su. Schæff. &c.

ARVERNI, in *Ancient Geography*, a denomination given to one of the most powerful nations of Gaul, whose country, according to Strabo, was situated between the ocean, the Pyrenées, and the Rhine. They claimed affinity with the Romans, as the descendants of Antenor; to this purpose Luean says of them,

“Arvernique ausi latio se dicere fratres
Sanguine ab Iliaeo populi.”

And Pliny says, that after their conquest by the Romans, their ancient liberty was preserved to them on account of their bravery. When Cæsar took possession of Gaul, it was divided into two factions, the Arverni, and the Ædui; and it is said, that the complaints preferred at Rome by the Ædui against the Arverni, were one of the causes which brought the arms of the Romans into Gaul, under the command of Fabius Maximus and Domitius Ahenobarbus. According to Steph. Byz. they were one of the most warlike nations among the Celtæ. Their country was comprised in Aquitania Prima, and their capital was “Augustonematum,” now Clermont, in Auvergne. N. lat. 45° 42'. E. long. 3° 20'.

ARVERON, in *Geography*, a river which rises in a glacier of Montavert, in the Alps, and runs into the Arve.

ARVICITO, a town of Italy, in the kingdom of Naples, on the east coast of Calabria Ultra, four miles south of Stilo.

ARVICOLA, in *Entomology*, a species of *SCARABÆUS* (*Melolontha* Fab.) found in Russia, and greatly resembling *S. horticola*. The shield of the head is reflected; body black and immaculate. Gmel. &c.—*Olj*. It is hairy; and the thorax is tinged with blue.

ARVIEUX, LAURENT D', in *Biography*, was born of a family of rank at Marseilles, in 1635, and accompanied a

relation to Seyde in 1653. In this place, and in other parts of Syria and Palestine, he resided 12 years, perfecting himself in the eastern languages, and extending his acquaintance with the history, manners, and politics of the Levant. Returning to France in 1665, he was deputed as an envoy to Tunis in 1668, for the purpose of negotiating a treaty. Whilst he was successfully conducting this business, he procured the liberation of 380 French slaves, who, upon being restored to their country offered him a purse of 600 pistoles, which he declined accepting. At Constantinople, whither he was sent in 1672, he obtained every thing he asked; and surprised the Turks by holding all his conferences without an interpreter. He was afterwards, viz. in 1675, sent to Algiers, and obtained the freedom of 240 French slaves. In 1679, he was preferred to the consulate at Aleppo, where he performed various services, which recommended him so much to pope Innocent XI. that he sent him a brief for the bishopric of Babylon, empowering him to appoint another person if he himself chose to decline it. Accordingly he nominated father Pidon to the office. In 1686, he returned to Marseilles, and principally devoted himself to literary pursuits. He wrote several memoirs on Modern History, and the affairs of the Levant: and he employed the last years of his life in the study of the scriptures in their original languages, aided by the eastern commentaries and paraphrases. He died in 1702, aged 67. In 1717, M. De la Roëque printed, in 12mo., a MS. which he had left unfinished, containing an account of a journey to the grand emir of the Arabs, with a description of the manners and customs of that people; and in 1734 there appeared, “Memoirs of the chevalier D'Arvieux,” with an account of all his travels, &c. in 6 vols. 12mo. collected and arranged by father Labat, a Dominican. Moreri. Gen. Biog.

ARVII, in *Ancient Geography*, a people of Gallia Lyonnensis, mentioned by Ptolemy, who are supposed, by M. d'Anville, to have occupied that part of Gaul which corresponds to part of Maine. Some vestiges of their ancient capital have been discovered in *La Cite*, on the river Erve, which runs into the Sarthe.

ARVIL-Supper, an entertainment made at funerals in the northern parts of England; and *arvil*-bread is the bread delivered to the poor on such occasions. Arvil has also been used for the funeral rites themselves.

ARVIRAGUS, in *Biography*, a British king, flourished, according to Geoffrey of Monmouth, and other native writers, in the time of the emperor Claudius. Geoffrey's account is generally deemed fabulous; however, he says, that he was the son of Kymbeline; that upon the death of his father and brother, he headed the Britons, and gained a victory over Claudius; that upon Claudius's return to Rome, he became a powerful prince, and assumed independent authority; that upon the arrival of Vespasian, he made a compromise with him, and retained his dominions; and that, having governed the kingdom in peace, his life was protracted to a good old age; that he was loved and feared even by the Romans; and that he was buried at Gloucester, in a temple he had built and dedicated to the honour of the emperor Claudius. An old tradition reports, that, in the time of this king, Joseph of Arimathea came over to Britain, and planted the gospel in this country. Biog. Brit.

ARUM, in *Botany*, (supposed from *arē, nova*, injury). Lin. g. 1023. Schreb. 1387. Gærtn. t. 84. Juss. 24. Clafs, *gynandria polyandria*. *Monoecea monandria*, Schreb. Nat. Ord. *Piperitæ*.—*Arpida*, Juss. Gen. Char. * Male flowers on the same spadix with the females, closely placed between a double row of threads. Cal. spathe one-leaved, very large, oblong, convolute at the base, converging at the top; the belly compressed, coloured within; spadix club-shaped, quite simple;

simple, a little shorter than the spathe, coloured, fenced at bottom with germs, and shrivelling above them; perianth proper none. *Cor.* none; nectaries? thick at the base, ending in threads or tendrils, in two rows, issuing from the middle of the spadix. *Stam.* filament none; each anther sessile, four-cornered. * Female flowers on the lower part of the spadix, close to each other. *Col.* spathe and spadix common to them with the males; perianth proper none. *Cor.* none. *Pist.* germ each obovate; style none; stigma bearded. *Pist.* berry globular, one-celled. *Seeds*, several, roundish.

Eff. Gen. Char. spathe one-leaved, cowl'd; spadix naked above, female below, staminate in the middle. Species:

* *Without stems; leaves compound.*

1. *A. crinitum*, hairy sheathed arum; "leaves pedate, with the lateral segments involute; spathe hairy within; spadix ramentaceous above;" root leaves cut into seven parts, which are lanceolate, nerved, middle part largest; the first leaves are sagittate, or five-cleft, various; petioles round, sheathing at bottom, scape very short, round; spathe as in the common arum; spadix subcylindrical, a little shorter than the spathe; club many times longer than the other parts, having remote violet-coloured bristles scattered over it. The flower smells strong like carrion, by which flies are enticed to enter, but when they would retreat, the reversed hairs prevent them, and they are there starved to death. It is a native of Minorca, and introduced in 1777, by Mr. Malcolm. It flowers in March. 2. *A. dracunculus*, long sheathed arum or common dragon, "leaves pedate, leaflets lanceolate, entire; lamina ovate, longer than the spadix;" this has a large tuberous fleshy root, which in the spring puts up a straight stalk about three feet high, spotted like the belly of a snake; at the top it spreads out into leaves, which are cut into several narrow segments almost to the bottom; at the top of the stalk the flower is produced, which is in shape like the common arum, having a very long spathe, of a dark purple colour, standing erect, with a large spadix of the same colour, so that when it is in flower, it makes no unpleasing appearance, but the flower has so strong a scent of carrion, that few persons can endure it. It is a native of the southern parts of Europe, flowering in June and July. Cultivated by Gerard in 1596. 3. *A. draconium*, short-sheathed arum, or green dragon, "leaves pedate, leaflets lanceolate, entire, longer than the spathe, which is shorter than the spadix;" it rises about eight or nine inches high; leaves petioled, upright, smaller than those of the common dragon; leaflets broad, lanceolate, commonly in threes; spadix awl-shaped, slender, longer than both spathe and leaves. It flowers with us in June, and grows in moist places in Virginia and New England, also in Japan and China. Cultivated by Miller in 1759. 4. *A. venosum*, purple-flowered arum, "leaves pedate, leaflets suboval, entire, lamina lanceolate, longer than the spadix;" the native country of this species is not known. It flowers in March, and was introduced by Mr. Malcolm in 1774. 5. *A. pentaphyllum*, five-leaved arum; "leaves quinate;" it grows about a foot high, subcaulescent, upright; leaflets lanceolate, entire, smooth. A native of the East Indies and China. 6. *A. triphyllum*, three-leaved green-stalked arum; "leaves ternate, lamina lanceolate, acuminate, the length of the spadix; it is subcaulescent, with the scape arising from the petiole; some scapes are male, others female, from the same root; the male spathe is erect, the female has the lip inflexed. The Brazilian plant has the side leaflets lobed outwards. The Virginian plant has them only gibbous, but the structure of the flower is the same in both. This plant according to Loureiro differs in China from the foregoing, in having the leaflets distinct, not pedate. It flowers in June and July, and

appears from Evelyn's kalendar to have been cultivated here, in 1664. 7. *A. atrorubens*, three-leaved purple-stalked arum. *A. triphyllum*, γ Lin. Spec. "Leaves ternate, lamina ovate, shorter by half than the spadix." A native of Virginia, and cultivated by Miller in 1758. It flowers in June and July. 8. *A. ternatum*, "leaves ternate, receptacle longer than the spathe." Found in Japan by Thunberg, flowering in May and June.

** *Without stems; leaves simple.*

9. *A. colocasia*, Egyptian arum, Catseb. car. 2. t. 45. "Leaves peltate, ovate, repand, semibifid at the base;" it has a thick large oblong root, rounded at the base; leaves thick, smooth, ash-coloured, in form and size resembling those of the water lily; petioles thick, upright, roundish, whitish, spreading out at the bottom; scape short, with a subulate reflex flat spathe. A native of the Levant, Egypt, Sicily, &c. This plant is esteemed a wholesome food. 10. *A. bicolorum*, two-coloured arum, "leaves peltate, sagittate, coloured on the disk, spathe contracted in the middle, subglobular at the base, lamina roundish, acuminate; upright, somewhat convolute." This is cultivated in Madeira, and was introduced here in 1773, by Messrs. Kennedy and Lee. It flowers in June and July. 11. *A. esculentum*, esculent arum, or Indian kale. Sloan. Jam. 1. t. 106. "Leaves peltate, ovate, entire, emarginate at the base;" the root is large, tuberous, subovate, brown, with small tubers growing at the side of it. The plant is about three feet in height; leaves smooth, of a bright green, semibifid at the base, and roundish; petioles round, dilated at the base, embracing the inner ones; spathe spreading, straight, not cowl'd, longer than the spadix. The Jamaica plant seems to be smaller than that of the east; for Gloane says that it only rises a foot from the ground. He says, in that island this species is planted very carefully in moist plantations; that the roots are eaten, but that the leaves are most valued, which are boiled and used as coleworts. It would seem indeed that the *A. esculentum* is a plant highly useful and very generally cultivated in warm climates, and by none more than by the natives of the South Sea Islands. The acrimony of the root in its recent state is so great, that when eaten raw, it will excoriate the mouth, but on being baked, this acrimonious quality is wholly dissipated. This species was cultivated by Miller in 1739. 12. *A. macrorhizon*, long-rooted arum. Flor. Aust. n. 329. "Leaves peltate, cordate, repand, two-parted at the base;" this has a very large root, or rather subterranean trunk, the thickness and length of the human arm; leaves very large and wide, shining on both sides, furnished with strong prominent nerves; their very long hollowed petioles form at bottom, where they embrace each other closely; stem three feet long, and as thick as a man's arm. The flower is white and very sweet; all the florets are hermaphrodite. This species, which is distinguished by its great size, is a native of China, and Cochin China, the East Indies, Ceylon, and the islands of the Southern Ocean, and is eaten by the natives like the foregoing. 13. *A. peregrinum*, "Leaves cordate, obtuse, mucronate; angles rounded." A native of America. Mr. Miller says that he has received three sorts of arum from the West Indies, by the title of Edder, but he supposes this to be most commonly cultivated there for its roots. 14. *A. divaricatum*, "leaves cordate-hastate, divaricate." Rheed. Mal. 11. 39. t. 20. Spathe revolute; spadix subulate, longer than the spathe. A native of Malabar and Ceylon. 15. *A. trilobatum*, three-lobed arum, Mill. fig. t. 52. f. 2. "Leaves sagittate-trilobate; flower sessile." Miller describes this plant as follows: root tuberous; leaves remaining most part of the year; spathe six inches long, inclining downwards, having a long point twisted like a screw, in-

side deep purple, outside green; spadix long, slender, purple; extending out of the spathe, turning upwards; the flower is fetid like carrion. It was brought from Ceylon in 1752, and flowered in the Chelsea garden. It flowers here in May and June. 16. *A. sagittifolium*, arrow-leaved arum, Jacq. Hort. 2. 157. See also Brown Jam. and Sloane's Jam. 1. t. 106. f. 2. Lour. Coch. 534. "Leaves sagittate triangular; the angles divaricate, acute;" upright, four feet high; leaves large, dusky green, bifid at the base, divaricate, all the angles acute; footstalks round, spotted with red and black; spathe long, cowed, longer than the spadix, which is club-shaped. A native of the Spanish West Indies, China, and Cochinchina. Cultivated by Miller in 1731. In Jamaica it is called smaller Indian kale, and cultivated there by several persons for the same purposes as the *A. esculentum*. 17. *A. maculatum*, common arum, Curt. Lond. 2. 63. Woodv. t. 25. Smith Flor. Brit. Hudf. Wither. Lightf. α Common arum without spots. β Common spotted arum. γ Italian arum. "Leaves hastate, entire; spadix club-shaped." It has a tuberous whitish root about the size of a large nutmeg, growing transversely, sending forth on every side a great number of single fibres, propagating itself by lateral tubercles; leaves radical, from two to four, shining, veiny, frequently marked with dark purple or black spots, sometimes streaked with white, standing on sheathing triangular footstalks; spathe usually green, and often spotted like the leaves; spadix varies from a yellowish green, to a fine purple; berries scarlet, in a naked cluster, each containing one or two seeds. It is common in most parts of Europe, and is the only species of the genus indigenous in Britain. It is usually found under hedges, flowering in May, and ripening its berries in the autumn. 18. *A. virginicum*, Virginian arum. "Leaves hastate-cordate, acute; angles obtuse." It grows wild in wet places in Virginia, Carolina, Pennsylvania, &c. The savages boil the spadix with the berries, and devour it as a great dainty. 19. *A. proboscideum*, Apennine arum, arisarum, Tournef. Bocc. Muss. 2. 61. t. 50. "Leaves hastate, spathe declinate, filiform-subulate." A native of the Apennines. Spathe shaped like a monk's cowl; leaves on very short footstalks. 20. *A. arisarum*, broad-leaved hooded arum, or friar's cowl. Hort. Cliff. 435. Sabb. Hort. 2. t. 79. "Leaves cordate oblong, aperture of the spathe ovate; spathe entire and bent inwards above, below not convolute;" about a foot and a half high; leaves sharpish; spathe shorter than the leaves; spadix curved; berries red, one-seeded. A native of the South of Europe. Dr. Smith observes, that the Italians call this plant *il lume*, from the striking resemblance of its flower, when reversed, to a lamp with its wick. Cultivated by Gerard in 1596. 21. *A. pictum*, painted arum. "Leaves cordate, painted with coloured veins;" root-leaves three or four, petioled, painted on the upper surface with white veins; spathe sessile, radical, inflated at the base, green, except at the top, where it is purplish; spadix with an ovate-oblong, dark purple club; germs subglobose, green; anthers immediately above them; upper filaments remote. See Supp. Plant. 410. 22. *A. ovatum*, Rumph. Amb. 5. 312. t. 108. "Leaves ovate-oblong; spathe scabrous." A native of the East Indies. 23. *A. tenuifolium*, grass-leaved arum, or narrow-leaved friar's cowl. "Leaves lanceolate; spadix bristle-shaped, declinate." This species usually has five or six shining leaves resembling those of narrow-leaved plantain; spathe long, pointed, reflex, white; spadix seven inches long, purple or greenish, pointed. It grows wild about Rome, Montpellier, also in Dalmatia and the Levant. We learn from Lobel that it was cultivated here in 1570. 24. *A. cannesolium*, Supp. Plant. 410. "Leaves lanceolate, veinless;" leaves few, two feet long, resembling those of canna; scape very short; spathe

rather obtuse, red without, white within. In the spadix there is no space between the stamens and pistils. A native of Surinam, on trees, parasitical.

*** *Caul. scent.*

25. *A. arborescens*, tree-arum, Plum. Amer. 44. t. 51. g. & 60. "Straight; leaves sagittate." A native of South America. 26. *A. juguinum*, dumb cane arum, Jacq. Amer. 239. t. 151. pict. t. 229. Miller's fig. 295. See Sloane and Brown's Jam. "Nearly upright; leaves lanceolate ovate." It rises to the height of six or seven feet, with a green-jointed stalk, as large as a walking-cane. Leaves placed irregularly at the top of the stalks in a cluster; they are oblong, of a light green colour, and sometimes punched with holes, as in the *dracontium pertusum*. On the side of the stalks, between the leaves, the flowers appear with a long spathe of a pale green colour, marked with white spots. The female flowers and stamens are ranged only on one side of the spadix, a circumstance which distinguishes it from all its congeners. It is a native of the Sugar Islands, and the warmer parts of America. Cultivated in 1759, by Miller. The whole plant abounds with an acrid juice, so that if applied to the tongue, this organ swells so much as to lose the power of articulation, and hence the name of *dumb-cane*. In this way it is said to have been used as a punishment for negroes. The juice is sometimes employed to assist the line in promoting the granulation of fugar. 27. *A. hederaceum*, ivy-leaved arum, Jacq. Amer. t. 152. pict. 230. "Radical; leaves cordate, oblong, acuminate; petioles round." A native of the West Indies. 28. *A. lingulatum*, tongue-leaved arum, Brown Jam. 333. n. 12. Sloane's Jam. 1. 75. t. 27. f. 2, 3. "Creeping; leaves cordate lanceolate; their footstalks edged with membranes." It readily climbs trees, and becomes more succulent and luxuriant towards the top. A native of the West Indies. 29. *A. auritum*, ear-leaved arum, Brown Jam. 331. n. 2. Sloan. 1. 169. "Radical; leaves ternate; those on the side one-lobed." A climbing plant, sending out roots from the stems and branches; leaves large heart-shaped, having three lobes or ears; flowers inclosed in a large spathe. A native of the West Indies. Found on all the hills of Jamaica, climbing the trees, and is the only arum with compound leaves in that island. Cultivated by Miller in 1748. 30. *A. indicum*, Indian arum, Lour. Coch. 536. Rumph. Amb. 5. t. 106. "Nearly upright; leaves ovate; bifid at the base, rounded; spadices axillary;" stem five feet high, as thick as a man's arm; leaves very large, with many transverse parallel ribs, on subulate, erect, stem-clasping footstalks; spathes axillary, small, acute, straight, convolute; spadix tapering, erect; berries pale, small. A native of the East Indies. Cultivated in Cochinchina, where the stalk is boiled and eaten. 31. *A. cucullatum*, cowed arum, Lour. Cochinch. 356. "Upright; leaves peltate, cordate, with the ears cowed;" stem two feet high, leaves acuminate, on long round footstalks; spadix short, almost wholly covered with florets. A native of the suburbs of Canton. 32. *A. spirale*, spiral arum, Retz. Obs. 1. 30. n. 104. "Stemless; leaves lanceolate; spathe spiral sessile;" leaves acute, naked, with the footstalks dilated at the base, membranaceous, veined. A native of Tranquebar in the East Indies, discovered by Koenig. This species ought to have been placed in the second division. It may here be observed, that in the arum, every pistil and every anther is to be considered as a distinct floret, consequently it ought to be removed to the class *monoecia*; and this has been done by Scriber and Withering. Thunberg and Swartz place it in the class *polyandria*. We see no advantage however in removing it from the class *gynandria*, where it was left by the great author of the sexual system.

Medicinal

Medicinal qualities. Common arum is the only species of this genus included in the *Materia Medica*; and its use is confined to the root, which in a recent state is lactescent and extremely acrimonious, inasmuch that when cut into slices and applied to the skin, it has been found to blister the part; and upon being chewed, it excites an intolerable sensation of burning and pricking in the tongue, which continues for several hours. This acrimony, however, is gradually lost by drying, and may be so completely dissipated by the application of heat, as to leave the root a bland farinaceous aliment. Its medicinal efficacy, therefore, resides wholly in the active volatile matter. It is a very powerful stimulant, and by promoting the secretions, may be properly employed in cachectic and chlorotic cases, in rheumatic affections, and in various complaints of phlegmatic, torpid constitutions; but more especially in a weakened or relaxed state of the stomach, abounding with viscid mucus. If the root is given in powder, great care should be taken that it be young and newly dried, when it may be used in the dose of a scruple or more twice a day; but in rheumatism and paralytic affections, requiring the full effects of this medicine, the root should be given in its recent state; and to cover the insupportable pungency it discovers on the tongue, Dr. Lewis advises us to administer it in the form of emulsion with gum arabic and spermaceti, increasing the dose from ten grains to upwards of a scruple, three or four times a day; in this way, he says, "it generally occasioned a sensation of slight warmth about the stomach, and afterwards in the remoter parts, manifestly promoted perspiration, and frequently produced a plentiful sweat." As several obstinate rheumatic pains were removed by this medicine, it is recommended to further trial. See Woodv. Med. Bot. p. 75.

Propagation and Culture. Species 2. is very hardy and will grow in any soil or situation; autumn is the proper time for transplanting it. 3. should have a moist, shady situation; it is with difficulty preserved in gardens. 6, 7, 8. are propagated by offsets; they will live in the open air, if planted in a sheltered situation, or if the surface of the ground be covered with tan. 9, 10, 11, 12, 13, 14. and 16. are to be propagated by offsets planted in pots, and plunged into a hot-bed, and after having acquired sufficient strength, kept upon shelves in a dry stove. 15. requires the tan-bed or bark-stove. Common arum ought to be transplanted soon after the seeds are ripe. 19, 20, 21. These multiply fast by offsets, and should have a shady situation. 25, 26, 27, 28, 29. are propagated by cutting off the stalks, into lengths of three or four joints, which must be laid to dry six weeks or more; for if the wounded part be not perfectly healed over before the cuttings are planted, they will rot and decay; they should be put in small pots filled with light sandy earth, and plunged into a moderate hot-bed of tan, being careful that they have little wet till they have made good roots, when some of them may be placed in a dry stove, and others plunged in the tan-bed, in the bark stove, where they will produce more flowers. They are tender plants, and must be constantly kept in the stove. See Martyn's Miller's Dict.

ARUM *Æthiopicum*. See CALLA.

ARUM *Scandens*. See DRACONTIUM.

ARUMATIA, in *Entomology*, a name given by Marc-graave, in his *Natural History of Brasil*, to the species of MANTIS called *Gigas* by Linnæus.

ARUN, in *Ancient Geography*, a village of Palestine, in the neighbourhood of Samaria.

ARUN, in *Geography*, a river of England, which runs into the sea at Little Hampton in Sussex, famous for its red mullets.

ARUNCI. See AURUNCI.

ARUNCI, in *Entomology*, a species of CICADEA, described by Scopoli. This insect is entirely of a ferruginous colour, with brown eyes.

ARUNCO, in *Zoology*, a species of RANA or toad, that is larger than the common frog, but nearly of the same colour. It inhabits Chili; and is described by Molina. All the feet of this kind are palmated, and the body warted. Dr. Shaw specifically describes it thus: R. corpore verrucoso pedibus omnibus palmatis. Gmelin seems to think the palmated feet are a sufficient criterion by which it may be distinguished, "pedibus omnibus palmatis." Gmel.

ARUNCUS, in *Botany*. See SPIRÆA.

ARUNDA, in *Ancient Geography*, a town of Spain, in Bætica, seated on the Annas or Guadiana; now said to be Ronda, in the province of Granada, on the confines of Andalusia. N. lat. 36° 26'. W. long. 5° 40'.

ARUNDEL, THOMAS, in *Biography*, archbishop of Canterbury in the reigns of Richard II. Henry IV. and Henry V., was the second son of Robert Fitz-Alan, earl of Arundel and Warren; and at the age of twenty-one years, in 1374, promoted from the archdeaconry of Taunton to the see of Ely, and enthroned with the usual solemnities in 1376. While he held this see he almost rebuilt the episcopal palace in Holborn, and, beside other donations, presented it with a table of massive gold, enriched with precious stones, which he had bought of prince Edward for three hundred marks. Upon his translation to the archbishopric of York, in 1388, he expended a large sum in building an archiepiscopal palace, and in furnishing the church with several pieces of silver-gilt plate, and other ornaments. After his advancement to the see of Canterbury, in 1396, he was a great benefactor to that church; for he built the southern tower and great part of the nave, and gave it a ring of five bells, called "Arundel's ring," several rich vestments, a mitre encased with jewels, a silver gilt crozier, a golden chalice for the high altar, and another to be used only on St. Thomas à Becket's day. He held the office of lord high chancellor of England, with some interruptions, from the year 1386 to 1396; and in 1393, he removed the courts of justice from London to York; partly with a view of mortifying the pride and insolence of the inhabitants of London, and principally for the purpose of enriching those of the latter city, over the diocese of which he presided: but after the experience of one or two terms, the courts returned to their first and more convenient station. Soon after his accession to the metropolitan see, he revived an old institution, by which the inhabitants of the several parishes of London were obliged to pay their rector one half-penny in the pound out of the rent of their houses.

The interference of archbishop Arundel in the civil affairs of the kingdom terminated in his impeachment and exile. Having taken an active part in the first attempt that was made to deliver the nation from the oppression of Richard II. by obtaining a commission to the duke of Gloucester, his brother the earl of Arundel, and others, in which commission he himself was included, for governing the kingdom, he was impeached by the commons, sentenced to be banished, and ordered to leave the kingdom within forty days, on pain of death. Pope Boniface IX. seizing this opportunity of testifying his displeasure against the king and parliament of England, gave Arundel a cordial reception at Rome, nominated him archbishop of St. Andrews, and promised him other preferments. The king's remonstrance, however, prevailed with his holiness to withhold the grant of the further favours which he had intended to confer on the exiled prelate. The dissatisfaction of the people of England with the

the government of Richard II. increasing, archbishop Arundel had an opportunity of returning to his country, and regaining his dignities. Whilst he was in Brittany, in his way home, he was employed to solicit Henry duke of Lancaster, who had been banished by Richard, to return from France, and assume the crown: and having obviated the duke's scruples, the accession of Henry IV. was accompanied with the restoration of Arundel to the metropolitan see: and he had the pleasure of placing the crown on the head of his new master. At an early period of this reign, a design was formed of seizing the revenues of the church, in order to supply the exigencies of the public service. In a parliament held at Coventry in 1404 or 1405, and called "*PARLIAMENTUM INDOCTUM*," this measure was proposed for execution. Arundel was present, remonstrated against the proposal, and urged "that the clergy were at least as serviceable to the king by their prayers, as the laity by their arms; and that the kingdom could not expect to prosper as long as the prayers of the church were despised." His spirited exertions prevented, for the present, the further prosecution of this violent measure. The archbishop having thus refused the temporalities of the church from depredation, manifested equal zeal in preserving inviolate its internal constitution. He exerted himself for restraining the progress of those new opinions, with regard both to doctrine and worship, which were disseminated by the Lollards or Wickliffites; and as the university of Oxford was beginning to be infected with these opinions, he appointed visitors to examine and to report the state of that seminary. He proceeded, in consequence of the information he received from the inquisitorial committee, delegated and sanctioned by his authority, to persecute, with an absurdity and cruelty which nothing but the ignorance and bigotry of the times can in any degree extenuate, those who were found chargeable with this new heresy. Upon the authority of the act for burning heretics, which passed in the reign of Henry IV. and which remained for a long time a disgrace to our statute books, a Lollard was condemned to the flames in 1410; and in the beginning of the reign of Henry V. sir John Oldcastle, lord Cobham, a principal patron of the Lollards, was indicted by the primate, convicted of heresy, and sentenced to the flames. He had some time before attempted to procure an order from the pope to dig up the bones of Wickliffe, which was refused; and he actually procured a synodical constitution, which prohibited the translation of the scriptures into the vulgar tongue. It is said that whilst the archbishop was pronouncing sentence of excommunication and condemnation on lord Cobham, he was seized with an inflammation in his throat, which prevented his taking any sustenance, and soon terminated in his death, Feb. 20th, 1413. The death of the prelate, as to the time and manner of it, was attributed by the Lollards to the immediate interposition of God: but however superstitious such judgments may be deemed in the present enlightened age, the intolerance and cruelty of the archbishop will be universally condemned, and they will entail just reproach on his name and character as long as any records of him remain. *Biog. Brit.*

ARUNDEL, in *Geography*, a corporation and borough town of England, in the county of Sussex, seated on the river Arun, whence its name. It sends two members to parliament; the corporation consists of a mayor and twelve burgesses; it has two markets weekly, on Wednesday and Saturday; and is distant from London sixty-one miles. It has a harbour which admits vessels of one hundred tons burthen, and which was repaired in 1733. The castle, which stands on the north-east part of the town, was conferred by the empress Maud on William le Albano, as a

recompence for his defence of it against king Stephen. It descended to the Norfolk family in 1579, and the present duke has expended large sums in repairing and adorning it. To this place belongs the peculiar privilege of conferring the title of earl on its possessors without any patent or creation from the crown; and Arundel is the premier earldom in England. N. lat. 50° 45'. W. long. 0° 25'.

ARUNDEL, a township of America, in York county and district of Maine, situate between cape Porpoise and Biddeford on the north-east, on the river Saco, twenty-one miles north-east from York, and ninety-six north-east from Boston. It contains 1458 inhabitants.

ARUNDELIAN MARBLES, *MARMORA Arundeliana*, or *Oxford Marbles*, called also *Parian Chronicle*, are supposed to be ancient stones, whereon is inscribed a chronicle of the city of Athens, engraven in capital letters in the island of Paros, one of the Cyclades, 264 years before Jesus Christ. They take their name from Thomas earl of Arundel, who procured them out of the East, or from Henry his grandson, who presented them to the university of Oxford.

These marbles, and other ancient relics, were purchased in Asia Minor, Greece, and the islands of the Archipelago, by Mr. William Petty, who was employed, in the year 1624, by Thomas earl of Arundel, in making such collections for him in the East. They were brought into England about the year 1627, and placed in the gardens belonging to Arundel house in London. Soon after their arrival, they excited very general curiosity among inquisitive and learned persons; and sir Robert Cotton engaged Mr. Selden to explain the Greek inscriptions. Accordingly Selden and two of his friends, Patrick Young, or Patricius Junius, and Richard James, immediately undertook the business; and in the following year Selden published a small volume in 4to. under the title of "*Marmora Arundeliana*," containing about thirty-nine of the inscriptions, with annotations. During the civil wars, Arundel house was often deserted by its illustrious proprietors, and some of the marbles were defaced or broken, and others stolen or used for the ordinary purposes of architecture. The chronological marble, in particular, was broken and defaced; and the upper part, containing thirty-one epochas, is said to have been used in repairing a chimney in Arundel house. In the year 1667, the honourable Henry Howard, afterwards duke of Norfolk, the grandson of the first collector, presented these curious remains of antiquity to the university of Oxford; and as Mr. Selden's work was become scarce, bishop Fell engaged Dr. Prideaux, dean of Norwich, to publish a new edition of the inscription, which was printed at Oxford in 1676, with additional notes and translations, under the title of "*Marmora Oxoniensia, ex Arundelianis, Seldenianis, et aliis conflata*." In 1731, Mr. Mattaire favoured the public with a more comprehensive view of these marbles than either of his predecessors; and in 1763, Dr. Chandler published a new and improved copy of them, in which he corrected the mistakes of the former editors, and supplied the lacunæ in some of the inscriptions, particularly those of the Parian chronicle, by many ingenious conjectures.

These marbles, in their perfect state, contained a chronological detail of the principal events of Greece during a period of 1318 years, extending from the commencement of the reign of Cecrops in the year before Christ 1582, to the close of the archonate of Diognetus in the year before Christ 264. But the chronicle of the last 90 years is lost, so that the part now remaining terminates with the archonship of Diotimus, 354 years before Christ; and in this fragment the inscription

inscription is very much corroded and effaced, and the sense can only be discovered by very learned and industrious antiquaries, or supplied by their conjectures. For a translation from the Greek of this ancient remain, see Tab. i. Playfair's Chronology, p. 297. Almost every event in this table between the destruction of Troy and the annual magistracy of Athens, is dated twenty-six years earlier than in the canons of Eusebius, and those of other approved chronologers; so that this number of years must be subtracted from the dates in the marbles, during the time mentioned, in order to accommodate them to those of Eratosthenes, Dion. Halicarnassensis, Eusebius, and other ancient writers. These valuable remains of antiquity have been applied to the elucidation of many parts of ancient history that had been long involved in obscurity. However their inconsistency with other authentic historical accounts has depreciated their importance and use; and sir Isaac Newton, as well as some other modern philosophers, have paid little or no regard to them. Their authenticity has indeed of late been the subject of particular discussion between Mr. Robertson, who, in his "Parian Chronicle," 8vo. 1788, questioned it; and Mr. Hewlett, in his "Vindication of the Authenticity of the Parian Chronicle," 8vo. 1789, defended it. See an account of the arguments on both sides, under the article *PARIAN Chronicle*.

ARUNDINACEA, in *Conchology*, a species of *SABELLA* found in rivers in some parts of Europe. It is subconic, open at both ends, and composed of fragments of the bark of reeds placed on each other. Gmelin, &c.

ARUNDINACEA, in *Entomology*, a species of *ARANEA* that is found among reeds. The abdomen is sub-globose, and white spotted with pale brown. Linn. Fn. Suec.

ARUNDINACEUS, in *Ornithology*, a species of *TURDUS* that inhabits reedy marshes of Europe, and is called La Roussierole, ou Roucherolle, by Brisson, Buffon, and other French writers. Ray and Willughby named it Junco, or greater reed sparrow; and Dr. Latham, the reed thrush.

This bird is rather larger than the common lark; the colour is ferruginous brown; white, with a testaceous tinge beneath; quill-feathers brown, reddish at the end. Gmel. &c. Of this species Gmelin enumerates three varieties; viz. *β. Turdus arundinaceus uropygio caudaque rufis* var. with rufous rump and tail. *γ. Turdus arundinaceus supra sagittis nigris variis*: var. varied above with black arrow-shaped spots. *δ. Turdus arundinaceus minimus, supra ex lutescente virens, tectricibus alarum ferrugineis*: var. small, above yellowish-green, wing ferruginous. In the southern parts of Russia, and in Poland, this species, it is said, is very common. It makes its nest on the mossy hillocks among reeds and rushes, or according to Cramer suspends the nest between two or three reeds which are fastened together to support it. The female lays five or six eggs; and the male, it is likewise observed, is perpetually singing while the female is sitting; and hence it has acquired the name of water nightingale.

ARUNDINETI, in *Entomology*, a species of *TIPULA* described by Linnæus and Fabricius. It is whitish; antennæ villose; eyes black. A native of Europe, and inhabits reedy marshes.

ARUNDINIS, a species of *PHALÆNA* (*Noctua*, Linn.) that lives on the stalks of reeds. It is an European kind; the wings are cinereous with black dots; and marginal lunules of the same colour; and the wings beneath marked with a central brown spot. Fabricius, &c.

ARUNDINIS, a species of *APHIS*, that lives on the leaves of *arundo epigeios*. The body is green; head and thorax brown, and covered with white dots. Fabricius, Gmelin, &c.

ARUNDO, in *Botany*, Reed (supposed to be derived from *arco*, because it soon becomes dry). Linn. g. 93. Schreb. 124. Juss. 32. Class. *triandria digynia*. Nat. Ord. *Gramineæ* or *grasses*. Gen. Char. *Cal.* glume one, or many-flowered, two-valved, erect; valves oblong, acuminate, awnless; one shorter. *Cor.* two-valved; valves the length of the calyx, oblong, acuminate; from their base arises a *lanugo*, almost the length of the flower; necessary, two-valved, very small. *Stam.* filaments three, capillary; anthers forked at both ends. *Pist.* germ oblong; styles two, capillary, reflex, villose; stigmas simple. *Per.* none; corolla adheres to the seed without gaping; seed single, oblong, acuminate at both ends, furnished with long down (pappus) at the base.

Ess. Gen. Char. *Cal.* two-valved; florets congregated, surrounded with wool.

Species, 1. *A. bambos*; bambu or bamboo-cane; *A. bambee*. Lour. Cochinch. 56. *A. arbor*, Bauh. Pin. 18.—*vasaria*, Bûlu Java. Rumph. Amb. l. 6. c. 4. Ily. Rheed. Mal. l. 25. t. 16. *Bambos arundinacea*, Retz. Obs. 5. 24. n. 58. "Calyxes many flowered, (one-flowered, Lour.) spikes in threes, (unequal in number, Retz.) sessile." Lin. flowers six-stamened; panicle diffused, with imbricate spikelets, branches of the culm spiny; calyxes one-flowered. Loureiro. Panicle branched, divaricate, hard; spikes heaped alternately, unequal in number, sessile. Retz. The bamboo has a woody hollow round straight culm, forty feet high and upwards, simple and shining; the internodes a foot in length and in circumference; sheaths thick, hairy, rough, convolute, deciduous; branches alternate, slender, solid, spiny, reclining, springing out from the base to the top; the lower ones being usually cut off; leaves small, entire, lanceolate, roundish at the base, striated, rough, on alternate round petioles. For the parts of inflorescence we refer to the specific characters. It grows almost every where within the tropical regions. Over a great part of Asia it is very common: in China, Cochinchina, Tonquin, Cambodia, Japan, Ceylon, the peninsula of India, and the islands. The bamboo-cane has been long since introduced into the West Indies, and flourishes also in South Carolina. Mr. Miller cultivated it here in 1730, and if our stores were high enough, these plants would probably rise to the height of forty feet, as a strong shoot from the root has been found to attain to half this height in six weeks.

There is perhaps no plant used for such a variety of purposes as bamboo. In the East Indies, great use is made of it in building, and the houses of the lower class of people are almost entirely composed of it. Bridges are also made of it, masts for their boats, boxes, cups, baskets, mats, &c. Paper is also made of it by bruising and steeping it in water, and thus forming it into a paste. It is the common fence for gardens and fields, and is frequently used as pipes for conveying water. The leaves are generally put round the tea which is sent in chests to Europe from China. A substance called *Tabasher* or *Tabachir*, which is a concretion of the liquor in the cavities of the cane, and extracted at certain seasons, is said to be indestructible by fire, to resist the action of the strongest acids, and by fusion with alkali to form a transparent permanent glass which may be decomposed by acids, &c. The tabasher is much esteemed as a medicine by the orientalists, and indeed several parts of the bamboo, according to Loureiro, possess medicinal virtues. *A. arborea*, and *A. orientalis*, of Miller, seem to be only varieties of *A. bambos*, and we learn from Loureiro and others, that there are still more varieties, if not found to be distinct species. 2. *A. donax*, cultivated reed. *A. sativa*, Bauh. Pin. 17. Raii Hist. 1275. Mor. Hist. f. 8. t. 8. f. 5. "Calyxes five-flowered, panicle diffused, culm shrubby;" culm from six to

to twenty feet in height, hard, almost woody, jointed or knotted, with diaphragms. Above each joint a leaf embracing the culm, with a yellow sheath, two feet long, and three inches broad. The top of the culm ends in a point, the leaves rolling in the form of a cone; panicle a foot and a half long, erect, many flowered. Number of flowers in the calyx variable, often two, but more commonly three. It is a native of the south of Europe, Siberia, Egypt, Cochinchina, &c. It was cultivated in 1648, in the Oxford botanic garden, and flowers here in July and August. The canes are brought to us from Spain and Portugal, for the use of weavers, and for making fishing rods, &c. There is a variety of *A. donax*, with striped leaves, noticed by Miller and others. 3. *A. phragmites*, common reed. Smith Flor. Brit. 144. Hudf. 53. With. 166. Relh. 51. Eng. Bot. 401. "Calyxes five flowered, panicle loose;" root perennial, creeping; culms annual, erect, simple, six feet high, round, jointed, leafy, smooth, white within; leaves lanceolate, acuminate, spreading, striated, rough at the edges, underneath very smooth and glaucous; sheaths cylindric, striated, smooth; stipules very short, hairy on both sides; panicle erect, diffused, much branched; glumes of the calyx very unequal, lanceolate, acute, the larger three-nerved; florets from four to six, furrowed at the base with a silky wool; interior glume ciliated, half the length of the exterior; seed covered with the indurated corolla. A variety of this species with variegated leaves is noticed by Relhan. It is common in ditches, standing waters, and on sides of rivers, flowering from July till September. The common reed is used for screens in gardens, also as a foundation for plaster in ceilings, and for various other purposes. 4. *A. epigejos*, wood reed. Eng. Bot. t. 402. Smith Flor. Brit. 145. *A. calamagrostis*, Hudf. 54. Relh. 52. Lightf. 106. *calamagrostis lanceolata*, With. 122. *gramen arundinaceum panicula mollis padiceâ majus*, Raii Syn. 401. "Calyxes one-flowered, longer than the corolla, panicle erect, leaves lanceolate;" root creeping; culm nearly as high as the preceding, but weaker, and often branched at the base; leaves lanceolate acuminate, nervose, underneath glaucous and rough at the edges; sheaths smooth, striated; stipule lanceolate, many times divided, naked on both sides; panicle erect, rough, spreading; flowers in clusters all on the same side, nodding; glumes of the calyx nearly equal, lanceolate, acute, nervose, rough on the keeled part; floret solitary, much shorter than the calyx, white, membranaceous, inserted in a woolly substance longer than the petals, often cloven at the apex; near the base, and from the back arises an awn, which is jointed, and nearly the length of the wool. We are told by Dr. Smith, that the wool and awn here noticed, were, from an error, not represented in the figure referred to in Eng. Bot. It grows in shaded ditches and wet meadows: and flowers in July. 5. *A. calamagrostis*, small reed, Eng. Bot. 403. Flor. Dan. 180. Smith Flor. Brit. 146. 180. *A. epigejos*, Hudf. 54. Tehl. 51. *Calam. epigejos*, With. 123. *Cal. minor glumis rufis & viridibus*, Dill. in Ray's Syn. 401. "Calyxes one-flowered, longer than the corolla; panicle erect, diffused; flowers scattered, erect; leaves linear." Smith. Root perennial, fibrous, scarcely creeping; culm erect, three or four feet high, round, very smooth, leafy, much slenderer than the preceding, and sometimes branched; leaves linear, acute, narrow, somewhat involute, pale green underneath, rough above, sometimes hairy; sheaths long, close, striated, almost smooth; stipule lanceolate, often lacerated, decurrent, smooth on both sides; panicle very branching, diffused; flowers scattered, erect; glumes of the calyx of a chestnut or purple colour, nearly equal, lanceolate, acute, keeled, rough on the back, scarcely nervose;

florets solitary, much shorter than the calyx, white, torn at the apex, inclosed in wool longer than the petals, a small awn at the apex, between the divisions of the larger petal. It grows in groves, hedges, and wet situations, flowering in July. 6. *A. arenaria*, sea-reed. Marram. Sea-matweed, Smith, Flor. Brit. 148. Hudf. 54. Mart. Flor. Ruft. t. 32. Dickf. H. S. Fasc. 12. 5. Flor. Dan. t. 917. *Calamagrostis arenaria*, With. 123. "Calyxes one-flowered, longer than the corolla; panicle spicately; flowers erect, awnless; leaves rolled inwards, pungent." Root perennial, creeping, jointed, spreading itself to a great extent; culm about three feet high, stiff, round, smooth, articulated, leafy; leaves erectopatent, rigid, turning inwards, sharply pointed, glaucous, smooth on the under side, on the upper furrowed; sheaths nervose, smooth; panicle erect, spike-like, with short erect branches; flowers lanceolate, acute, compressed, keeled, obscurely three-nerved; florets solitary, rather shorter than the calyx; glumes lanceolate, unequal, nervose, with a rough keel, the outer broadest, eroded at the apex, and embracing the other; wool about one-third the length of the floret. Common on the sea-coasts, growing in the sand. By means of its extensive creeping roots, it is of great use in giving stability to driving sands which gather about it in hills or banks. It is planted about Wells in Norfolk, to aid in repelling the sea; a purpose for which it seems peculiarly well adapted. 7. *A. colorata*, Canary reed-grass. Soland. in Ait. Hort. Kew. Smith, Flor. Brit. 147. *Phalaris arundinacea*. Sp. Pl. Hudf. Relh. Flor. Dan. 259. *Cal. variegata*. With. 124. *Gramen arundinaceum acrofa glumâ nostras*. Raii Syn. 400. β . *G. arundinaceum acrofa glumâ Jerseianum*. Raii Syn. 400. γ . *Phalaris arundinacea*; β . *picta*. Sp. Pl. 80. "Calyxes one-flowered, equal to the corollas; panicle erect, glomerate; flowers inclining to the same side, awnless; leaves flat." Root perennial, creeping, scaly, or turfy; culm erect, three to five feet high, round, leafy, striated, smooth, furnished with many joints; leaves spreading, lanceolate, striated, with a smooth margin on both sides, on the variety β . glaucous, in γ . variegated; sheaths nervose, somewhat inflated, smooth; stipule short, obtuse; panicle erect, branched, in lobes, branchlets angular, rough; flowers rolled together, inclining to one side, variegated with white and purple; glumes of the calyx equal, compressed, keeled, three-nerved; florets solitary, the length of the calyx, lanceolate, rather compressed, awnless, furnished with two nectarious pencil-shaped substances at the base; glumes or valves hairy, equal in length, but the exterior broader than the other. It grows in stagnant waters, and on the banks of rivers. The variety γ . cultivated in gardens, and called ribband-grass, was also found wild near Cambridge by Mr. Relhan. The following are new species. 8. *A. conspicua*. Forst. Fl. Aust. n. 48. "Calyxes one-flowered; panicle loose, from erect, spreading; awn of the outer petal reflex, and very long." A native of New Zealand. 9. *A. agreflis*. Lour. Cochinch. 57. *Arundarbor spinosa*. Rumph. Amb. l. 6. c. 7. t. 4. "Flowers six-stamened; panicle spiked; spikelets clustered; lower branches of the culm very spiky; calyxes one-flowered." It grows to the height of thirty feet, and to the thickness of a man's arm. A native of Cöchinchina, growing on mountains and dry desert places. 10. *A. mitis*, Lour. Cochinch. 57. *arundarbor fera*, Rumph. Amb. l. 6. c. 7. t. 4. "Flowers six-stamened, panicle erect, contracted; spikes long, imbricate; culm very even, unarm-ed; calyxes one-flowered." This is rather a higher and thicker plant than the *A. agreflis*. It is cultivated in Cochinchina, and being cut into long pieces, it is used for weaving into hats, coffers, baskets, and a variety of utensils, which are very elegant. 11. *A. multiplex*, Lour. Cochinch. 58. *Arundabor-*

dabor, &c. Rumph. Amb. l. 6. c. 1. t. 1. "Flowers six-flamed; spikes interrupted; spikelets in whorls; culm divided; calyxes one-flowered." Culm perennial, twelve feet high, with very long internodes; leaves linear-lanceolate. A native of the northern provinces of Cochinchina. 12. *A. bengalensis*, Retz. Obs. 5. 20. n. 45. "Calyxes two-flowered, panicle erect, with three-flowered pedicels. "Culms lofty, thick, leafy; leaves two feet long. A native of Bengal. 13. *A. piscatoria*, Lour. Cochin. 55. "Calyxes one-flowered, spike terminating, culm branched, leaves minute." It rises eight feet, with a perennial culm; knots approximating; leaves lanceolate-linear. A native of Cochinchina. Being tough and tapering towards the end, it is well adapted for fishing rods. 14. *A. dioica*, Lour. Cochin. 55. "Calyxes one-flowered, spikes in bundles, compound; spikelets linear;" culm perennial, eight feet high; knots distant; flowers dioecous. A native of Cochinchina, in woods.

Propagation and Culture. The bamboo must be preserved in a warm stove, and as the roots spread very wide, it should be planted in a large tub, filled with rich earth; this must be plunged into the hot-bed in the bark stove, and must have plenty of water. When the tub decays, if the plant be permitted to root in the tan, it will grow to a larger size; but then care must be taken, when the bed is refreshed with new tan, to leave a sufficient quantity of the old tan about the roots. It may be propagated by slips from the roots, taken off in the spring. 2. The cultivated reed will bear the cold of our winters in the open ground, provided it be planted in a soil not too wet; and if the winter should prove very severe, a little mulch be laid over the roots. The stem dies in autumn, and a new one rises the succeeding spring, which will grow to ten or twelve feet high during the summer, if properly supplied with water in dry weather. It is very proper to be intermixed with trees and shrubs, where it will have a pleasing effect in adding to the variety. It is propagated by parting the roots in the spring before they begin to shoot. It never flowers in England. The variety with variegated leaves is more tender, and must be sheltered in this country during the winter. See Martyn's Miller's Dict.

ARUNDO. See AGROSTIS, ANDROPOGON, CENCHRUS, MELICA, SPINIFEX, and ZIZANIA.

ARUNDO Florida et Indica. See CANNA.

ARUNDO Rotang. See CALAMUS.

ARUNDO Saccharifera. See SACCHARUM.

ARUPINUM, ARUPIUM, or ARYPIUM, in *Ancient Geography*, a town of Liburnia, being one of the four which were occupied by the Japodes or Japydes, according to Strabo.

ARURA, in *Antiquity*. See AROURA.

ARURA, in *Middle Age Writers*, denotes a field ploughed and sowed.

ARUSINI CAMPI, in *Ancient Geography*, erroneously written by Cluverius *Taurassini*, plains in Lucania famous for the last battle fought between Pyrrhus and the Romans. Pyrrhus being at Tarentum, and hearing that the two consuls, Curius Dentatus and Cornelius Lentulus, had divided their forces, the one invading Lucania, and the other Samnium, divided a chosen detachment of his army into bodies, and marched with his Epirots against Dentatus, in hopes of surprising him near Beneventum. The consul prepared to meet him, repulsed his van-guard; and having thus far succeeded, marched into the Arusan fields, and drew up his army in a plain, which was wide enough for his troops, but too narrow for the Epirot phalanx to act with its full effect. However, the king's eagerness to try his strength and skill induced him to engage, notwithstanding

this great disadvantage. Upon the first signal, the action began, and as one of the king's wings gave way, victory seemed to incline to the Romans. But the wing under the king's own immediate command repulsed the enemy, and drove them to their intrenchments. Dentatus perceiving that this advantage was partly owing to the elephants, commanded a corps de reserve, posted near the camp, to advance, and to attack those animals with burning torches; which so terrified them, that they turned about, broke into the phalanx, and occasioned the utmost disorder. The Romans availing themselves of the confusion, charged with such fury, that the enemy were entirely broken and defeated. Upon this disaster, Pyrrhus retired to Tarentum, leaving the Romans in full possession of his camp; which they so much admired, that they made it a model which they followed ever after. Pyrrhus, after this defeat, determined to leave Italy, and prepared for setting sail for Epirus, where he at length arrived with 8000 foot and 500 horse, regretting that he had spent six years in Italy and Sicily to no purpose. Anc. Un. Hist. vol. ix. p. 91.

ARUSIS, a town of Asia, in the interior part of Media. Ptolemy.

ARUSPICES, an order of priests among the *Ancient Romans*, who foretold things to come, chiefly by inspecting the entrails of beasts which were killed in sacrifice. They also took their observations from the victims before they were cut up, from the flame that used to rise while they were burning; and from the flour, bran, frankincense, wine, or water, used in the sacrifice. The word seems more properly written *haruspices*; as being derived from *haruga*, which signifies the entrails of victims; and *aspicere*, to view or consider; others derive *aruspices*, *ab aris aspicendis*, from their looking on the altar. These diviners were all at first taken from Etruria, where their art was in great repute; but afterwards the senate ordered twelve of the sons of the chief men of Rome to be sent into that country to acquaint themselves with the rites and ceremonies of the Etruscan religion, of which this science was the chief part; the ceremony, however, of consulting the entrails of victims was practised among the Greeks before it was introduced into Hetruria. An instance of it occurs at the battle of Platea; and it was recurred to on other occasions among the Asiatics. But the Etruscans were perhaps the first who reduced it to an art, and established the rites by which it was conducted. The doctrine or discipline of the aruspices was formed into a precise art, called *aruspicina*. Cato, who was an augur, used to say, he wondered how one aruspex could look at another without laughing in his face; by which we learn what opinion he had of the solidity of the aruspicina. Constantine passed several laws against the aruspices; and though he allowed the Pagans to consult them, he forbade their entering the houses of private persons, upon pain of being burnt alive, and such as received them were to forfeit their estates, and be banished for life. His intention was to prevent all private sacrifices and consultations, and by one law he obliged those who consulted the aruspices to send their answers to his secretary.

ARUSPICI libri, a kind of sacred writings among the ancient Hetrurians, wherein the laws and discipline of the aruspices were described. They were also called *rituales*, sometimes *fulgurales libri*, as directing how to take indications from thunder, lightning, &c.

ARVUM, in *Ancient Agriculture*, properly denoted ground ploughed, but not sowed. Though the word is also sometimes extended to all arable or corn land, in contradistinction from pasture.

ARWACAS BAY, in *Geography*, lies on the east coast of

of South America, and has the river Amona to the west. It has a good road for large ships, well sheltered from south and westerly winds, but exposed to the north.

ARWANGEN, a town and castle of Swisserland, in the canton of Berne, seated on the Aar, 12 miles east of Soleure.

ARX, in the *Ancient Military Art*, a town, fort, or castle, for the defence of a place. The arx, in ancient Rome, was a distinct edifice from the capitol, though some have confounded the two. According to Ryckius, the arx, properly speaking, was a place on the highest part of the Capitoline Mount, stronger and better fortified than the rest, with towers and pinnated walls; in which was also the temple of Jupiter Capitolinus. Struv. Synt. Ant. Rom. c. ix. p. 522.

ARX also denoted a consecrated place on the Palatine Mount, where the augurs publicly performed their office. Some will have the arx to have been the augural temple; but Varro expressly distinguishes between the two.

ARX was particularly used for a public place in Rome, set apart for the operations of the augurs. In this sense, arx amounts to the same with what is otherwise called *auguraculum*, and *auguratorium*, and in the camp *augurale*. Out of this arx it was that the *feciales*, or heralds, gathered the grays used in the ceremony of making leagues and treaties. Liv. i. c. 24.

ARX Britannica, in *Ancient Geography*, a citadel of Batavia, near the old mouth of the Middle Rhine. Its foundation is seen at low water, and after a strong south-westerly wind. Some suppose it to be the pharos or very high tower of Caligula, as Suetonius calls it; a monument of his pretended conquest of Britain; others imagine that it was built by Drusus, with an altar, erected by Claudius, on his expedition into Britain. But the usual passage was from Gesoriacum, and Suetonius says expressly, that Claudius passed over from thence. Its ancient name is no where expressed; it is now called t'huys te Britten or Brittenburg, i. e. Arx Britannica; but it does not appear from what authority. Cellarius.

ARXAMA, a town of Asia, in the interior part of Mesopotamia. Ptolemy.

ARXANA, a town of Asia, in Armenia Major, near the river Nymphias.

ARXATA, a town of Armenia Major, on the confines of Atropatene. Strabo.

ARXEN, a town of Thrace.

ARXIANUS AGER, a plain of Asia, near the river Lerma.

ARYCA, a town of Greece, in the country of the Locrian Epicnemidii. Diod. Sic.

ARYCANDA, a town of Asia, in Lycia. Steph. Byz.

ARYCANDUS, a river of Asia, in Lycia, that discharged itself into the Limyra. Pliny.

ARYES, in *Geography*, a people of South America, in Brazil, in the neighbourhood of Capitania, or the government of Porto Seguro.

ARYMAGDUS, or ORYMAGDUS, in *Ancient Geography*, a river of Asia, in Cilicia. Ptolemy.

ARYMPHÆI, a people who inhabited the territory adjoining to the Palus Mæotis and Tanais. They were clothed like the Scythians, spoke a peculiar language, and lived in the woods. They were honoured as a sacred people, and their country served as an asylum. They are mentioned by Herodotus and Mela.

ARYS, in *Geography*, a town of Italy, belonging to the republic of Venice, in the province of Friuli, ten miles W. S. W. of Palma la Nuova.

ARYTÆNOIDES CARTILAGO, in *Anatomy*, a carti-

lage situated at the back part of the larynx. There are two cartilages which bear this name.

ARYTÆNOIDEUS MUSCULUS, is subservient to the motions of the above mentioned cartilages. For an account of both these articles, see LARYNX.

ARYTHMUS, or ARHYTHMUS, formed from the privative *a*, and *ῥυθμ*, modulus or measure, in *Medicine*, is used by some for a sinking or failure of the pulse, so that it can no longer be felt; but it more properly denotes an irregularity, or want of due order and proportion of the pulse.

ARZAC, in *Geography*, a town of France, in the department of the Lower Pyrenées, and chief place of a canton in the district of Orthes, five leagues north of Pau. The place contains 1014, and the canton 10,531 inhabitants: the territory includes 175 kilometres and 29 communes.

ARZACHEL, or ARZCHAEI, in *Biography*, a Spanish mathematician, lived in the tenth or eleventh century, and wrote a book on Astronomy, intitled "Observationes de Obliquitate Zodiaci." Vossius.

ARZAMAS, in *Geography*. See ARSAMAS.

ARZANNO, a town of France, in the department of Finisterre, and the chief place of a canton in the district of Quimperlé, five miles E.N.E. from Quimperlé. The place contains 4150, and the canton 9,680 inhabitants: the territory comprehends 132½ kilometres, and 3 communes.

ARZBERG, a town of Germany, in the circle of Franconia, and principality of Bareuth, seven miles east of Wunsiedel.

ARZENGAN, or ARZINGAN, a town of Asiatic Turkey, in the province of Aladulia, eighty miles south-east of Erzerum. It was taken in 1242 by the Mogul Tartars.

ARZENI BAY lies on the coast of Barbary, in the Mediterranean, on the east side of cape Ferrat or Ferrol, and extends to the north-east as far as cape Dyvy or Ivoy. The town is at the south-west, in the bottom of the bay, and before it is good anchorage. It stands on the east side of the river which here falls into the bay.

ARZENZA, or CHERVESTA, a river of European Turkey, in Albania, discharges itself into the gulph of Venice, between Durazzo and Pigo.

ARZES, in *Ancient Geography*, a town of the island of Cyprus, formerly a considerable city, and see of a Greek bishop, but since the reduction of the island by the Turks, reduced to a village.

ARZES, a town of Asia, situate towards the middle of the northern part of the lake Arissa.

ARZEW, in *Geography*, a sea-port of Africa, in the western province or province of Tlemisan, twelve miles S.S.E. of cape Ferrat. It is called by the Moors, the port of the "Beui Zeian," after the name of the neighbouring Kabyles, who were formerly a considerable community. Ptolemy places his "Deorum portus" betwixt Quiza and Arsenaria, which, says Dr. Shaw, can be no other than this, provided Geeza or Warran is the ancient Quiza; as Arzew is, without doubt, the ancient *Arsenaria*. Arzew is at the distance of three Roman miles from this port, as Pliny places his Arsenaria. The country behind it is a rich champaign ground, but towards the sea there are steep rocks and precipices, which must have served for its defence in that direction. The water now used by the inhabitants lies lower than the sea, and of course is brackish. But for obtaining a supply of fresh water, the whole city was formerly built upon cisterns, of which several still remain, and serve for dwellings to the inhabitants. Several ancient ruins of capitals, bases, and shafts of pillars, with sepulchral inscriptions, are scattered over this place. Five miles from the sea-coast are the salt-pits of Arzew, which supply the neighbouring communities with

with salt. This commodity, as the pits are exhaustible, would be a very valuable branch of trade under any other government than that of the Turks. Shaw's Travels, p. 14.

ARZILLA, a sea port town of Africa, on the coast of the Atlantic, in the empire of Morocco, built by the Romans at the mouth of a river, situate five leagues from Tangiers, and now inhabited by Moors and Jews, who carry on no trade. It was formerly a Roman colony, afterwards fell under the Government of the Goths, and was next taken by the Mahometans. It was taken and burned by the English; after which it remained waste and uninhabited for thirty years, but was rebuilt by the caliphs of Cordova. In the year 1470, it was taken by Alphonso king of Portugal, called the African; and abandoned by the Portuguese about the end of the sixteenth century. N. lat. 35° 30'. W. long. 5° 30'. Chenier's Morocco, vol. i. p. 22.

ARZUS, in *Ancient Geography*, a river of Thrace, which ran into the Propontis at the latitude of about 42°.—Also, a town of Thrace, called also *Arzum* and *Affus*, situate between Opizus and Sabzupara, eighteen miles from the former, and twenty miles from the latter.

AS, among *Antiquaries*, sometimes signifies a particular weight; in which sense the Roman *as* is the same with the Roman *libra*, or pound. See *LIBRA*.

The word is by some derived from *as*, which, in the Doric dialect, is used for *as*, one, q. d. an entire thing; though others will have this money named *as*; quasi *as*, because made of brass.—Budæus has written nine books *De asse*, & *ejus partibus*; "Of the *as*, and its parts."

The *as* had several divisions. See the table under *As*, an integer. See also *WEIGHT*.

As was also the name of a Roman coin, which was made of different materials and different weights, in different ages of the commonwealth.

Under Numa Pompilius, according to Eusebius in his "Chronicon," the Roman money was either of wood, leather, or shells. In the time of Servius Tullius, who reigned in Rome about 578 years before Christ, it was copper or brass, and was called *as libra*, *libella*, or *pondo*, because actually weighing a pound, or twelve ounces. Mr. Pinkerton is of opinion, that we may value the *as libralis* of ancient Rome at about eight-pence English. This was called *Æs grave*; and these *asses* were weighed, and not counted. The coinage of Tullius seems to have been confined to the *as*, or piece of brass, with the impression of Janus on the one side, and the prow of a ship on the other, because Janus arrived in Italy by sea. Varro, however, informs us, that the first coins of Tullius had the figure of a bull, or of other cattle upon them, like the Etruscan coins, of which they were imitations; and hence it is said they were called *pecunia*. Those *asses* with the figure of Janus and the prow of a ship upon them, may be supposed, according to Mr. Pinkerton, first to have appeared about 400 years before Christ; but in a short time, various subdivisions of the *as* were coined. The *femis*, or half, is commonly stamped with the head of Jupiter laureated; the *triens*, or third, with four cyphers, as being originally of four ounces weight, has the head of Minerva; the *quadrans*, or quarter, marked with three cyphers, has the head of Hercules wrapt in a lion's skin; the *sestans*, or sixth, with two cyphers, is marked with the head of Mercury with a cap and wings; and the *uncia*, having one cypher, is marked with the head of Rome. All these coins appear to have been cast in moulds, by a considerable number at a time; afterwards the smaller divisions were struck, instead of being cast; but the larger continued to be cast until the *as* fell to two ounces. At this time, however, it was called *libra*, and accounted a pound of copper; though larger de-

nominations of it were coined, such as the *biffas* or double *as*, *treffis* and *quadruffis* of three and four *asses*, and even as far as *decuffis* or ten *asses*, marked X. The smaller parts of the *as* seldom occur, owing to their small value; though some are still found, such as the *femis*, *triens*, *quadrans*, *sestans*, and *uncia*, coined in the times of Nero and Domitian. Some coins occur which exceed the *as libralis* in weight; and these are supposed to be prior to the time of Servius Tullius. The Romans reckoned by *asses* before they coined silver, in the 485th year of the city, or 269 before Christ, and afterwards they kept their accounts in *sesterces*.

Pliny says, that when the first Punic war had exhausted the treasury, they reduced the *as* to two ounces. They thus gained fifteen parts, and were enabled to pay their debts. Mr. Pinkerton is of opinion, that Pliny, in asserting that the *as* continued of a pound weight till the end of the first Punic war, is mistaken. Coins, that refute this assertion, are still found; and he thinks it probable that the *as* decreased gradually and slowly in weight, as from a pound to eleven ounces, then to ten, nine, &c.; but neither the *as* nor its parts were ever correctly fixed. In the second Punic war, when the Romans were much pressed by Hannibal, about the year of Rome 538, or 216 before Christ; Fabius Maximus being dictator; the *asses* were further reduced to an ounce each; and the silver denarius was made to pass for sixteen *asses*, the *quinarius* for eight, and the *sesterce* for four: and the republic gained upon the copper money one half. This took place about thirty-six years after the former reduction. The *as libralis*, with the face of Janus upon it, is the form most commonly occurring before it was reduced to two ounces. Mr. Pinkerton supposes, that this continued for at least a century and a half after the coinage of Tullius, till about 300 before Christ, in the year of Rome 454, between which and the 502d year of Rome, a gradual diminution of the *as* to two ounces must have taken place. The following table exhibits, according to Mr. Pinkerton, the dates of the Roman coinage. The *libralis* coined by Tullius with the figures of oxen, &c. about 167 years after the building of Rome, according to sir Isaac Newton, or about the year before Christ 460, or 587 according to Blair;

<i>As libralis</i> , with Janus and the prow of a ship	400
<i>As</i> of 10 ounces	300
8	290
6	280
4	270
3	260
2, according to Pliny	250
1, according to the same	214

Lastly, by the Papirian law, the *as* was reduced to half an ounce: and it is generally thought that it rested here all the time of the commonwealth, and event till Vespasian's reign. This last was called the Papirian *as*, because the law just mentioned was passed in the year of Rome 563, or, according to the Varronian computation, 191 before Christ, by C. Papirius Carbo, then tribune of the people. Thus, there were four different *asses* in the time of the commonwealth. The figure stamped on the *as* was at first a sheep, ox, or sow; and from the time of the kings, a Janus with two faces on one side, and the *rostrum* or prow of a ship on the reverse.

The *triens* and *quadrans* of copper had the figure of a small vessel called *ratia* on the reverse. Thus Pliny: *Nota æris (i.e. assis), fuit ex altera parte Janus geminus, ex altera rostrum navis: in triente vero & quadrante rates*. Hist. Nat. lib. xxxiii. cap. 3. Hence these pieces were sometimes called *ratiti*.

After the Romans began to have an intercourse with Greece, various elegant figures appear upon the parts of the

as, though not on the *as* itself till after the time of Sylla. Towards the latter end of the republic, *dupondis*, or double *asses*, were coined, together with the *sestertii ærei*, which supplied the place of the *quadraffis*, when the denarius began to be reckoned at sixteen *asses*; probably at the time when the latter was reduced to half an ounce. M. Pausan, in his "Metrologie," estimates the value of the *as*, from the foundation of Rome till the year 537, at 20 fols, or a livre; though it was sometimes 29 fols: from the year of Rome 537 to the year 544, at 3 French fols, its weight being two Roman ounces of copper: from 544 to 586, at 1 fol 10½ deniers, its weight being one Roman ounce: from 586 to the reign of Cladius or of Nero, 1 fol 1½ denier: from the reign of Cladius or of Nero to that of Constantine, about 1 fol. See COIN, and COINAGE.

As was also used to denote any integer, or whole.—Whence the English word *ace*.

Thus, *as* signified the whole inheritance; whence *heres ex asse*, the heir to the whole estate.

So the *jugerum*, or Roman acre of land, being reckoned the *integer*, was called *as*, and divided, like it, into twelve *uncie*.

The *as*, and its parts or divisions, stand thus:

I	<i>As</i>	12	<i>Uncie</i>	$\frac{1}{2}$	<i>Semis</i>	6	<i>Uncie</i>
$\frac{1}{2}$	<i>Deunx</i>	11		$\frac{1}{4}$	<i>Quincunx</i>	5	
$\frac{2}{3}$	<i>Dextans</i>	10		$\frac{1}{3}$	<i>Triens</i>	4	
$\frac{3}{4}$	<i>Dodrans</i>	9		$\frac{1}{4}$	<i>Quadrans</i>	3	
$\frac{4}{5}$	<i>Bes</i>	8		$\frac{1}{5}$	<i>Sextans</i>	2	
$\frac{7}{8}$	<i>Septunx</i>	7		$\frac{1}{8}$	<i>Uncia</i>	1	

As, or *Ash*, in *Mythology*, a name given to a deity of the inhabitants of the north. Sperlingius suggests, that when the Asiatics were driven from their country by Pompey, they retired into the northern regions; but as they were a delicate and polished people, they despised the barbarous names of the north, and they were regarded among the rude inhabitants of these countries as superior to mortals, or as a species of divinities. Accustomed therefore to express any thing that was sublime and excellent by the terms *Afa* and *Æfs*, they applied these appellations to their gods.

ASA, in *Scripture Biography*, a king of Judah, was the son of Abijam and succeeded him A. M. 3049, B. C. 955. He was zealous in the establishment and maintenance of true religion, and active in demolishing altars created to idols, and in restraining and punishing such as were addicted to the infamous practices connected with idolatry, and restoring the worship of Jehovah. He obtained a decisive victory over Zerah, king of Æthiopia, in the plain of Zephathah or Zephalah near Marefnah. In his contest with Baasha, king of Israel, he called in the assistance of Benhadad, king of Syria, for which he was reproached by the prophet Hanani, whom he severely punished. He died A. M. 3090. B. C. 913, after having held the sceptre of Judah nearly forty-one years. 1 Kings xv. 8, &c. 2 Chron. xiii—xvi.

ASA, in *Geography*, a river of Germany in the archduchy of Auftria, which runs into the Danube two miles north of Efferding.

ASA, among *Naturalists*. The writers of the later ages have formed this word *afa* from the *lasar* of the ancients, and attributed it to a gum very different from that anciently known by the name they have thus corrupted. The *afa* of the ancients was an odoriferous and fragrant gum; and the *afa* of the after ages had so little title to this epithet, that they distinguished it by one, expressing its being of an offensive or stinking smell. The Arabian writers, according to this distinction, describe two kinds of *afa*, the one stinking, the other aromatic; and the modern Greeks appro-

riated the name *afa*, or *lasar*, to the stinking gum the Latins called by that name, but added a distinctive epithet to express its smell, and called it *scardolafarum*.

ASA Dulcis, in the *Materia Medica*, a name by which some authors have called the *benjamin* or *BENZOIN* of the shops. Dale.

ASA Fatida, or *ASSA Fatida*. See FERULA.

ASABORUM PROMONTORIUM, in *Ancient Geography*, a promontory of Arabia, in the straits of the Persian gulf. Ptolemy.

ASABRA, in *Geography*, a river of Spain, which runs into the Aragon near Morillo.

ASAD, a town of Persia, in the province of Faristan, forty-seven leagues north-east of Schiras.

ASAD-ABAD, a large and populous town of Persia, in the province of Irac-Agemi, on the frontiers of Kurdistan, twenty-two leagues N. N. E. of Amadan.

ASÆI, in *Ancient Geography*, a people of Asia, in Sarmatia. Ptolemy.

ASAM, or *ASSAM*, in *Geography*, a country of Asia, situate to the north-east of Bengal, and bounded on the north by Thibet, on the west by Hindostan, on the south by Meckley, and on the east by part of the Birmah empire, or Ava. Its districts commence, where those of Bengal end, in N. lat. 26°, and E. long. 91°. This country is divided into two parts by the river Brahmaputra, or Burrampooter, which flows from Khata. The northern part is called Utarcul, and the southern Dacshincul: the former begins at Gowahutty, the boundary of the Mogul possessions, and terminates in mountains inhabited by a tribe called Meeri Mechmi; and the latter extends from the village Sidea to the hills of Strinagar. *Afam* is of an oblong figure; its length about 200 standard cofs, and its breadth from the northern to the southern mountains about eight days' journey. Several rivers flow from the southern mountains of *Afam*, and fall into the Burrampooter; and the chief of these is the Dhonec. Between these rivers is an island well inhabited, and in an excellent state of tillage, containing a spacious and pleasant country that extends about fifty cofs. The cultivated tract is bounded by a thick forest, which harbours elephants, and where those animals may be caught, as well as in four or five other forests of *Afam*. These animals are so numerous, that five or six hundred may be procured in a year. Across the Dhonec, on the side of GHERGONG, which is the capital of the country, is a wide, agreeable, and level country, the face of which is marked with population and tillage, and presents every where delightful prospects of ploughed fields, harvests, gardens, and groves. This island lies in the part called *Dacshincul*. As the country is overflowed in the rainy seasons, a high and broad causeway has been raised for the convenience of travellers from Salagereh to Ghergong; each side of which is planted with bamboos, the branches of which meet and are intertwined, and thus afford a pleasant shade. Amongst the fruits which this country produces are mangoes, plantains, jacks, oranges, citrons, limes, pine-apples, and punialeh, a species of amleh, which has such an excellent flavour, that every person who tastes it prefers it to the plum. There are also cocoa-nut trees, pepper-vines, areca-trees, and the sadii, or malabathrum, in great plenty. The sugar-cane excels in softness and sweetness, and is of three colours, red, black, and white. There are ginger which is free from fibres, and betel vines. Such are the strength and fertility of the soil, that any seed that is sown, or slips that are planted, always thrive. The principal crop of the country consists in rice and mash, which is a species of grain: wheat and barley are never sown. The silks are excellent, and resemble

resemble those of China; but they manufacture few more than are required for use. They embroider with flowers, and weave velvet and also tautbund, a kind of silk, of which they make tents and kenauts, or the walls that surround them. Salt is precious and scarce; but it is found at the bottom of some of the hills, of a bitter and purging quality; a better sort, extracted from the plantain-tree, is more common. The mountains, inhabited by a tribe called "Nanac," produce plenty of excellent lignum aloes, which the natives annually import into Afam, and barter for salt and grain. These people are naked, and feed on dogs, cats, snakes, mice, rats, ants, and locusts. The hills of Camrup, Sidea, and Lucstigerah, supply a fine species of lignum aloes, which sinks in water. Several of the mountains contain musk-deer.

The country of *Uttarcul* on the northern side of the Burampooter, is in the highest state of cultivation, and produces plenty of pepper and areca nuts: it even surpasses Dacshincul in population and tillage. The breadth from the banks of the river to the foot of the mountains, where the climate is cold, and in which there is snow, is various; but it is no where less than fifteen, nor greater than forty-five cofs. The inhabitants of the mountains are strong, have a robust and respectable appearance, and are of the middling size. Their complexions, like those of the natives of all cold climates, are red and white; and they have also trees and fruits peculiar to frigid regions: several of the hills in the country of Dereng, on the side of Gowahutty, supply musk, kataus or mountain cows, bhoat and perece, which are two kinds of blanket, and two species of horses called goont and tanyans. Gold and silver are procured here, as also in the whole country of Afam, by washing the sand of the rivers. This, indeed, is one of the sources of revenue. It is supposed that 12,000, and some say 20,000 inhabitants, are employed in this occupation; and each of them pays a fixed revenue of a tola of gold to the rajah; a tola containing eighty reti weights, and eight retis being equal in weight to twenty-four barley corns, or seven carats among jewellers. The people of Afam (says the writer whose account is here cited) are a base and unprincipled nation, and have no fixed religion. They follow no rule but that of their own inclinations, and make the approbation of their own vicious minds the test of the propriety of their actions. They do not adopt any mode of worship practised either by Mahometans or Heathens; nor do they concur with any of the known sects which prevail amongst mankind: unlike the pagans of Hindoostan, they do not reject victuals which have been dressed by Mussulmans, and they abstain from no flesh except human. They even eat animals that have died a natural death. It is not their custom to veil their women. The men have often four or five wives each, and publicly buy, sell, and change them. They shave their heads, beards, and whiskers, and reproach and admonish every person who neglects this ceremony. It has been asserted that their language has not the least affinity with that of Bengal; but others say, that young Brahmins often come from Afam to Nadiya for instruction, and that their vulgar dialect is understood by the Bengal teachers. Their strength and courage are apparent in their looks; but their ferocious manners and brutal tempers are also betrayed by their physiognomy. They are superior to most nations in corporal force and hardy exertions. They are enterprising, savage, fond of war, vindictive, treacherous, and deceitful. The virtues of compassion, kindness, friendship, sincerity, truth, honour, good faith, and purity of morals, have been left out of their composition. Their dress consists of a cloth tied round their heads, another round their loins, and

a sheet thrown upon their shoulders; but it is not customary to wear turbans, robes, drawers, or shoes. There are no buildings of brick or stone, or with walls of earth, except the gates of the city of Ghergong, and some of their idolatrous temples. The habitations of the rich and poor are constructed of wood, bamboos, and straw. The rajah and his courtiers travel in stately litters; but the opulent and respectable persons among his subjects are carried in lower vehicles, called doolies. Afam produces neither horses, camels, nor asses; but those animals are sometimes brought thither from other countries. The brutal inhabitants, from a congenial impulse, are fond of seeing and keeping asses, and they buy and sell them at a high price; but they are much surprised at seeing a camel; and are so afraid of a horse, that if one trooper should attack 100 armed Afamians, they would all throw down their arms and fly, or if unable to escape, would surrender themselves prisoners. Yet if one of this detestable race should encounter two men of another nation on foot, he would defeat them.

The ancient inhabitants of this country were divided into two tribes, the Afamians and the Cultanians. The latter excel the former in all occupations except war and the conduct of hardy enterprises, in which the former are superior. A body guard of 6 or 7000 Afamians, fierce as demons, of unshaken courage, and well provided with arms and warlike accoutrements, always keep watch near the rajah's sitting and sleeping apartments; these are his loyal confidential troops and patrol. The martial weapons of this country are the musket, sword, spear, and arrow and bow of bamboo. In their forts and boats they have plenty of cannon, zerben or swivels, and ramchangees, in the management of which they are very expert. Whenever any of the rajahs, magistrates, or principal men die, they dig a large cave for the deceased, in which they inter his women, attendants, and servants, and some of the magnificent equipages and useful furniture which he possessed in his life time, such as elephants, gold and silver, badcash or large fans, carpets, clothes, victuals, lamps, with plenty of oil or a torch burning, for they consider these articles as stores for a future state. They afterwards construct a strong roof over the cave upon thick timbers. The rajahs of this country have never yielded submission and obedience, nor paid tribute and revenue to the most powerful monarch; but they have curbed the ambition, and checked the conquests of the most victorious princes of Hindoostan. When an invading army has entered their territories, the Afamians have covered themselves in strong posts, and distressed the enemy by stratagems, surprises, and alarms, and by cutting off their provisions. If these means have failed, they have declined a battle in the field, but have carried the peasants into the mountains, burnt the grain, and left the country empty. But when the rainy season has set in upon the advancing enemy, they have watched their opportunity to make excursions, and vent their rage; and the famished invaders have either become their prisoners, or been put to death.

The preceding account of the Afamians, who are probably superior in all respects to the Moguls, exhibits a specimen of the malignity and intolerance with which it was usual, in the reign of Aurengzebe, to treat all those whom the crafty, cruel, and avaricious emperor, was pleased to condemn as infidels and barbarians. It is extracted from "A description of Afam," written by Mohammed Cazim, and translated from the Persian by Henry Vanfittart, *eq. Asiatic Researches*, vol. ii. p. 171—185. It should be recollected, in justice to the people of Afam, that the author was an enemy, and a rigid Mahometan, resident at the

the court of Aurengzebe. The diet of the Afamefe, though less restricted than that of the Hindoos of Bengal, is by no means promiscuous; and their religion does not materially differ from that of Hindoostan, as it might be proved by their coins, on which are inscribed the names of the Hindoo deities.

ASAMA, or ASANA, in *Ancient Geography*, a river of Africa, in Mauritania Tingitana.

ASAMON, a mountain of Palestine, in Galilee, over-against Sephori. Josephus.

ASANAMARA, a town of India, on this side of the Ganges. Ptolemy.

ASANCHIA, a town of Germany. Ptolemy.

ASANCHIF, in *Geography*, a town of Asia, in the country of Diarbekir, situate on the Tigris, on the borders of Armenia.

ASANGARO, a jurisdiction of South America, under the bishop of Cusco, in Peru, fifty leagues from that city, in which are bred many cattle. In the north-east part of it there are some silver mines.

ASAPH, in *Biography*, a celebrated musician in the time of David, was the son of Barachias of the tribe of Levi. Afaph, and also his descendants, presided over the musical band in the service of the temple. Several of the psalms, as the 50th, the 73d to the 83d, have the name of Afaph prefixed: but it is not certain, whether the words or the music were composed by him; with regard to some of them, which were written during the Babylonish captivity, they cannot in any respect be ascribed to him. Perhaps they were written or set to music by his descendants, who prefixed to them his name, or by some of that class of musicians of which the family of Afaph was the head. 1 Chron. vi. 39. 2 Chron. xxix. 30. xxxv. 15. Nehem. xii. 46.

ASAPH, *St.* a monk of North Wales, was descended of a good family, and belonged to the church of Llan-Elvy, over which Kentigern the Scotch bishop of that place presided. Upon the removal of this prelate to his own country, he assigned his convent and cathedral to St. Afaph, so that after his death Llan-Elvy lost its name and took that of the saint. He was a diligent preacher, and frequently repeated this saying, "They who withstand the preaching of God's word, envy man's salvation." He flourished about the year 590, under Carentius king of the Britons; but the time of his death is unknown. The see seems to have continued vacant above 500 years, till it was filled by Geoffrey of Monmouth. St. Afaph was eminent in his time for learning and sanctity; he wrote the "Ordinances" of his church, the "Life" of Kentigern his master, and some other pieces. Biog. Brit.

ASAPH, *St.* in *Geography*, a city and bishop's see in Flintshire, which derived its name from St. ASAPH. The diocese consists of part of Denbigh, Flint, Montgomery, and Merionethshire, and a small part of Shropshire; containing 121 parishes, and 131 churches and chapels, most of which are under the patronage of the bishop. The see is valuable, and the patronage extensive. The town is seated on an eminence near the sea, at the termination of the vale of Clwydd. Although it is denominated a city, it is merely a village in extent. Its fine Gothic cathedral has been lately improved in its external decoration, and its palace has been rebuilt by the late bishop (Bagot); which being situated above the town, fronting the hill towards Holywell, commands a pleasant view.

ASAPHEIS, *ασαφεις*, from *α*, negative, and *σαφης* clear, open, in Hippocrates, in *Prorrh.* & *Coac.* are such patients as do not utter their words in a clear manner. The defect is occasioned, as Galen says, *Comm. 2. in Prorrh.* "either

by some hurt which the organs of speech have contracted from a disorder of the nerves, or else by a *delirium*."

ASAPHIDAMA, in *Ancient Geography*, a town of Syria, in the Chalcidic territory. Ptolemy.

ASAPPES, or AZAPES, an order of foldiers in the Turkish army, whom they always expose to the first shock of the enemy; to the end that the enemy being thus fatigued, and their swords blunted, the spahis and janissaries may fall on, and find an easy conquest.

The word is derived from the Turkish *saph*, which signifies *rank*, from whence they have formed *assaph*, to range in battle.

The asappes are said to be held of so little value, that they frequently serve as bridges for the cavalry to pass over in bad roads, and as fascines to fill up the ditches of places besieged.—The greatest part of them are natural Turks; they travel on foot, and have no pay but the plunder they can get from the enemy.

ASAR, in *Commerce*, a Persian coin worth 6s. 8d. sterling.

ASARABACCA, or ASSARA-BACARA, in *Botany*. See ASARUM.

ASAR-HADDON, or ASSARHADON, in *Biography*, son of Sennacherib, king of Syria, succeeded his father about 709 years before Christ, and having reigned 29 years in Nineveh, he became also king of Babylon, in the year 680 before Christ. He sent a colony of Babylonians and Cuthæans into Samaria; and his generals having taken captive king Manasses, sent him loaded with chains to Babylon. His reign terminated in the year 667 before Christ.

ASARINA, in *Botany*. See ANTIRRHINUM, and CHELONE.

ASARO, in *Geography*, a town of Sicily, in the valley of Noto, eight miles south of Nicosia.

ASAROTA, *ασαρωτα*, from *α* and *σαρω*, I sweep, a kind of painted pavements, in use before the invention of mosaic work. The most celebrated was that at Pergamus, painted by Sesus, and exhibiting the appearance of crumbs, as if the floor had not been swept after dinner, whence, according to Pliny, the denomination. Perrault supposes them to have been a black kind of pavements of a spongy matter. Plin. Nat. Hist. lib. xxxvi. cap. 25. Perrault ad Vitruv. lib. vi. cap. 5.

ASARUM, in *Botany*, *Afarabacca*. Lin. gen. 589. Schreb. 801. Juss. 73. Gærtn. t. 14. Class, *dodecandria monogynia*. Nat. Ord. *Sarmentacea*. *Aristolochia*, Juss. Gen. Char. *Cal.* perianth one-leaved, bell-shaped, three or four cleft, coriaceous, coloured, permanent; clefts erect, bent in at the apex. *Cor.* none. *Stam.* filaments twelve, subulate, half the length of the calyx; anthers oblong, fastened to the middle partition of the filaments. *Pist.* germ inferior or concealed within the calyx; style cylindric, the length of the stamens; stigma stellate, six-parted. *Per.* capsule coriaceous, usually six-celled. *Seeds*, several, ovate.

Ess. Gen. Char. *Cal.* three or four cleft, placed on the germ. *Cor.* none. *Capsule* coriaceous, crowned. *Stigma* six-cleft.

Species, 1. *A. europæum*, common *afarabacca*. Hudf. 205. With. 440. Smith. Flor. Brit. 509. Med. Bot. t. 86. Flor. Dan. t. 633. "Leaves kidney-shaped, obtuse, in pairs;" root perennial, creeping; stems short, simple, round, pubescent, one-flowered, and commonly two-leaved; leaves opposite, on long footstalks, reniform, perfectly entire, somewhat downy; flower terminal, pitcher-shaped, of a dark purple colour, villose, on a slender peduncle. It has been found in the north of England, in woods, particularly in Lancashire, but it is a very scarce plant in Britain. The time of its flowering is in May.

Medicinal

Medicinal Properties. The leaves and roots of asarabacca are strongly emetic and cathartic; the latter indeed has been observed to excite vomiting so invariably, that they have been proposed as a substitute for ipecacuanha. At present, however, this plant is seldom given internally, as the evacuations expected from its use may be procured with more certainty and safety by various other medicines: it is now chiefly employed as an errhine or sternutatory, and is found to be the most useful and convenient in the *Materia Medica*. For this purpose the leaves being less acrid than the roots, are preferred. A few grains snuffed up the nose several evenings produce a considerable watery discharge, which sometimes continues for several days, by which head-ache, tooth-ache, ophthalmia, and some paralytic and soporific complaints, have been effectually relieved. The college directs a pulvis asari compositus. See Woodv. Med. Bot. p. 238. 2. *A. canadense*, Canadian asarabacca. Mill. fig. 53. 1. 6. "Leaves kidney-shaped, mucronate;" the leaves of this are much larger than those of the preceding; their foot-stalks are also longer; in this species the leaves are pointed and hairy, and the flower greenish on the outside. A native of Canada, cultivated by Miller in 1731. It flowers from April to July. 3. *A. virginicum*, sweet-scented asarabacca. Lour. Cochin. 292. Pluk. Alm. t. 78. f. 2. Mor. t. 7. f. 3. "Leaves heart-shaped, blunt, smooth, petioled;" the leaves of this are veined and spotted on their upper surface, like those of the autumnal cyclamen. The flowers are shaped like the others, but stand on longer peduncles, and are of a darker purple. A native of Virginia and Carolina; also of several provinces in China. Both this and the second species were found in Japan by Thunberg. Cultivated by Miller in 1759.

Propagation and Culture. These plants delight in a moist shady situation, and may be increased by parting the roots in autumn. Much wet in winter will rot the Canadian species, and the last species will not bear too much sun. See Martyn's Dict.

ASARUM Hypocistis. See CYTINUS.

ASASI, a name given by the people of Guinea to a tree, the leaves of which being boiled in water, and held to the mouth, cure the tooth-ache. This tree in its form and manner of growing resembles the laurel; the leaves are very hard and stiff, and grow alternate on the stalks; they have short pedicles, and the branches are blackish and rugged, but they are variegated with small reddish spangles, or scaly protuberances. Phil. Trans. N° 232.

ASAWNLLY, in *Geography*, a town of Hindoostan, in the circar of Oudipour, eighteen miles south-west of Oudipour.

ASBAMÆA, in *Ancient Geography*, a fountain dedicated to Jupiter, near Tyana in Cappadocia. Philostratus, in his life of Apollonius, says, that the waters, though in a state of ebullition, were cold, and that they were pleasant and refreshing to those who observed their oaths, but poisonous and fatal to liars and perjured persons. Jupiter had a temple near this fountain.

ASBANIKEI, a town of Asia, in Mawaralnahr Trans-Oxana, or Zagatai.

ASBECK, in *Geography*, a town of Germany, in the circle of Westphalia, four miles south-east of Ahauz.

ASBESTINE, something incombustible, or that partakes of the nature and qualities of the *lapis asbestos*. Such as asbestine paper and cloth. See ASBESTUS.

ASBESTINITE, and **ASBESTRID** of Kirwan, in *Mineralogy*. See STRAHLSTEIN.

ASBESTINUM, in *Natural History*, a species of *ALCYONUM*, described by Petiver, Pallas, and others. It inhabits the American seas, is very porous, white, and rosy

within; the specific character is, stem rather simple, roundish, with largish, oblong pores scattered on every part. Gmelin, &c. Petiver calls this kind *Porus spongoides Americana*, Gaz. t. 23. f. 2. 2.

ASBESTOS, *falsè*, is a name given to plume alum. See ALUM.

ASBESTUS, in *Chemistry*, formed of the priv. α, and σβημι, to *extinguish*, *Asbest non mûr*. Fr. *Asbestus immaturus* of the old mineralogists. *Gemeiner asbest*. Germ. *Talcum asbestus vulgaris*. Werner. The most usual colour of asbestus is leek-green; sometimes mountain or olive-green, more rarely greenish or yellowish grey. It occurs in mafs. Hexahedral prismatic crystals of asbestus are also mentioned as having been found at Griesbach near Passau, and rhomboidal prisms of the same at Gemundt in Carinthia, and at Bagnères; according, however, to Emmerling and Lenz, these are not crystals of asbestus, but of strahlstein. Internally it is shining, or little shining with a silky or waxy lustre. Its fracture is parallel fibrous, either straight or curved, sometimes also splintery. It generally flies, when broken, into long splintery fragments. It is translucent at the edges; is tender, passing into half-hard; is brittle, slightly elastic; somewhat unctuous to the touch. Sp. gr. according to Kirwan, 2.547.

Asbestus does not effervesce with acids; before the blow-pipe it fuses without addition, but very difficultly, in a greyish black slag: at 160° of Wedgewood, it forms a grey porous porcelain, of sufficient hardness to give fire with steel.

The results of the analysis of this mineral are as yet but little satisfactory. Bergman analysed three specimens, from which it appears, that asbestus consists of 60...67 per cent. of silic, 13...16 carbonated magnesia, 6...12 carbonated lime, and a very variable proportion of alumine and iron. Weigleb, on the other hand, found in the asbestus of Zöblitz 48.45 magnesia, 46.66 silic, 4.79 iron. It is so lately, however, that the art of chemical analysis has been brought even to an approximation of certainty, and the causes of error are still so numerous, that with the exception of Klaproth, Vauquelin, Chenevix, and perhaps a few others, hardly any authority is to be attached to the various chemists who have been engaged in this very important but most difficult branch of mineralogical science.

Asbestus is found in serpentine rock, and, in general, in the same situations as amianthus. It is sometimes mixed with indurated talc and magnetic iron.

The more flexible varieties have been applied to the manufacture of incombustible cloth, in the same manner as AMIANTHUS; which see. Kirwan's Mineralog. vol. i. 159. Brochant. Mineralog. v. i. 497. Widenmann. Handbuch. der Mineral. p. 451. Lenz. Versuch, &c. v. 1. p. 373.

ASBISI, in *Geography*, a small kingdom of Africa, in Guinea, on the gold coast.

ASBOTUS, in *Ancient Geography*, a town of Greece, in Thessaly. Steph. Byz.

ASBROIT, in *Geography*, a town of Sweden, in South-Gothland, six miles north of Wardberg.

ASBURG, a town of Germany, in the circle of Westphalia, and county of Meurs, two leagues east of Meurs, and six west of Duisburg.

ASBYSTÆ, in *Ancient Geography*, a people of Africa, in Libya, placed by Herodotus above Cyrene. Eustathius places them near the temple of Jupiter Ammon, and the fountain of the sun.

ASCA, in *Geography*, the name of a town of Arabia Felix.

ASCAGNE, **ASCANIUS**, in *Zoology*, a new species of SIMIA

SIMIA or monkey, described by Audebert in his "Histoire des Singes," fam. 4. sect. 2. fig. 13; and by Sonnini in his late edition of the works of Buffon, t. 36. This animal was brought alive from Marfeilles to Paris, where it was painted; but the native country is unknown. It is conjectured to be a native of the American continent, being of the family which the French naturalists call *guenons*, as it is observed that all the species hitherto discovered of that family are inhabitants of America. This is a small kind, measuring about thirteen inches from the muzzle to the tail; all the upper parts of the body are of a dusky olive colour; beneath a deep greyish; face violet-blue, with a flat white nose, and a kind of black whiskers that reach from the mouth to the ears; on the temples are tufts of white hair; the eyes are red; beard and breast grey. This is a fond, lively, and agreeable animal, and very partial to fruit.

ASCAIN, in *Geography*, a town of France, in the department of the Lower Pyrenées, four leagues from Bayonne.

ASCALINGIUM, in *Ancient Geography*, a town of Germany. Ptolemy.

ASCALON, a maritime town of Palestine, and one of the five Satrapies of the Philistines, situate on the Mediterranean, and placed by Josephus at the distance of 320 furlongs west of Jerusalem, between Azotus to the north, and Gaza to the south. It was esteemed the strongest on the Philistine coast; and yet the tribe of Judah, to whose lot it fell, made themselves masters of it soon after the death of Joshua. Venus, called Urania or Cœlestis, was worshipped in this city; and Herodotus relates, that this temple was pillaged by the Scythians about 630 years before the Christian æra. There was another divinity, which was the object of worship in this place, called by Diodorus Siculus, Derceto, represented as half a woman and half a fish; and near it was a lake full of fishes, consecrated to this goddess, which the inhabitants, on this account, refrained from eating, as they also did from pigeons, supposed to be under her protection. This city had its own kings, and was successively under the dominion of the Assyrians, Persians, Greeks, and Romans. It was the native place of Herod the Great, who was hence called Ascalonites, and who built a palace, which Augustus, after the death of Herod, gave to his sister Salome. The port of Ascalon was at some distance from the city. This city was made an episcopal see from the earliest ages of Christianity; and, during the holy war, was adorned with many stately edifices, all which have been since ruined by the Saracens and Turks. It is still in being, though reduced to a small village called *Scalona*. It was anciently famous for its escallions, which took their name from this town. N. lat. 31° 30'. E. long. 16° 44'.

ASCALPHUS, in *Entomology*, the name of a Fabrician genus of neuropterous insects, which in the Linnæan system belong to that of *Myrmeleon*. The character is, palpi nearly equal, and filiform; jaw ciliated; lip horny, rounded, and entire. In other works of Fabricius it is thus defined: palpi six, nearly equal, and filiform; antennæ elongated and clubbed. Gmelin forms a subdivision of his genus *Myrmeleon*, under the name *ascalpus*, in which are included the species *longicornis*, *barbarus*, *auftralis*, and *cayennensis*, all of which are truly *ascalpii* of Fabricius.

ASCANDALIS, in *Ancient Geography*, a town of Asia Minor, in Lycia. Pliny.

ASCANIA, a name given by Pliny to one of the islands of the Archipelago.

ASCANIA, a country of Asia Minor, in Bithynia, extending from the river and lake Ascan, between the sea, the river Sengar, and mount Olympus. Sallust.

ASCANIÆ, small islands on the coast of the Troade. Pliny.

ASCANII, in *Entomology*, a species of *CURCULIO*, of a cylindrical shape, black, and bluish on the sides. Fabricius, Herbit, &c.—*Obs.* *Curculio cylindricus* of Herbit apud Fuesli (Archives des Insectes), is considered by Gmelin as a variety (♂) of this insect. Inhabits the south of Europe.

ASCANIUS, in *Biography*, called also *Iulus* or *Ilus*, the son of Æneas by Crœusa, the daughter of Priam; or, as others say, by Lavinia, accompanied his father in his flight and dangers, and succeeded him in the government of Lavinium, in the year before Christ 1177. He was called Ascanius from a river of that name in Phrygia, and Ilus, changed into Iulus, from Ilium or Troy. Having defeated Mezentius, king of the Tuscans, who demanded of the Latins a tribute of all the wine produced in Latium, he made peace with him upon condition that the Tiber should be the boundary between the Latin and Hetrurian territories. When he found it expedient to resign Lavinium to Lavinia and his son Sylvius, he determined to build another city for the place of his residence, and the capital of his kingdom, which he called *ALBA Longa*. Here he resided about 12 years; and, after a reign of about 38 years, died in this city in the year before Christ 1140. Dion. Hal. l. i. p. 51, &c. Livy, l. i. c. 3.

ASCANIUS, in *Entomology*, a species of *PAPILIO* (*Eq. Tro.*). Above and beneath black, with a common white band; posterior wings clouded with red. Fabricius, &c. Inhabits Brazil.—The body of this insect is black, and the breast is spotted with red.

ASCANIUS, in *Ancient Geography*, a river of Asia Minor, in Bithynia, according to Ptolemy, by which the lake Ascania or Ascanius discharged its waters into the sea. Pliny places it in a gulf near Etheleum.—Also, a port of Asia, placed by Pliny near the city of Phocæa.—Also, a lake of Asia Minor, in Bithynia, now the lake of Iznich, near which Pliny places the city of Nicæa.

ASCARA, in *Geography*, a town of Japan, in the province of Simoodfuke.

ASCARDIC, the capital of the country of Asia, called *Little THIBET*.

ASCARINA, in *Botany*, (from *ασκαρις*, a little worm: the anther having that shape.) Schreb. 1487. Forst. Gen. 59. Juss. 442. Class, *dicœcia monandria*. Generic Char. *Male flowers. Cal. amentum filiform; stamules scattered, sessile; *Perianth*, a very short scale. Cor. none. Stam. filaments single, very short; anther oblong, from spreading recurve, four-furrowed, large. *Female flowers, in a different plant. Calyx as in the male. Cor. none. Pist. germ globose; style none; stigma flat, three-lobed, growing to the germ. Per. drupe? Seed single.

Ess. Gen. Char. Ament filiform. Cor. none. Male anther worm-shaped. Female, style none; stigma three-lobed; drupe?

Species, 1. *Ascarina polystachya*. Forst. Flor. Austral. n. 364. A native of the Society islands in the South seas.

ASCARIS, in *Natural History*, is the generic name of those creatures belonging to the tribe of *VERMES intestina*, which have a round and elastic body, tapering towards each extremity; three protuberances at the head; tail obtuse or subulate; and the intestines spiral, milky white, and pellucid.

The knowledge of the ancients concerning these animals was apparently very limited; and they invariably confounded the ascarides with other intestinal worms. To Redi much credit is due for directing his researches to this intricate subject; and though his discoveries are not of material moment, he was certainly the first among modern writers who endeavoured to improve upon that knowledge which

the ancients had left us. He describes the ascarides of the eagle, the raven, the swan, and several other creatures, in his work, "*De animalculis vivis quæ in corporibus animalium vivorum reperiuntur Observationes.*" Amst. 1708. Some further observations were made by different persons after the time of Redi, but many years intervened before any considerable advances were made in this important branch of scientific inquiry.

Although it is evident that several species of the ascarides were most clearly ascertained before the time of Linnæus, that celebrated naturalist has thought proper to insert only two species of them in his *Systema Naturæ*, which are *A. vermicularis* and *A. lumbricoides*. In the last edition of that work, Gmelin has availed himself of more recent discoveries, and has augmented that number to seventy-eight: some species have even been discovered by naturalists since the publication of that work, of which one or two is described by Dr. Pulteney in the *Transactions* of the Linnæan society of London for the year 1800; and there can be no just reason to doubt, that many other kinds of them exist in different animals, which have hitherto escaped investigation.

Professor Pallas published an elaborate work on the ascarides and other intestinal vermes, intitled "*Thesis de infectis viventibus intra viventia.*" It was printed at Leyden in 1760, and deservedly acquired a very distinguished reputation. In this book the author has judiciously collated every useful information the labours of his predecessors could afford him, as well as his own experience and observations, and has given ample descriptions and accurate specific distinctions, by which the kinds he describes may be ascertained.

O. F. Müller has assiduously pursued the same inquiry, and greatly extended our knowledge of these creatures. The royal society of Copenhagen also, aware of the vast importance of this subject to the welfare of mankind, proposed a premium for the best dissertation on the origin, generation, and best means of destroying the various kinds of *tæniæ*, *ascarides*, *fascioliæ*, and other pernicious vermes, about the year 1780. This excited the diligence both of M. Bloch and M. Goëze, and to each of them a prize was assigned as a reward for their labours. M. Bloch afterwards published his dissertation in the German language, at Berlin, in 1782; and in 1788, a translation of it into French appeared in Strasburgh, under the title of "*Traité de la generation des vers des intestines et des vermifuges.*" That of M. Goëze was published in German with forty-four illustrative plates, and is also a work of considerable merit and utility.

Among the French naturalists of the present day, M. Lamarck's "*Système des animaux sans vertèbres*," and "*L'Histoire naturelle des vers*," a sequel to Deterville's edition of Buffon, are much esteemed. "In spite of the observations of all the writers who have treated on the ascarides," says a modern French author, "it is to Lamarck and Cuvier we are indebted for circumscribing the number of species within the proper limits." M. Chabert, a man of acknowledged skill in the veterinary art, has also written on the intestinal vermes; as a naturalist, it seems he has incurred some blame; his species may however be ascertained, and what is of equal if not greater moment than the mere accuracy of arrangement and scientific definitions, he has endeavoured to point out the best means of extirpating them.

From the observations of different writers it appears, that the ascarides are of the two sexes; and that the female is oviparous and very prolific. All the species that are

truly ascarides, live in the stomach of man or of animals; and their origin, which it is of the utmost consequence to ascertain, is still a matter of profound obscurity. The three tubercles at the head have been mistaken by some for the accompaniments of the vent, because there is obviously an aperture or pore in the middle, but this is unquestionably the mouth, and Brugière notices two little transverse openings below, which he named *stigmata*; and these, it is conjectured, are the organs of respiration.

It will be proper to observe, that besides the prodigious number of ascarides already ascertained, there is a numerous host of similar internal enemies peculiar to different animals which do not possess the generical character of the ascaris, and are therefore arranged in the new genera *trichocephalus*, *filaria*, *uncinnaria*, *scolex*, *ligula*, *strongylus*, *echynorhynchus*, *heruca*, *cucullanus*, *caryophyllæus*, *linguatula*, *fasciola*, *tænia*, &c. The species of ascaris described by Gmelin are arranged in the following order:

Infesting Man, and the Mammalia.

Vermicularis, *lumbricoides*;—*vespertilionis*, in the long-eared bat:—*Phocæ*, *bifida*, *canis*, *visceralis*, *lupi*, *vulpis*, *leonis*, *tigridis*, *felis*, *cati*, *martis*, *bronchialis*, *renalis*, *mephitidis*, *gulonis*, *talpæ*, *muris*, *hirci*, *vituli*, *equi*, *fuis*, *apri*.

Infesting Birds.

Aquilæ, *albicillæ*, *buteonis*, *milvi*, *fubuteonis*, *hermaphrodita*, *cornicis*, *coraciæ*, *cygni*, *anatis*, *fuligulæ*, *lari*, *ciconiæ*, *tardæ*, *papillofa*, *gallopavonis*, *galli*, *gallinæ*, *phasiani*, *tetraonis*, *columbæ*, *alaudæ*, *sturni*, *turdi*.

Infesting Reptiles.

Testudinis, *lacertæ*, *bufonis*, *pulmonalis*, *rubetræ*, *trachealis*, *ranæ*, *intestinalis*, *dyspnoos*, *infons*.

Infesting Fishes.

Anguillæ, *marina*, *blennii*, *rhombi*, *percæ*, *globoicola*, *lacustris*, *siluri*, *farionis*, *truttæ*, *maraenæ*, *acus*, *halecis*, *argentinæ*, *gobionis*, *rajæ*, *squali*, *lophii*.

Infesting Worms.

Lumbrici.

In the sequel of this article we shall confine ourselves to the two species of ascarides that belong to the human body; viz. the *A. lumbricoides* and *vermicularis*, referring for their scientific characters to their specific names.

The ascarides of the first species generally infest the small intestines; sometimes they ascend through the duodenum into the stomach, and creep out of the mouth and nostrils; they seldom descend into the large intestines, except on the exhibition of medicines increasing the action of the intestines. Sometimes they are very numerous. Dr. Hooper (to whose excellent Paper in the *Memoirs* of the Medical Society of London we are indebted for much of this detail) relates a case of a girl eight years old who voided per anum upwards of 200 in the course of a week. Sometimes, however, they appear even solitary. When recently excluded, they are transparent, and appear as if they had been sucking water tinged with blood; this colour, however, soon disappears, and they become at length of a light opaque yellow. After being evacuated, their motion is feeble, and they soon die; sometimes, when they have been hastily evacuated, they will be very lively, and by means of putting them into warm milk and water, they will continue so for some time. Their motion is serpentine, and in no respect resembles the motion of the lumbricus terrestris, or earth-worm, which has the power of diminish-

ing its length and extending itself again, while the length of the ascaris lumbricoides is never diminished; the head is always sent forward by the worm curling itself into circles, and suddenly extending it with considerable force to some distance.

It is said that the ascaris lumbricoides is not hermaphrodite. The worm here described is considered as the female. Dr. Hooper says he has examined a very considerable number, and has never met with any other appearances than these.

Anatomical Description. Cuticle.—The covering or external membrane of the worm, which may be considered as the cuticle, is very strong, elastic, thin, smooth, and transparent, and easily separates from the parts underneath by maceration in water; under this we find the cutis or true skin, which is considerably thicker than the former, and retains marks of the muscles which it covers; it is also very strong, elastic, and transparent. When the cutis is removed, the muscles, observable through the skin, present themselves; they do not entirely surround the worm as they at first appear, but are two distinct orders acting in opposition to each other, for the two longitudinal lines which extend from one extremity of the worm to the other, are each of them composed of two distinct tendons, separable from one another; these tendons serve for the attachment of the semilunar muscles which cover the worm from the head to the tail. Upon carefully removing the semilunar muscles from the head to the depressed band, a number of minute vesicles are to be seen (by means of a glass) filled with a submucous fluid which issues out upon puncturing them. This cellular or parenchymatous apparatus closely embraces the intestinal canal from the head to the depressed band; but from thence to the tail there is merely a fibrous kind of cellular membrane. When the muscles are removed from the depressed band to the tail, an extremely delicate membrane appears, which as a peritoneum embraces the abdominal viscera, and lines the cavity of the abdomen, which cavity extends from the depressed band to the tail; it is distended with a transparent fluid, and contains the intestinal tube, and an apparatus supposed to be subservient to generation. The intestinal tube or canal begins from the mouth, and continues nearly half an inch in a parallel form, which Dr. Baillie calls œsophagus; it then becomes larger and transparent, increasing in size till it arrives to the beginning of the abdomen, closely embraced by the parenchymatous substance; it now obtains the dimensions of a crow-quill, and passes straight, still enlarging, through the whole length of the worm to within an eighth part of an inch, where it suddenly becomes narrow, and terminates in an anus. This canal is generally filled with a greenish coloured fluid of the consistence of mucus. If a portion of this tube be macerated a few days in water, it exhibits distinct tunics, the external of which is a portion of the peritoneum; it is externally covered with filaments, which may be vessels of nutrition. The second viscus is considered by some as peculiar to the female, and all agree it is for the purpose of generation; it begins about the middle of the worm, where the cavity of the abdomen commences by a slender tube which is continued from the punctiform aperture situated in the depressed band between the two longitudinal lines. This tube, which is termed the vagina, soon becomes larger, when it commences uterus, and divaricates into two large crura, which for the space of four or five inches are of an uniform diameter, then suddenly diminish and appear like opaque threads, embracing in every direction the intestinal tube. Werner considers these as Fallopian tubes. This con-

volute apparatus is composed of very fine transparent membranes; it is never found empty, but always distended with an opaque fluid, in which are a number of ova containing young worms. Some have considered these threads (which always protrude if the skin of the worm be divided) as young worms, and have contended that the ascaris was viviparous; but it is not; and ova, similar to those found in the Fallopian tubes, will be found in the mucus surrounding the worm in the intestines.

As the ascaris lumbricoides has long been confounded with the lumbricus terrestris, or earth-worm, it may be proper to mention that the lumbricus terrestris has but one vesicle at its head, in the middle of which is its mouth; it is flat towards the tail, and is furnished with sharp bristles on its under surface that serve it for feet, which the animal can erect or depress at pleasure; its annulæ are very large and strongly marked, and its colour is of a dusky red. Upon the under surface there is a large semilunar fold in the skin, into which the animal can draw its head or thrust it out at will; in all these it is strongly distinguished from the ascaris lumbricoides. This lumbricus has also an elevated belt in its middle, the ascaris a depressed band; on each side of the ascaris there is a longitudinal line; on the lumbricus, there are three lines upon its upper surface.

The ascaris vermicularis, called the maw or thread worm, when full grown, is about half an inch in length, and in thickness resembling a piece of fine thread; the head, or obtuse extremity, is divided into three vesicles or papillæ, in whose middle is an aperture, which is the mouth. The body is about a third of the length of the animal, beginning from the head, and terminating in the tail, and is of a rugose, pellucid, annular fabric; the tail commences at the small aperture or anus, and becomes less and less, terminating in a fine point.

These worms are mostly confined to the rectum and colon, and that principally of children; but they are often found in the cæcum and small intestines, and even the stomach, and frequently get into the vagina, and even uterus, bladder, &c. Their number sometimes exceeds all bounds; in which case the excrements, when first evacuated, appear quite alive from being covered with them; generally a small number are evacuated from the rectum every day, producing a most unpleasant sensation of itching by their piercing the skin in a degree with their awl-shaped tails. Their constant action is one of their most striking characters, appearing to be never at rest. On exposure to the air, they have the power of piercing the fæces, and burying themselves in it almost instantly. From the extreme action of this species, the genus has obtained the name *ascaris*, for *ασκαρίζω* signifies the same as *σαλπίζω*, *saltare*, *inquietè movere*.

They are not hermaphrodite: the male does not exhibit any of the gyrated apparatus; the stomach and intestinal canal have in appearance a different arrangement from those in the female: but the male organs of generation have not been detected, probably they are too minute. The female has upon its external surface, about the eighth of an inch from the head, a small punctiform aperture through which the young are protruded, and when highly magnified, its internal cavity appears filled with the convoluted apparatus; and Dr. Hooper says he has seen upwards of one hundred young ones escape through this aperture all alive, and very vivacious several hours after the death of the mother; upon a little pressure being made upon it.

Anatomical Observations. The integuments of this species are similar to those of the lumbricoid ascaris, and consist

fist of cuticle, cutis, and one set of annular muscles; there do not appear to be any longitudinal lines on its external surface. The cavity, containing the viscera, begins at a very small distance from the head, and terminates where the tail commences, at which place is a very small opening, or the anus. The only viscera in the male worm are œsophagus, stomach, and intestines: the œsophagus begins at the mouth, gradually enlarges for a small space, and terminates in the stomach; the stomach is a round bag, so that œsophagus and stomach together resemble a glass pestle, which, according to Goëze, constitutes a distinguishing specific character. The stomach evacuates its contents into the intestinal canal, which continues through the worm more or less contracted and dilated to the anus: the contents of the stomach and intestines are always of a brown colour. The female has, besides these viscera, an apparatus subservient to generation, which begins by a slender tube leading from the small punctiform opening situated nearly in the body of the worm; it soon becomes much larger, embraces the intestinal tube in every direction, and fills up the cavity of the worm. This gyrate apparatus is not bifurcated, as in the ascaris lumbricoides, nor has it the same filiform appendages; its end or fundus is as large as any other part; it appears under a high magnifier like a bladder distended with worms, for its young are seen distinctly moving about from one end to the other.

Symptoms of Worms. When these worms exist in any number, they produce more or less emaciation, paleness of the countenance, with sometimes flushing of the face, a bluish circle about the eyes, itching of the nose, inquietude with starting and talking during sleep, thirst in the morning, nausea and disgust for food, though more frequently great appetite, foetid breath, pinching, griping, and tenderness in the belly, especially about the navel; belly frequently much enlarged, flatulency, costiveness sometimes, at other times purging, weakness, languor, epileptic fits, and more or less symptomatic fever, pulse weak, and sometimes intermitting. These symptoms arise more from the lumbricoides than the vermicularis; but where the latter are numerous, they will occasion nearly as violent symptoms; otherwise they are more known by their effects in and about the rectum and its neighbourhood, producing itching there more or less intolerable, with tenesmus, and even fluor albus. There are a number of other symptoms brought on by the existence of worms; these, however, are the principal and most decisive; but the best and most satisfactory evidence is their being seen in the evacuations.

Cure. The indications for the cure of ascarides are of two kinds; first, the expulsion of them, their young, their ova, and the mucus containing them, from the bowels: and second, the correction of that weak state of the bowels, or other morbid dispositions of them, whatever they may be, which favour the production of them, and that mucus which becomes a nidus for their propagation. For although the only place in nature where these two species of insects are known to be generated, is the human intestines, during life, and therefore it might be reasonable to suppose, they might exist in them (not in great numbers) in a state of health, yet they are generally found in them when at least in a state of less vigour, as in infancy and age, or when weakened by any foreign means, among the causes of which (it may be proper to mention here) the drastic purgatives, employed to get rid of them. These frequently weaken so much that the patient rather submits to the inconvenience of them, especially the ascaris vermicularis, than to the pernicious effects of vermifuges upon the digestive organs.

There is hardly a purgative, especially among the drastic ones, which has not been employed for this purpose. These should be used with every precaution; and are hardly ever necessary for the expulsion of the ascarides. The lumbricoides is not very tenacious of life, and is easily destroyed and evacuated by means of calomel, with scammony or jalap, and other milder purgatives, in moderate doses, adapted to the strength of the patient. The purgative should be several times repeated, at short intervals, in order to remove such worms and ova as have been screened by the folds of the intestines, or in the mucus, from the action of the preceding dose. The same means are employed to remove the ascaris vermicularis, but not with the same success. This is much more tenacious of life, and as it is generally seated so far from the stomach, medicines administered by the mouth have little other effect upon it than as they evacuate the contents of the rectum in common with the other viscera; but administered by glyster, the relief they afford is very considerable, though not in all cases certain. A small quantity of aloes, dissolved in some mucilaginous fluid, and employed as a glyster, is very powerful in this way, assisted at the same time by medicine, to evacuate them from above. There are cases where no effectual remedy has been found to remove these troublesome vermin. We shall below transcribe the accurate history of a case of these worms, given by the late Dr. Heberden, in the first volume of the Medical Transactions, which will greatly illustrate this part of our subject.

The second indication of cure, the removal of that weak and morbid state of the intestines which proves favourable to the generation of the ascaris, is by no means the least; and it is on this principle perhaps only that bitters have been ranked with worm medicines: it is hardly probable that insects always bred in bitterness, and which have been found in the ductus communis choledochus, and even gall bladder, should be poisoned by bitters. Bitters, and tonics, as preparations of steel and other mineral and vegetable tonics, will be found nearly as useful as the medicines which simply expel them. The consideration of other remedies employed in the removal of worms, we must refer to the article TÆNIA.

Dr. Heberden tells us, that being acquainted with an experienced and intelligent physician, who had from his infancy been troubled with ascarides, he desired to be informed by him what were the inconveniences which they had occasioned, and what was the success of the remedies which he had used: to which he replied, that according to his experience, the peculiar symptoms of this species of worms are a great uneasiness in the rectum, and an almost intolerable itching of the anus. These sensations usually come on in an evening, and prevent sleep for several hours; they are attended with a heat, which is sometimes so considerable as to produce a swelling in the rectum, both internally and externally; and if these symptoms be not soon relieved, a tenesmus is brought on with a mucus dejection. Sometimes there is a griping pain in the lower part of the abdomen, a little above the os pubis. If this pain be very severe, there follows a bloody mucus, in which there are often found ascarides alive. They were sometimes suspected of occasioning disturbed sleep, and some degree of head-ache. Purging and irritating clysters were injected with very little success. One drachm and a half of tobacco was infused in six ounces of boiling water, and the strained liquor being given as a clyster, occasioned a violent pain in the lower part of the abdomen, with faintness and a cold sweat. This injection, though retained only one minute, acted as a smart purge, but did little or no good. Lime water was also used

as a clyster, which brought on a costiveness, but had no good effect. Six grains of salt of steel were dissolved in six ounces of water, and injected. This clyster in a few minutes occasioned an aching in the rectum, and griped a little, without purging, and excited a tenesmus. Some few ascarides were brought off with it, but all of them were alive. The uneasy sensation occasioned by this clyster did not abate till some warm milk was thrown up. Wherever the tenesmus or mucus stools were thought worth taking notice of, warm milk and oil generally gave immediate relief. If purging was necessary, the lenient purges, such as manna, with oil, were in this case made use of; rhubarb was found too stimulating. But, in general, the most useful purge, and which therefore was most usually taken, was cinnabar and rhubarb, of each half a drachm: this powder seldom failed to bring away a mucus as transparent as the white of an egg, and in this many ascarides were moving about. The cinnabar frequently adhered to this mucus, which did not come off in such large quantities, when a purge was taken without the cinnabar. Calomel did no more than any other purge, which operates briskly, would have done; that is, it brought away ascarides, with a great deal of mucus. Oil, given as a clyster, has sometimes brought off these animacules: the oil swam on the surface of the mucus, and the ascarides were alive moving in the mucus, which probably hindered the oil from coming in contact with them and killing them. The same mucus may reasonably be supposed to preserve these worms unhurt, though surrounded with many other liquors, the immediate touch of which would be fatal. If the ascarides be taken out of their mucus, and exposed to the open air, they become motionless, and seem to die in a very few minutes.

The general health of this patient did not seem to have at all suffered by the long continuance of his disorder, nor the immediate inconveniences of the disorder itself to have increased. It is perhaps universally true that this kind of worm, though as difficult to be cured as any, is yet the least dangerous of all. They have been known to accompany a person through the whole of a long life, without any reason to suspect that they have hastened its end. As in this example there was no remarkable sickness, indigestion, pain of the stomach, giddiness, nor itching of the nose, possibly these symptoms, where they have happened to be joined with the ascarides, did not properly belong to them, but arose from other causes. There is indeed no one sign of worms, but what in some patients will be wanting. From this case it further appears, that mucus or slime is the proper nest of the ascarides, in which they live, and perhaps the food by which they are nourished. It is hard to satisfy ourselves by what instinct they find it out in the human body, and by what means they get at it; but it is observable in many other parts of nature as well as here, that where there is a fit soil for the hatching and growth of animals and vegetables, nature has taken sufficient care that their seed should find the way thither. Worms are said to have been found in the intestines of infants who have been born dead. Purges, by lessening this slime, never fail to relieve the patients; and it is not unlikely that the worms which are not forced away by this quickened motion of the intestines may, for want of a proper quantity of it, languish, and at last die. Experience furnishes no objections against supposing that the kind of purge is of little moment in the cure of all other sorts of worms as well as of the ascarides, the worms being always defended from the immediate action of medicines; and that therefore those purges are the best which act briskly, and of which a frequent repetition can be most easily borne.

Purging waters are of this kind, and jalap, especially for children; two or more grains of which, mixed with sugar, are easily taken, and may be daily repeated.

ASCAROIDES, a species of CUCULLANUS found in the stomach of the *Silurus glanis*; it resembles the larva of the *musca*, is about an inch in length, of a whitish grey colour, and is gregarious. Goëze and Gmel. thus define its specific character: head orbicular, and hooked on each side; tail rounded, short, and pointed with two exerted spicules.

ASCAUCALIS, in *Ancient Geography*, a town of Germany. Ptolemy.

ASCAULUS, in *Ancient Music*, a wind instrument, concerning which musical antiquaries are not agreed; but it is generally supposed to be synonymous with the *tibia articulalis*, or *bag-pipe*; which see.

ASCELUM, in *Geography*, a town of Venetia, north-west of Tavium.

ASCENDANT, in *Astrology*, denotes the *horoscope*: or the ecliptic which rises upon the horizon, at the time of the birth of any one. This is supposed to have an influence on the person's life and fortune, by giving him a bent and propensity to one thing more than another. In the celestial theme this is called the *first house*, the *angle of the east*, or *oriental angle*, and the *significator of life*.—Such a planet ruled in his *ascendant*.—Jupiter was in his *ascendant*, &c. Hence the word is also used in a moral sense, for a certain superiority which one man has over another, from some unknown cause.

ASCENDANT, in *Genealogy*, is understood of ancestors, or such relations as have gone before us; such are father, grandfather, &c.—They are thus called in contradistinction to descendants, or the descending line. It is a canon in law, that inheritances never lineally ascend. See INHERITANCE. Marriage is always forbid between the ascendants and descendants, in a direct line. See MARRIAGE.

ASCENDENS obliquus. See OBLIQUUS.

ASCENDING, in *Astronomy*, is understood of those stars or degrees of the heavens, &c. which are rising above the horizon, in any parallel of the equator.

ASCENDING *latitude*, is the latitude of a planet, when going towards the north pole. See LATITUDE.

ASCENDING *node*, is that point of a planet's orbit, where-in it passes the ecliptic, to proceed northward.

ASCENDING *signs*, among *Astrologers*, are those which are upon their ascent, or rise from the nadir, or lowest part of the heavens, to the zenith or highest.

ASCENDING, in *Anatomy*, is applied to such vessels as carry the blood upwards; thus part of the aorta, and the inferior cava, have been termed the ascending aorta, and ascending vena cava.

ASCENDING, in *Botany*, denotes growing first horizontally, and then bowed upwards; and the term in this sense is applicable to leaves, to stalks, to stems, as in spiked speedwell; or to stamens, as in all the speedwells.

ASCENDING *Harmony*, in *Music*, is modulating by 5ths; descending harmony is acquired by the base moving by 4ths.

ASCENSION, ASCENSIO, a rising or moving upward.

ASCENSION, in *Theology*, is particularly used for that miraculous elevation of our Saviour, when he mounted to heaven in the sight of his apostles. Acts i. 14, &c.

ASCENSION-*Day*, popularly called Holy Thursday, a festival of the church, held ten days before Whitsuntide, in memory of our Saviour's ascension. The appointment of this day for the festival of the ascension is traced to the

Apostolical Constitutions, l. v. c. 19. Its origin is not known; and hence some have been led to imagine, that it was received by tradition from the apostles.

ASCENSION, in *Astronomy*, is either right or oblique.

ASCENSION, *right*, of the sun, or of a star, is that degree of the equinoctial, accounted from the beginning of Aries, which rises with the sun, or star, in a right sphere. Or, right ascension is that degree and minute of the equinoctial, counted as before, which comes to the meridian with the sun, or star, or other point of the heavens. The reason of thus referring it to the meridian, is, because it is always at right angles to the equinoctial, whereas the horizon is only so in a right or direct sphere. The right ascension stands opposed to the right descension, and corresponds to the longitude of places on the earth. Two fixed stars, which have the same right ascension, *i. e.* which are at the same distance from the first point of Aries, or, which amounts to the same, are in the same meridian, rise at the same time in a right sphere, or with respect to people who live under the equator. If they be not in the same meridian, the difference between the times of their rising or coming to the meridian is the precise difference of their right ascension. In an oblique sphere, where the horizon cuts all the meridians obliquely, different points of the meridian never rise or set together; so that two stars, on the same meridian, never rise or set at the same time; and the more oblique the sphere, the greater is the interval of time between them. To find the right ascension of the sun, stars, &c. trigonometrically, say, for the sun, as radius is to the cosine of the sun's greatest declination, or obliquity of the ecliptic, so is the tangent of the sun's longitude to the tangent of the right ascension.

Let PESQ (*Astronomy*, Plate II. fig. 15.) represent the folstitial colure, the centre of which is γ , and let the diameter EQ be the equator and the diameter PS be the equinoctial colure. Suppose the obliquity to be $E\varpi = 23^\circ 28'$, and the diameter $\varpi\psi$ to be the ecliptic, in which take $\gamma\odot$ for the sun's longitude or distance from the point $\gamma = 43^\circ 16'$; and through P \odot S describe a circle of right ascension. Then in the right-angled spherical triangle $\gamma\odot B$, we have

Radius	-	-	-	10.00000
to t. sun's long. = $43^\circ 16'$				9.97371
As cof. obl. ecl. = $23^\circ 28'$				9.96251
to t. right ascension = $40^\circ 48'$				9.93622

While the sun is moving from γ to ϖ , or in the first quadrant of the ecliptic, the given longitude is the hypotenuse in the triangle $\gamma\odot B$, the declination $B\odot$ is north, and γB is the right ascension. When the sun has passed the solstice ϖ , and is descending towards ϖ , or in the second quadrant, his longitude or distance from γ being taken from 180° , the remainder $\varpi\odot$ becomes the hypotenuse, and the declination is still north; but the arc $B\varpi$ found for the right ascension is only the supplement, and must therefore be taken from 180° . The sun having passed the point ϖ , and descending towards ψ , is in the third quadrant, and his longitude, reckoned from γ , will be greater than 180° ; in which case the excess above 180° , or his distance from ϖ , will be the hypotenuse $\varpi\odot$; the declination will be south, and the arc ϖA , found for the right ascension, must be added to 180° in order to obtain the right ascension estimated from γ . When the sun has passed the solstice ψ , and is ascending towards γ , he is then in the fourth quadrant; therefore the longitude will be greater than 270° ; and must be taken from 360° , for the hypotenuse $\gamma\odot$. In this case the declination is south, and the right ascension, found by the above

proportion, must be taken from 360° , in order to have the right ascension from γ .

If the obliquity of the ecliptic, and the sun's declination were given, the proportion for the right ascension would be; radius to the cotangent of the obliquity of the ecliptic, as the tangent of the sun's declination to the sine of the right ascension.

The sun's right ascension in time is useful to the practical astronomer in regular observatories, who adjusts his clock by sidereal time. It serves also for converting apparent into sidereal time; as *e. g.* that of an eclipse of Jupiter's satellites, in order to know at what time it may be expected to happen by his clocks. For this purpose, the sun's right ascension at the preceding noon, together with the increase of right ascension from noon, must be added to the apparent time of the phenomenon set down in the ephemeris. The sun's right ascension in time serves also for computing the apparent time of a known star's passing the meridian: thus, subtract the sun's right ascension in time at noon from the star's right ascension in time, the remainder is the apparent time of the star's passing the meridian nearly: from which the proportional part of the daily increase of the sun's right ascension from this apparent time from noon being subtracted, leaves the correct time of the star's passing the meridian. The sun's right ascension in time is also useful for computing the time of the moon and planet's passing the meridian.

For finding the right ascension of a star, supposing its latitude and longitude, and also the obliquity of the ecliptic, to be given, the method is as follows. Let PESQ, (fig. 16.) or the primitive circle, be the folstitial colure; EQ the equator, P, S its poles, and cb a parallel of latitude intersecting a circle of longitude pAq in the place of a star. Suppose the latitude of the star to be $7^\circ 9' N.$ and its longitude $\gamma 29^\circ 1'$, and the obliquity of the ecliptic $23^\circ 28'$. In the triangle $pA\mu$, we have $p\mu$ the distance of the poles of the equator and ecliptic, or the obliquity of the ecliptic = $23^\circ 28'$, pA , or the complement of the latitude = $82^\circ 51'$, and the contained angle $p\mu A = 60^\circ 59'$, or the longitude from the first point of ϖ , and we are to find the angle μPA or the right ascension. The proportion is as follows: rad. : cosine $p\mu A$:: tang. pA : tang. M. Take the difference between the side adjacent to the required angle and M, and call it N: then say, sine N : sine M :: tang. $p\mu A$: tang. μPA . Or, first find the declination (see DECLINATION), which is $17^\circ 49' N.$ Then say, S. co-declin. : S. long. :: S. co-lat. : S. co-right-ascension; *i. e.* S. $72^\circ 11'$: S. $60^\circ 59'$:: S. $82^\circ 51'$: S. co-right-ascension:—or, 9.9786554 : 9.9417492 :: 9.9966096 : 9.9597034 the sine of $65^\circ 41'$; and therefore the right ascension will be $24^\circ 19'$.

The right ascension and declination of a fixed star or planet, whose longitude and latitude, as well as (O) the obliquity of the ecliptic, are given, may be found by the following problem, communicated by Dr. Maskelyne to Dr. A. Mackay:

Tan. lat. — sine long. = tang. A, north or south, as latitude is. Call. O north in six first signs, and south in six last signs.

$$A + O = B.$$

A less than 45° , co. ar. cof. B + tang. long. }
 A more than 45° , tang. A + co. ar. sine A + cof. B. } =
 + tang. long.

tang. right ascension of the same kind as longitude; unless B be more than 90° , when the quantity found of the same kind as longitude must be subtracted from 12 signs.

AR.

AR (right ascension) nearer III and IX signs than
 o and VI signs, sine AR + tang. B
 AR nearer o and VI signs than III and IX signs, =
 tang. AR + cof. AR + tang. B
 tang. declination of same title as B, true to the nearest second by Taylor's logarithms, to nearest 10" by Gardiner's logarithms, or to nearest minute by Sherwin's or Hutton's logarithms, without proportioning.

Example.

Let the moon's long. be $7^{\circ} 14' 26'' 21''$, and lat. $4^{\circ} 0' 34''$ N. and the obliquity of the ecliptic $23^{\circ} 27' 48''$. Required the right ascension and declination?

Lat. \mathcal{D} $4^{\circ} 0' 34''$ tang. 8.8456713.
 Long. 224 26 21 sine 9.8451920—tang.—9.9914974

A = 5 43 0. 7 tang. 9.0004793 ar. co. cof. 0.0021654
 O = 23 27 48. S

B = 17 44 47. 3 S.—cof.—9.9788260 tang. 9.5051970
 RA. 223 21 11. 2 — tang.—9.9724888 sine 9.3852940
 Decl. 12 21 14. 6 S. tangent. - - - 9.3404910

N.B. The right ascension and declination may be found by the following formulæ:

Co-v. f. Decl. = v. f. long. a \oslash \times f. co. lat. \times f. ob.
 ecl. + v. f. co. lat. \oslash f. ob. ecl.

Cof. Right ascension from γ or \oslash =
 secant decl. \times cof. lat. \times cof. long. from γ or \oslash .
 Mackay's Theory and Practice of finding the Longitude, &c.
 vol. i. p. 42.

For other methods of determining the right ascension of a fixed star by Mr. Flamsteed, and Dr. Maskelyne, illustrated by examples, see Vince's Astronomy, vol. i. p. 31, &c.

The practical method of finding the right ascension of a body from that of a fixed star, by a clock adjusted to sidereal time, is this:—Let the clock begin its motion from $0^h 0' 0''$ at the instant the first point of aries is on the meridian; then, when any star comes to the meridian, the clock would shew the apparent right ascension of the star, the right ascension being estimated in time at the rate of 15° an hour, provided the clock was subject to no error, because it would then shew at any time how far the first point of aries was from the meridian. But as the clock is liable to err, we must be able at any time to ascertain its error, or the difference between the right ascension shewn by the clock and the right ascension of that point of the equator which is at that time on the meridian. To do this, we must, when a star, whose apparent right ascension is known, passes the meridian, compare its apparent right ascension with the right ascension shewn by the clock, and the difference will shew the error of the clock. E. g. let the apparent right ascension of Aldebaran be $4^h 23' 50''$ at the time when its transit over the meridian is observed by the clock; and suppose the time shewn by the clock to be $4^h 23' 52''$, then there is an error of 2" in the clock, as it gives the right ascension of the star 2" more than it ought. If the clock be compared with several stars, and the mean error taken, we shall have more accurately the error at the mean time of all the observations. These observations, being repeated every day, will give the rate of the clock's going, or shew how much it gains or loses. The error of the clock, and the rate of its going, being thus ascertained, if the time of the transit of any body be observed, and the error of the clock at the time be applied, we shall have the right ascension of the body. This is the method by which the right ascension of the sun, moon and planets are regularly found in observatories.

To find the right ascensions mechanically by the globe, see GLOBE.

The *arch of right ascension* is that portion of the equator intercepted between the beginning of aries, and the point of the equator which is in the meridian: or, it is the number of degrees contained in it. This coincides with the right ascension itself.—The right ascension is the same in all parts of the globe.

We sometimes also say, the right ascension of a point of the ecliptic, or any other point of the heavens. The right ascension of the mid-heaven is often used by astronomers, particularly in calculating eclipses by the nonagesimal degree; and it denotes the right ascension of that point of the equator which is in the meridian, and is equal to the sum of the sun's right ascension and the horary angle or true time reduced to degrees, or to the sum of the mean longitude of the sun and mean time.

ASCENSION, *angle of right*. See ANGLE.

ASCENSION, *oblique*, is an arch of the equator intercepted between the first point of aries, and that point of the equator which rises together with a star, &c. in an oblique sphere.

The oblique ascension is numbered from west to east; and is greater or less, according to the different obliquity of the sphere.

To find the oblique ascension of the sun by the globe, see GLOBE. See also ASCENSIONAL Difference.

The *arch of oblique ascension* is an arch of the horizon intercepted between the beginning of aries, and the point of the equator, which rises with a star or planet in an oblique sphere.—This coincides with the oblique ascension itself.—The oblique ascensions change according to the latitude of the places.

ASCENSION and Descension, *Refraction of*. See REFRACTION.

ASCENSION, *Isle of*, in Geography, one of the African islands situate in the Southern Atlantic ocean. S. lat. $7^{\circ} 56' 30''$. W. long. $14^{\circ} 22' 31''$. This dreary desolate island was first discovered in 1501, by J. de Nova Galego, a Portuguese navigator, who called it "Ilha de Nossa Senhora de Conceição;" and it was seen a second time by Alfonso d' Albuquerque, on his voyage to India in 1503, probably on Ascension-day when it received its present name. Capt. Cook stopped at this island in 1775; and he says that it is about ten miles in length, from north-west to south-east, and about five or six in breadth. Its surface is composed of barren hills and vallies, or a collection of rocks and hollows, without a shrub or plant for several miles, and exhibiting by the stones and ashes which abound in it, sufficient evidence that at some period or other it was a volcanic production. Mr. Forster, in his account of this island, says, that they could discern from the ship, near the centre of it, a broad white mountain of considerable elevation, on which there was some verdure, and from this circumstance it obtained the name of the "Green Mountain." When they landed on the beach, through a high surf, they found themselves amidst rocks, which consisted of minute shell-sand, chiefly of a fawn white, deep and dry, and by the reflection of the sun intolerable to the eyes. In their progress, they ascended through heaps of black cavernous stone, which perfectly resembled the common lavas of Vesuvius and Iceland. After a perpendicular ascent of about twelve or fifteen yards, they arrived at an extensive level plain, about six or eight miles in circuit, at the different corners of which they observed large hills, of a conical shape, and of a reddish colour, which were perfectly insulated. Between these hills the plain was covered with a

great number of small hillocks, composed of lava similar to that which they found on the sea-shore, and the pieces of which sounded like glass when struck against each other. Between the heaps of lava the soil was a firm black earth, and where the heaps did not appear, the whole was a red earth, so loose and composed of such minute particles, that the wind raised from it clouds of dust. The conic hills consisted of a different sort of lava, which was red and soft, and crumbled into earth. One of these hills stands directly in front of the bay, and has on its summit a wooden cross, whence the bay is said to take its name. The sides of the hill are very steep, but a path about $\frac{2}{3}$ of a mile long winds to the summit. The plain on which they stood, they concluded to have been once the crater of a volcano, by the accumulation of whose cinders and pumice stones the conic hills had been gradually formed; the currents of lava which were now distributed in many heaps, had, as they conjectured, been gradually buried in fresh cinders and ashes; and the waters flowing from the interior mountain in the rainy season, had carried every thing before them, and thus filled up by degrees the cavity of the crater. The rocky black lava was the residence of numberless men-of-war birds, and boobies, which sat on their eggs and allowed of a close approach. Here they found a New York sloop, which came to the island to catch turtles, in order to sell them at the Windward islands. The East India ships, it is said, touch at this island for the purpose of furnishing themselves with turtles, which are plentiful and very large. On a second visit to the island, Mr. Forster and his companions crossed the plain, and arrived at a prodigious current of lava, intersected by many channels from six to eight yards deep, which appeared to have been formed by torrents of water, but which they found dry, as the sun was in the northern hemisphere. In these gullies they perceived a small quantity of soil which was a black volcanic earth mixed with some whitish particles, that were gritty to the touch. This soil afforded sufficient nutriment to purslane, and a species of grass, the "*panicum sanguineum*." Having with difficulty climbed over this lava current, they came to the foot of the "Green mountain," which was surrounded by a lava, that was covered with purslane, and a kind of new fern, "*lonchites adscensionis*," on which several wild goats were feeding. This mountain is divided in its extremities by various clefts into several bodies, which run together towards the centre, and form one broad mass of great height. The whole appears to consist of a gritty tephaceous limestone, which has never been attacked by the volcano, but probably existed, as Mr. Forster suggests, prior to its eruption: its sides are covered with a kind of grass peculiar to the island, which Linnæus has named "*aristida adscensionis*." The goats which feed on it were very numerous, but being very shy, they fled with great velocity over tremendous precipices, where it was impossible to pursue them. This island, with a little trouble, says this writer, might in a short space of time be rendered fit for the residence of men. The introduction of furze, "*ulex Europæus*," and some other plants which thrive best in a parched soil, and which are not likely to be attacked by rats or goats, would soon have the same effect as at St. Helena. The moisture attracted from the atmosphere by the high mountains in the centre of the island, would then not be evaporated by the heat of the sun, but gradually be collected into rivulets, and supply the whole island. A sod of grasses would everywhere cover the surface of the ground, and annually increase the stratum of the mould, till it could be planted with more useful vegetables. The outskirts of the island are represented to be beyond description dreary.

It is said that, as this island is visited by the homeward-bound ships on account of its sea-fowls, fish, turtle, and goats, there is in the crevice of a rock a place called by the sailors the "Post Office," where letters are deposited, shut up in a well corked bottle, for the ships that next visit the island. Mod. Un. Hist. vol. xi. p. 458.

ASCENSION, or *Ascension*, *Isle of*, a small island about 120 leagues east from the coast of Brazil, N. lat. $20^{\circ} 30'$. W. long. $35^{\circ} 40'$. Some have supposed this island to be the same with the isle of Trinidad or Trinity. M. la Perouse, who wished to ascertain the existence of the island of Ascension, made search for it, and avers (see his voyage, vol. i. p. 24.) that no such island exists from the meridian of Trinidad to about seven degrees west longitude, between the latitudes of $20^{\circ} 10'$, and $20^{\circ} 50'$. M. le Paute d'Agelet also suspects (Mem. Acad. Sc. Paris, for 1788) the French geographers have committed an error with regard to the isle of Trinity, which they have laid down in their maps of the African seas, but which he thinks is really the isle of Ascension, which, by some error of reckoning, occasioned probably by currents, has been twice laid down. But M. Dapres (Neptune Oriental, p. 10.) has placed the island of Ascension 100 leagues west of Trinidad, and fifteen miles to the southward. It appears also, that though the latitudes of these two islands were nearly the same, their longitudes were very imperfectly ascertained; and from the minute and very different plans which Dalrymple has given of these two islands and their appearance, it is presumed that they are not the same. La Perouse did not pursue his researches far enough, as the isle of Ascension is probably somewhat nearer the coast of Brazil than Dapres has placed it.

ASCENSION Bay, lies on the east side of the peninsula of Yucatan, in the bay of Honduras, having Amber bay on the north, and the northern point of Ambergrease key on the south, which forms a passage into Hanover bay, south from Ascension bay.—Also, a bay in the north part of the gulf of Mexico, situate between cape Balize at the mouth of the Mississippi, and the bay of Fresh-water on the west, in N. lat. 30° , and W. long. 92° .

ASCENSIONAL Difference, in *Astronomy*, is the difference between the right and oblique ascension of the same point on the surface of the sphere.

To find the ascensional difference trigonometrically, having the latitude of the place, and the sun's declination given, say, As radius is to the tangent of the latitude, so is the tangent of the sun's declination to the sine of the ascensional difference.

E. G. Let it be required to find the sun's ascensional difference at London, lat. $51^{\circ} 32'$ N. on the 21st of June, being the longest day, when the sun's declination is $23^{\circ} 28'$ N.

Let the primitive circle PESQ (*Astron. Pl. II. fig. 17.*) represent the meridian of the place, and the diameter HR the horizon; take RP from R, the north point, for the latitude $= 51^{\circ} 32'$; draw the axis, or 6 o'clock hour circle, PS, and perpendicular to it draw the equator EQ; make En, Qm, each $= 23^{\circ} 28'$, the declination, and describe the parallel of declination nm, intersecting the horizon in Q, the place of the sun at his rising or setting, and through this point describe the hour circle PÔS.

In the spherical triangle $\varphi \odot A$, right-angled at A, the angle $\varphi Q R$, measured by the arc QR, is the co-latitude; AÔ is the sun's declination; and the required ascensional difference is φA , which may be found by the proportion above stated; viz.

Rad.

Rad.	-	= 10.000000
To t. lat. $P\varphi\odot = 51^{\circ} 32'$		10.099913
As t. decl. $A\odot = 23^{\circ} 28'$		9.637611
To fine asc. dif. $\varphi A = 33^{\circ} 7'$		9.737524

This ascensional difference, $33^{\circ} 7'$, converted into time, gives $2^h 12' 28''$ for the time which the sun rises before, and sets after the hour of six, on the longest day. Hence it appears, that when the latitude and declination have the same name, the sun rises before, and sets after six; but when they are of contrary names, the sun rises after, and sets before six. And as the sun describes the parallel of declination nm in 24 hours, being at n when it is noon, and at m when it is midnight, the time in passing from m to \odot , or the time of rising being doubled, gives the length of the night; and the time of setting being doubled gives the length of the day. Consequently, $6^h + 2^h 12' 28'' = 8^h 12' 28''$, will be the time of setting, and $6^h - 2^h 12' 28'' = 3^h 47' 32''$, will be the time of rising; and $8^h 12' 28'' \times 2 = 16^h 24' 56''$ the length of the day, and $3^h 47' 32'' \times 2 = 7^h 35' 4''$ the length of the night.

But when it is the shortest day at London, that is, when the sun has $23^{\circ} 28'$ south declination, the lengths of the day and night will change places; the day being $7^h 35' 4''$, and the night $16^h 24' 56''$.

When the latitude and declination have the same name, the difference between the right ascension and the ascensional difference, is the oblique ascension; and their sum is the oblique descension; but when they are of contrary names, the sum is the oblique ascension, and the difference is the oblique descension.

The above solution is applicable to a star, as well as to the sun; but on account of the small change in the declination of the stars, the same star in any latitude may be considered as having the same ascensional difference through the year. Hence it appears that the diurnal difference of the same star's rising, culminating, and setting in the same latitude, is nearly equal to the diurnal difference of the sun's right ascension. As the sun's mean apparent daily motion is $59' 8''$ nearly, or in time $3' 56'' 32'''$, this will be the daily difference in the rising, southing; and setting of any fixed star in the same latitude.

ASCENSIONIS, in *Ichthyology*, a species of *PERCA* that inhabits the sea about Ascension island; it is reddish above, whitish beneath, and the tail is bifurcated. *Osif.* It. p. 388.

ASCENSORIUM sometimes occurs, in our ancient writers, for a stair or step.

ASCENT, in a general sense, the motion of a body tending upwards; or the continual recess of a body from the earth. In this sense the word stands opposed to *descent*.

The Peripatetics attribute the spontaneous ascent of bodies, to a principle of levity inherent in them. The moderns deny any such thing as spontaneous levity, and shew, that whatever ascends, does it in virtue of some external impulse or extrusion. Thus it is that smoke, and other rare bodies ascend in the atmosphere; and oil, light woods, &c. in water: not by any internal principle of levity, but by the superior gravity, or tendency downwards of the parts of the medium in which they are.

The ascent of light bodies in heavy mediums is produced after the same manner as the ascent of the lighter scale of a balance.—It is not that such scale has an internal principle by which it immediately tends upwards; but it is impelled upwards by the preponderancy of the other scale, the excess of the weight of the one having the same effect by augment-

ing its impetus downwards, as so much real levity in the other: because the tendencies mutually oppose each other: and that action and re-action are always equal. See this farther illustrated under the articles *SPECIFIC Gravity*, and *FLUID*.

ASCENT of Bodies on inclined Planes. See its doctrine and laws, under *Inclined PLANE*.

ASCENT of Fluids, is particularly understood of their rising above their own level, between the surfaces of nearly contiguous bodies, or in slender capillary glass tubes, or in vessels filled with sand, ashes, or the like porous substances. This effect happens as well in *vacuo*, as in the open air, and in crooked as well as straight tubes. Some liquors, as spirit of wine, and oil of turpentine, ascend with greater celerity than others; and some rise after a different manner from others. Mercury does not ascend at all, but rather subfides. The phenomenon, with its causes, &c. in the instance of capillary tubes, will be spoken of more at large under *CAPILLARY Tube*. Upon the same principle, two smooth polished plates of glass, metal, stone, or other matter, being so disposed as to be almost contiguous, have the effect of several parallel capillary tubes; and the fluid rises in them accordingly: the like may be said of a vessel filled with sand, &c. the divers little interstices of which form as it were a kind of capillary tubes. So that the same principle accounts for the appearance in them all. And to the same may probably be ascribed the ascent of the sap in vegetables. Thus Sir I. Newton.—“If a large pipe of glass be filled with sifted ashes, well pressed together, and one end dipped into stagnant water, the fluid will ascend slowly in the ashes, so as in the space of a week or fortnight to reach the height of thirty or forty inches above the stagnant water. This ascent is wholly owing to the action of those particles of the ashes which are upon the surface of the elevated water; those within the water attracting as much downwards as upwards: it follows that the action of such particles is very strong; though being less dense and close than those of the glass, their action is not equal to that of glass, which keeps quicksilver suspended to the height of sixty or seventy inches, and therefore acts with a force which would keep water suspended to the height of about sixty feet. By the same principle; a sponge sucks in water; and the glands in the bodies of animals, according to their several natures and dispositions, imbibe various juices from the blood.” *Optics*, p. 367.

If a drop of oil, water, or other fluid, be laid on a glass plane, perpendicular to the horizon, so as to stand without breaking or running off; and another plane inclined to the former so as to meet a-top, be brought to touch the drop, then will the drop break, and ascend towards the touching end of the planes; and it will ascend the faster in proportion as it is higher, because the distance between the planes is constantly decreasing. After the same manner, the drop may be brought to any part of the planes, either upward or downward, or sideways, by altering the angle of inclination. Lastly, if the same perpendicular planes be so placed, as that two of their sides meet, and form a small angle, the other two only being kept apart by the interposition of some thin body; and thus immersed in a fluid tinged with some colour; the fluid will ascend between the planes, and this the highest where the planes are nearest; so as to form a curve line, which is found to be a just hyperbola, one of the asymptotes whereof is the line of the fluid, the other being a line drawn along the touching sides. The physical cause, in all these phenomena, is the same power of attraction. See *HYDROSTATICS* (*Pl. I. fig. 1.*), and *COHESION*.

ASCENT of vapour. See EVAPORATION, CLOUD, and VAPOUR.

ASCENT, in Astronomy, &c. See ASCENSION.

ASCENT, in Logic, denotes a kind of argumentation, wherein we rise from particulars to universals. As when we say, this man is an animal, and that man is an animal, and the other man, &c. therefore, every man is an animal.

ASCESIS properly denotes exercise of the body. It is formed from the verb *ασκειν*, used by the ancients in speaking of the sports and combats of the *athletæ*.

ASCESIS is also used by philosophers to denote an exercise conducive to virtue, or to the acquiring a greater degree of virtue. *Buddæus* has a dissertation on this philosophical asceticism.

ASCETERIUM, in *Ecclesiastical Writers*, is frequently used for a monastery, or a place set apart for the exercises of virtue and religion. The word is formed from *asceticus*, "exercise;" or *ascetra*, one who performs exercise. Originally it signified a place where the *athletæ*, or gladiators, performed their exercises.

ASCETIC, derived from *ασκειν*, "I exercise," an ancient appellation given to such persons as, in the primitive times, devoted themselves more immediately to the exercises of piety and virtue in a retired life; and, particularly, to prayer, abstinence, and mortification. *Mosheim* (*Eccl. Hist.* vol. i. p. 193.) traces the origin of this sect in the Christian church to the second century. He says, that the ascetics owed their rise to certain Christian doctors, who maintained, that Christ had established a double rule of sanctity and virtue, for two different orders of Christians; the one was ordinary, and designed for persons in the active scenes of life; the other extraordinary, and more sublime, and intended for those who, in a sacred retreat, aspired after the glory of a celestial state. Accordingly, they distributed those moral doctrines which they had received either by tradition or writing into the two classes of precepts and counsels; the former being universally obligatory upon all orders of men, and the latter, relating to Christians of a more sublime rank, who proposed to themselves great and glorious ends, and breathed after an intimate communion with the Supreme Being. Persons of this latter description declared their resolution of obeying all the counsels of Christ, in order to their enjoying communion with God here; and also that, after the dissolution of their mortal bodies, they might ascend to him with the greater facility, and find nothing to retard their approach to the supreme centre of perfection and happiness. They looked upon themselves as prohibited the use of things which other Christians were allowed to enjoy, such as wine, flesh, matrimony, and commerce. See *Athenagoras*, *Apol. pro Christ.* c. 28. They thought it their indispensable duty to extenuate the body by watchings, abstinence, labour, and hunger. They sought felicity in solitary retreats, and in desert places, where, by severe and assiduous efforts of sublime meditation, they raised the soul above all external objects and all sensual pleasures. Both men and women imposed upon themselves the most austere discipline, which, though at first it was the fruit of pious intention, proved in the issue extremely detrimental to Christianity. These persons were called *ascetics*, *Σπυδαῖοι*, *Εκκληῖοι*, and philosophers; nor were they distinguished from other Christians merely by their appellation, but also by their garb. In this century, such as embraced this kind of austere life, contented themselves with submitting to all these mortifications in private, without breaking asunder their social bonds, or withdrawing themselves from intercourse with mankind. In the next century, and particularly in the

reign of Constantine, these ascetics, who, as an elegant historian describes them, (*Gibbon's Hist.* vol. vi. p. 239.) "obeyed and abused the rigid precepts of the gospel, and were inspired by the savage enthusiasm which represents man as a criminal, and God as a tyrant;" fled from a profane and degenerate world to perpetual solitude, or religious society, and assumed the name of "Hermits," "Monks," and "Anachorets," expressive of their lonely retreat in a natural or artificial desert. The reasons which gave rise to this austere sect are sufficiently obvious. One of the principal was, the ill-judged ambition of the Christians to resemble the Greeks and Romans, many of whose sages and philosophers distinguished themselves from the generality, by their maxims, by their habit, and, indeed, by the whole plan of life and manners which they had formed to themselves, and by which they acquired a degree of esteem and authority. Of all these ancient philosophers, there were none whose sentiments and discipline were so well received by the ancient Christians, as those of the Platonics and Pythagoreans, who prescribed in their lessons two rules of conduct, one for the sage who aspired to the sublimest heights of virtue, and another for the people involved in the cares and agitation of an active life. As the opinions of some of these philosophers were adopted by the more learned among the Christians, they were naturally led to embrace also the moral discipline which resulted from them. Some of the religious feverities to which they recurred were deduced from the genius and temper of the people by whom they were first practised. This morose discipline originated in Egypt, which abounded with persons of a melancholy complexion, and produced, in proportion to its extent, more gloomy spirits than any other part of the world. Here the *Essenes* and *Therapeutæ*, those dismal and gloomy sects, principally dwelt, long before the coming of Christ, and also many of the ascetic tribe, who, led by a certain melancholy turn of mind, and a delusive notion of rendering themselves more acceptable to the Deity by their austerities, withdrew themselves from human society, and from all the innocent pleasures and comforts of life. From Egypt this four and unfociable discipline passed into Syria and the neighbouring countries, which also abounded with persons of the same dismal constitution with that of the Egyptians; and from thence, in process of time, its infection reached to the European nations. Hence sprung that train of austere and superstitious rites, that yet, in many places, cast a veil over the beauty and simplicity of the Christian religion. Hence the celibacy of the priestly order, the rigour of unprofitable penances and mortifications, the innumerable swarms of monks that withdrew their talents and labour from society, and who did this in the senseless pursuit of a visionary sort of perfection. Hence also proceeded the distinction between the theoretical and mystical life, and many other fancies of a similar kind. The ascetics acquired the respect of the world, which they despised; and the loudest applause was bestowed on this "divine philosophy," as it was called, which surpassed, without the aid of science or reason, the laborious virtues of the Grecian schools. When the monks came in fashion, the title of ascetic was bestowed upon them; especially upon such of them as lived in solitude. See *HERMIT*, and *MONK*.

ASCETIC is also a title of several books of spiritual exercises; as, the *Ascetics* or devout treatises of St. Basil, archbishop of Cæsarea in Cappadocia.

We also say the ascetic life, meaning the exercise of prayer, meditation, and mortification.

A SCERETIS. See *SECRETARY*.

A-SCHACH, in *Ornithology*, the name by which the

LANIUS SCHACH of Lianzus, or Chinese Sirike, is called in China, and under which it is described by Obseck, Voy. p. 227. See LANIUS Schach.

ASCHACH, in *Geography*, a town of Germany, in the circle of Franconia and bishoprick of Wurzburg, thirty-two miles north of Wurzburg.

ASCHAFF, a small river of Germany, in the circle of the Lower Rhine, which runs into the Mayne near Stockstadt.

ASCHAFFENBURG, a town of Germany, in the circle of Franconia, situate about twenty-five miles from Francfort on an eminence near the Mayne. It belongs to the elector of Mentz, who has a palace here, in which he resides during the greatest part of the year, on account of the salubrity of the air, and the singular beauty of the situation. The country surrounding the town is uncommonly fertile. At the distance of two miles towards the north-east is seen the "Speckart," one of the largest forests in Europe, forming a semicircle round part of this town, and sheltering it from the bleak winds. This forest occupies a space of fifty English miles in length, and the traveller through it meets with only one small village consisting of four houses, in which he may have any accommodation. The road through it is very good, and the Elector of Mentz, to whom the greatest part of the country belongs, keeps it free from robbers, so that it may be passed any time of the day or night, without any apprehension of attack. For the security of passengers, a military establishment, consisting of a company of hussars, is fixed at Aschaffenburg; and these are traversing the road at stated hours in order to prevent the possibility of a robbery. N. lat. 49° 55'. E. long. 8° 55'.

ASCHAM, ROGER, in *Biography*, an English scholar of distinguished reputation, was born at Kirby-Wilke, near North-Allerton in Yorkshire, about the year 1515, of parents who, having lived together for sixty-seven years, with uninterrupted harmony, died at the same hour of the same day. Having discovered very promising talents at an early age, he was taken under the patronage of Sir Anthony Wingfield, and after making considerable progress in classical literature under the instruction of the domestic tutor of his sons, Ascham was removed by his patron, in 1530, to St. John's college at Cambridge. Here he enjoyed peculiar advantages for improvement, under the tuition of two persons who were eminent for literature at a period when the study of the Greek and Roman classics was the object of particular attention. Of these advantages he availed himself with singular assiduity and emulation; and his proficiency was so considerable, that he gained very distinguished reputation in the university at a very early age. In order to perfect himself in the Greek language, he taught it to others; and learning very soon to discriminate with regard to the comparative excellence of different authors, he lost no time in the perusal of mean or unprofitable books. Upon the model of Cicero and Cæsar, whose works he diligently studied, he formed his style; and among the philosophers he selected Plato and Aristotle; among the historians, Thucydides and Herodotus; and among the orators, Demosthenes and Isocrates; and on these two last authors he read lectures to his pupils, as he also did on the most celebrated of the Greek poets. At the age of eighteen, in 1534, he took his degree of bachelor of arts, and soon after in the same year was elected fellow of his college, though his attachment to the reformed religion raised some obstacles in the way of this appointment. These honours were considered by Ascham as inducements to his continued and increasing application; and such was his improvement, particularly in the Greek language, that

his lectures, both in the university and in his own college, were received with universal applause. In the year 1536, and at the age of twenty-one years, he was inaugurated master of arts. Such was the proficiency of those who attended his lectures, that one of them, viz. William Grindal, was, at his recommendation, appointed to be tutor in the languages to the lady Elizabeth; an honour which it is probable he might have obtained for himself, if he had not declined it from a preference of the academical life to a station at court. At this time Sir John Cheke attempted to introduce a new mode of pronouncing Greek into the university, which for some time was opposed by Ascham; but upon maturer and more deliberate examination, he approved of it, and concurred in adopting and promoting it; and it has since generally prevailed in the schools of England. The purity and elegance of his Latin style were held in such estimation, that he was constantly employed in writing the public letters of the university. As a relaxation amidst his severer studies, he amused himself with the exercise of archery; and having thus given offence to some persons who were envious of his superior merit, he wrote a small treatise on the subject, intitled "Toxophilus," which was published in 1544. His design in writing this treatise was partly to vindicate himself from the aspersions of his enemies, and partly to improve the English language, by introducing a more natural, easy, and truly English diction, than that which was used by the common writers of his age. The author's views in both these respects were fully accomplished. This work, besides the purity and perspicuity of its style, abounds with learned allusions, with curious fragments of English history, and with ingenious observations on life and manners. Ascham honestly confesses, that he was actuated by another more selfish motive in the composition and publication of this treatise. He wished to make a tour into Italy, which was then the republic of letters, and particularly the seat of Greek learning, and he was desirous by dedicating his work to king Henry VIII. to obtain his patronage and encouragement in the prosecution of his plan. In this respect, his modest and laudable wish was gratified; for in 1544, the king granted him a pension of 10*l.* a year, equal according to Dr. Johnson, to more than 100*l.* at the present day. This pension, which was discontinued after the king's death, was restored by Edward VI., and doubled by Queen Mary. In the same year, Ascham received the pecuniary benefit as well as honour of an appointment to the office of Orator to the university; which office, whilst he continued there, he occupied with great credit.

He had also for some years received an annual gratuity to an amount that is not ascertained, from Lee, archbishop of York. At length, viz. in 1548, upon the death of his pupil Grindal, he was called by the lady Elizabeth, to whom he had already given lectures in writing, from his college, to direct her studies. This charge he executed with equal diligence and success; but after two years, a cause of dissatisfaction occurred, and he returned from the service of the prince to the university. Notwithstanding this circumstance, the prince's regard for him continued; for in the same year, 1550, he was recalled to court, and appointed secretary to sir Richard Morysine, who was then going as ambassador to the emperor Charles V. During this expedition, which lasted three years, he had opportunity of conversing with many learned men in various parts of Germany which he visited, and made an excursion into Italy, where he was much disgusted with the manners of the inhabitants, particularly of the Venetians. One of the fruits of this tour was a curious tract, intitled, "A Report and Discourse of the

the Affairs and State of Germany," &c. which contains valuable information and judicious reflections.

On the death of Edward VI. in 1553, Morysine was recalled, and Ascham returned to his college, with no other support than his fellowship and salary as orator to the university, and the liberality of his friends. But by the interest of Bishop Gardiner, who, though he knew him to be a protestant, did not desert him, he was appointed Latin secretary to queen Mary, with a salary of ten pounds a year, and permission to retain his college preferment. Ascham by his prudence, without any servile compliances that reproached his integrity, enjoyed the favour of the queen, and in the most perilous times, he maintained his interest with Elizabeth; and he was partly indebted to the fidelity of his friendship with Cecil for his prosperity in the next reign. Indeed, his learning, and the facility with which he wrote Latin, made him necessary at court. In his capacity as Latin secretary, he is said to have written in three days forty-seven letters to persons of such rank that the lowest of them was a cardinal. Upon the accession of Elizabeth, Ascham was continued in his former employments with the same stipend. He had daily access to the queen, and read with her some portions of works in the learned languages for some hours every day, and of her proficiency under such a master many proofs remain. Notwithstanding the benefit which the queen derived from his services, and the intimacy with which she honoured him by permitting him to play with her at draughts and chess, he obtained from her no other recompence than a pension of twenty pounds a year, and the prebend of Westwarg in the church of York. This poor pittance has been ascribed by some to the parsimony of the queen, and by others to her knowledge of the extravagance of Ascham. He has been charged, and not unjustly, with a propensity, disgraceful to a man of letters and humanity, to cock-fighting. In his "Schoolmaster," he intimates a design of writing a book "Of the Cockpit," which he reckons among the pastimes fit for a gentleman. It is a subject, however, of regret, that whilst the queen did not think him unworthy of her patronage, she did not think proper to remunerate him for his services with a liberality more suitable to her high station. In the year 1563, a conversation occurred at sir William Cecil's on the subject of education. Whilst the subject was much agitated, and different opinions were entertained, sir Richard Sackville was so much prepossessed in favour of Ascham, by the arguments which he used for the mild treatment of boys, that he solicited his counsel and assistance with regard to the education of his son, and at the same time requested that he would write a treatise on the general subject of education. Thus was produced Ascham's excellent performance, intitled, "The Schoolmaster;" a work replete with erudition, and suggesting useful advice on the best method of teaching the classics. Ascham particularly recommends the method of "double translation," which merits adoption in schools. This treatise was published after the author's death by his widow, in 1571; and reprinted with notes, in 8vo. at London, by Upton, in 1711. Ascham's last illness was occasioned by too sedulous application to the composition of a poem, which he intended to present to the queen on the New Year's day of 1569. He died in his 53d year, December 23d, 1568. His death was generally lamented, and the queen expressed her concern by exclaiming, that "she would rather have lost 10,000l. than her tutor Ascham." His epistles, which have been much commended for the elegance of their style, and also for the abundance of historical matter which they contain, were published in 1577, by Grant, and dedicated to queen Elizabeth; and his miscellaneous

pieces have been since collected by Bennett into one volume, with a life by Dr. Johnson prefixed, and published in 1761, in 4to. Ascham is said to have been an elegant poet; but his verses are not to be found in the best edition of his works. One of his biographers, speaking of his works, says, "His Toxophilus was a good book for young men, his Schoolmaster for old men, and his Epistles for all men." Mr. Wood ascribes another work to our author, intitled, "Apologia contra Miffam," printed in 1577, 8vo.

It appears from the writings of Ascham, and those records of him that remain, that his temper was amiable; that he was kind to his friends, and grateful to his benefactors; that he was inclined to free inquiry on the subject of religion, but too much engaged in other pursuits to bestow much attention on this object; that he was, as a man, respectable; and that, as a scholar, he promoted correct taste and sound learning; and by thus serving both his contemporaries and posterity, he deserved much more ample recompence than he received. He died poor, and left a widow and several orphans in destitute circumstances. His poverty has been ascribed by some to his attachment to dice and cock-fighting; and it is noticed by Buchanan in the following short epigram, said by some to display more wit than friendship, which he consecrated to his memory:

"Aschamum extinctum patriæ, Grajæque Camænæ
Et Latîæ verâ cum pietate, doleat;
Principibus vixit carus, jucundus amicis,
Re modicâ, in mores dicere fama nequit."

Thus translated and paraphrased:

"The Attic and the Latian muse deplore
The fate of Ascham, once their joy and pride:
His lays shall charm the list'ning crowd no more;
Esteem'd by kings, lov'd by his friends, he died.
Fortune denied her treasures;—juster fame
Honour'd his worth, and spread abroad his name."

Grant. Oratio de vita et obitu R. Aschami. Biog. Brit. Johnson's Life of Ascham. Andrews's History of Great Britain, vol. ii. p. 85.

ASCHARIANS, or ASHARIANS, followers of Aschari, or Ashari, one of the most celebrated doctors among the Mahometans, who died at Bagdat, about the year of the Hegira 329, or of Christ 940, and who was secretly buried, left the Hanbalites, by whom his opinions were reckoned impious, should tear up his remains from the grave. The Ascharians were a branch of the SEFATIANS; and their opinions were, 1. That they allowed the attributes of God to be distinct from his essence, yet so as to forbid any comparison to be made between God and his creatures. 2. As to predestination, they held that God hath one eternal will, which is applied to whatsoever he willeth, both of his own actions and those of men, so far as they are created by him, but not as they are acquired or gained by them; that he willeth both their good and evil, their profit and their hurt; and as he willeth and knoweth, he willeth concerning them that which he knoweth. They went so far as to say, that it may be agreeable to the will of God that man should be commanded what he is unable to perform. But while they allow man some power, they refrain it to such a power that cannot produce any thing new. God, they say, orders his providence so; that he creates after or under, and together with, every created or new power, an action which is ready whenever a man wills it and sets about it; and this action is called "caab," or acquisition, being, in respect to its creation, from God, but in respect to its being produced, employed, and acquired, from man. This is generally esteemed the orthodox opinion, and has been variously explained. 3. As to mortal sin, the-

Afcharians taught, that if a believer, guilty of such a sin, die without repentance, his sentence is to be left to God, whether he pardon him out of his mercy, or whether the prophet intercede for him, or whether he punish him in proportion to his demerit, and afterwards, through his mercy, admit him into paradise; but that it is not to be supposed he will remain for ever in hell with the infidels, since it is declared, that whosoever shall have faith in his heart, but of the weight of an ant, shall be delivered from hell-fire. This is generally received as the orthodox doctrine in this point, and is diametrically opposite to that of the *Motazalites*. D'Herbelot's *Bibl. Orient.* Sale's *Koran.* Prel. Disc. p. 165.

ASCHAUSEN, in *Geography*, a town of Germany, in the circle of Suabia, eight miles north of Ravensburg.

ASCHBARAT, a town of Turkestan, in the country of the Getæ, on the other side of the river Sion.

ASCHBOURKAN, or ASCH-FOURKAN, a town of Persia, in the province of Chorasan.

ASCHEION, in *Ancient Geography*, a town of the Peloponnesus, in Achaia.

ASCHENGINSKOI, in *Geography*, a fortress of Siberia, on the confines of China, 130 miles S.S.W. of Selinginsk.

ASCHER, a district of the fief of Aggers-Herred, in the diocese of Christiania, or Aggerhuus, in Norway.

ASCHERSLEBEN, a town of Germany, in the circle of Lower Saxony, and principality of Halberstadt, seated on the Eine. It was once the capital of a country to which it gave name, and was one of the most ancient provinces of the house of Anhalt. The circle of Aschersleben, or Ascan, comprehends the tract which was once the Ascherleben, or Gatersleben lake, about two German miles long and half a mile broad; but being drained between the years 1703 and 1709, is now become good corn and pasture land.

ASCHIA, ASCH Cramer, ASCHER Gefner, &c. in *Ichthyology*, synonymous names of the fish called *Grayling* in England; and by Linnæus *SALMO THYMALLUS*; which see.

ASCHOUR, in *Geography*, a river that passes by the town of Kasch in Turkestan, towards the north.

ASCHRAFF, in *Ancient Geography*, a city of Persia, in the province of Mazendran, near the Caspian sea, was once the favourite residence of Abbas the great, but now fallen into decay; the splendid palaces and gardens being sunk into a ruinous state, since the commotions that followed the death of Nadir Shah.

ASCHTIKAN, in *Geography*, a town of Asia, in Independent Tartary, sixteen leagues from Samarcand.

ASCHWOMSEE, a lake of Prussia, forty miles south-east of Königsberg.

ASCIA, in *Antiquity*, an instrument, supposed to be of the axe kind, used in the fabric of the Roman tombs, and frequently represented on them.

The formula "sub ascia dedicare," is frequently found inscribed on ancient tomb-stones. We also meet with "rogum ascia ne polito," among the antique laws of the Twelve Tables. These expressions, and the figure of the ascia, as seen on the tombs, have puzzled several antiquaries, who have formed very curious conjectures concerning it. F. Martin rejects all their opinions, and with considerable probability affirms, that the ascia was a hoe, or sort of pick-axe, for digging up the ground, which is to this day called *assados*, or *assaidos*, in Languedoc. This ascia, he pretends, was not an instrument of common use, but consecrated and employed only for digging of graves; and that it is the same

with what Sidonius Apollinarius calls *rastrum funebre*, where, with the Gauls digged their graves. Lib. iii. ep. 12.

This, he thinks, appears plainly to be the signification of the word, from the Latin proverb, "ipse mihi asciam in cruce impigi," which often happens to those who work with this instrument.

On this footing the famous law of the Twelve Tables, wherein the ascia is mentioned, and the explication of which has puzzled all our antiquaries, contained only a prohibition to dig graves with an instrument of iron or copper, such as the ascia. In reality it was a tradition observed by the remotest antiquity, that no instrument made of those metals should be used in sepulchres.

Dom. Martin has given a dissertation concerning the funeral monuments of the Romans, consecrated "sub ascia." La Relig. des Gaul. tom. ii. liv. 5.

Mabillon, in his explication of the formula "sub ascia dedicare," &c. conjectures that the ancients, in dedicating their tombs to the manes, made imprecations against those who violated their sanctity; and these imprecations, he conceives, were expressed by the figure of the ascia, which bore a threatening aspect. Much to the same purpose is the opinion of Muratori, who apprehends that the formula "sub ascia," or the ascia itself placed upon the tombs, was a tacit but well-known supplication addressed by the person interred to the owner of the field in which the grave was dug, that the adjacent soil might be hoed, the briars removed, and the earth rendered light over the ashes of the deceased. Accordingly, "fit tibi terra levis," is part of an epitaph found on ancient monuments. The sentiments of Mabillon and Muratori have been illustrated and confirmed by count Caylus. Moreover it appears, that the Romans annexed no superstitious idea to the formula "sub ascia dedicavit," as the first Christians made use of it on their monuments.

ASCIA is also used, in *Surgery*, for a kind of bandage somewhat oblique or crooked; whose form and use are well described by Scultetus, in his *Annam. Chirurg.* p. 1. tab. 54. fig. 3.

ASCIBURGIUM, in *Ancient Geography*, a citadel on the Rhine, mentioned by Tacitus, in which were a Roman camp and garrison; situated in a place corresponding with a small hamlet, now called *Afburg*, not far from Meurs, in the duchy of Cleves.

ASCIDIA, in *Natural History*, the name of a genus of VERMES that belong to the *Mollusca* tribe, the body of which is fixed, roundish, and apparently issuing from a sheath; the apertures two, generally placed near the summit, one below the other, Gmel. &c. These creatures are more or less gelatinous, and have the power of contracting and dilating themselves at pleasure; some are furnished with a long stem, but most of them are sessile. Gmelin enumerates the following species: papillofa, gelatinosa, intestinalis, quadridentata, rustica, echinata, mentula, venosa, prunum, conchilega, parallelogramma, virginea, canina, patula, asperfa, scabra, orbicularis, corrugata, lepadiformis, complanata, tuberculum, villosa, clavata, pedunculata, mammillaris, globularis, phusca, gelatina, crystallina, octodentata, patelliformis, pyura, aurantium, globularis: which see respectively.

ASCII, formed of the primitive *a*, and *σκια*, shadow, in *Geography*, are those inhabitants of the globe, who at certain times of the year have no shadow; such are the inhabitants of the torrid zone, because the sun is twice a year vertical to them, and they have then no shadow.—To find on what days the people of any parallel are *ascii*, see *GLOBE*.

ASCINDOE, in *Botany*, a name given by the people of Guinea to a shrub, which they use in medicine, boiling it in water,

water, and giving the decoction in gonorrhœas, and the like complaints. Petiver has named it the prickly Guinea shrub, with roundish crenated leaves, and filamentous flowers. The leaves are about an inch wide, and about an inch and a half long; they stand on short foot-stalks; and at the ends of the branches, there stand clusters of staminate flowers. The thorns on the large branches are very strong. Phil. Trans. No. 232.

ASCITA, in *Ichthyology*, a species of SILURUS, that differs in several respects from other creatures of the same tribe, and is specifically described as having the dorsal fin fleshy, and eighteen rays in the anal fin. This fish inhabits the Indian seas, and is figured both by Bloch, and in Deterville's edition of Buffon. The mode of generation, or manner in which the young are produced, is singular, for it is neither oviparous, nor viviparous, but, partaking of both, forms a distinctly connecting link between those two natural divisions of fishes: the eggs are not composed like those of most other creatures, but consist merely of a yolk, without white, and surrounded by a thin skin to which the embryo is attached by means of an umbilical vessel on the outside, and by which it receives its proper nourishment till it is disengaged. Among other reasons it is asserted that it cannot be viviparous, because it does not receive its nourishment from the parent by means of a *placenta*, but from the yolk of the egg to which it is affixed while it remains in the matrix; and that it cannot be oviparous, because the eggs are not as usual deposited when completely formed, nor are the young contained within the egg, but only attached to the outside of it.

ASCITÆ, derived from *ασκος*, a bag, or bottle, in *Antiquity*, a sect or branch of Montanists, who appeared in the second century.

The Ascitæ were so called, because they introduced a kind of Bacchanals into their assemblies, who danced round a bag or skin blown up; saying, these were those new bottles filled with new wine, whereof Jesus Christ makes mention, Math. ix. 17.—They are sometimes also called *Ascodrogite*.

ASCITÆ, in *Ancient Geography*, a people of Asia, placed by Pliny and Ptolemy in Arabia Felix.

ASCITES, in *Medicine*, (from *ασκος*, *uter*, a *sacculus*, or *bladder*), denotes a species of DROPSY which is seated in the *abdomen*. This disease is commonly divided into two kinds; viz. 1. When the water is contained within the peritonæum investing the general cavity of the lower belly; and 2. When the fluid is included within a bag, or cyst, in which case it is called an *incysted* dropsy: but the description of this disease, and its appropriate treatment, will be found under the articles DROPSY, and PARACENTESIS or TAPPING.

ASCITES, the operation for, in *Surgery*, is named TAPPING, which see. This operation is likewise technically called PARACENTESIS. It consists in drawing off from the abdomen, by means of a trocar, the water or other fluid which is contained therein.

ASCIUM, in *Botany*, Schreb. 903. *Norantea*, Aubl. 220. Juss. 245. Class, *polyandria monogynia*. Nat. Ord. *Putamineæ*? *Casparides* Juss. Gen. Char. *Cal.* perianth five-leaved, leaflets roundish, concave, coriaceous, coloured on the margin. *Cor.* petals five, ovate, acute, larger than the calyx, inserted into the receptacle. *Stam.* filaments very many (40 or 50), short, three-sided, inserted into the receptacle; anthers oblong. *Pist.* germ ovate; style very short; stigma headed. *Per.* berry? one-celled; containing many seeds.

Eff. Gen. Char. *Cal.* five-leaved, coriaceous. *Cor.* five-petalled; berry? one-celled, with very many seeds.

Species, 1. *Ascium norantea*, Aublet Guian. t. 220. This is a tree furnished with alternate entire thick leaves. The flowers grow in loose spikes from the ends of the branches; they are alternate, subfessile, and to each is a long bracte, with a claw to it, resembling the cowed bag of marcgravia, to which genus this seems nearly allied. It is a native of Guiana.

ASCLEPIA, in *Antiquity*, feasts celebrated in various parts of Greece in honour of Æsculapius. They chiefly consisted of music, and a contest between musicians and poets. They were also called *Μηγαλασκληπεια*, or the great festivals of Æsculapius.

ASCLEPIAD, ASCLEPIADEUS, a Greek or Latin verse of four feet, containing a spondee, a choriambus, and two dactyls; or, which amounts to the same, a spondee, two choriambuses, and pyrrhichius.

Such are the verses,

“Mæcenas atavis edite regibus.”

“Sublimi feriam sidera vertice.”

ASCLEPIADA, in *Entomology*, a species of CHRYSOMELA, discovered by Pallas in the vicinity of the rivers Volga and Irtysh, in Siberia. It is of a dusky blue, and glossy; antennæ black; dots on the thorax scattered; on the wing-cases disposed in lines. Pallas, Gmelin, &c.

ASCLEPIADES, ARTORIUS, in *Biography*, physician and friend to Cæsar Octavianus, by whose advice the emperor left his camp the evening before the battle at Philippi, by which his life was probably preserved, that part of the army being surprized and cut to pieces by Brutus. Artorius perished by ship-wreck soon after the battle at Actium, and the emperor caused a magnificent monument to be erected to his memory at Smyrna. He is said to have maintained, that the stomach is the part principally affected in the hydrophobia. Haller Bib. Med. Pract.

ASCLEPIADES, descendants of Æsculapius, so called, who were supposed to have preserved the tenets of their progenitor, and to have founded schools of medicine in various parts of Greece, which continued many ages. The most famous were those of Rhodes, Cnidos, and Cos, formed by different branches of the family. Hippocrates was derived from the latter branch: see article HIPPOCRATES.

ASCLEPIADES, a celebrated physician, born at Prusa in Bithynia, flourished somewhat before the time of Pompey, and formed an intimacy with Licinius Crassus, the orator, and other persons of distinguished character. It is not known whence he took his name, as he was not of the family of Æsculapius. After completing his education, he went to Rome, where he commenced by teaching rhetoric; but not succeeding in that line, he applied himself to the study of medicine, in which he soon became famous; for, rejecting the doctrines of his predecessors in that art, he formed a new theory of diseases, and instituted new methods of curing them. He avoided all harsh and violent drugs, particularly vomiting and purging medicines, which, he contended, injured the stomach, and induced complaints more dangerous than those they were given to remedy, and professed to cure diseases, “*tutò, citò, et jucundè*.” Romæ cum viveret (Haller says) ad luxum et molliem Romanorum artem accommodavit. He was attached to the corpuscular philosophy, and supposed that the free motion of the corpuscles in the vessels constituted health, and that disease ensued when they were restricted or checked in their motion by the straitness of the vessels. “Thus pains, ardent fevers, intermittents, &c. were occasioned (he said) by corpuscles impacted in the pores.” A doctrine full as intelligible, “as the lentor of the humours obstructing the vessels;” the favourite theory of one of the most celebrated teachers

teachers in the last century. In fevers, he prohibited all food, and even drink to his patients for three or more days, but when by this means, the violence of the fever was abated, he indulged them with animal food, and with wine. When costive, he used glysters, which he frequently employed. In pleurifies, and in other complaints attended with violent pain, he prescribed bleeding, but in chronic complaints, he depended principally on abstinence, exercise, baths, and frictions. These, he said, opened the pores, and gave free exit to the obstructed particles.

That he was in high repute in his time, we have the authority of Celsus, Caelius Aurelianus, Galen, and Scribonius Largus, from whose writings what is known of his opinions and practice is principally taken, as none of his works have been preserved. Mithridates, king of Pontus, invited him to his court; but his employment at Rome was too lucrative to permit him to accept the offer.

But besides the reputation he acquired by his practice, his fame was further increased by the number of pupils or disciples who attended his school, and who continued to follow his method long after his decease. Themison, one of his disciples, in part adopting, and in part deviating from his doctrine, formed a new sect, under the title of the Methodic, which in its turn became popular. Asclepiades is said to have pledged his reputation on preserving his health, to have lived to a great age, and to have died at length in consequence of a fall. Le Clerc Histoire de la Medicin. Haller Bib. Med. Pract. who gives a detailed and particular account of his practice in a variety of diseases.

ASCLEPIADES, a Greek philosopher of the Eliac school, was born at Phlia, in Peloponnesus, and flourished about 350 years before Christ. He was the intimate friend and associate of Menedemus, whilst they both attended the school of Stilpo, and afterwards when they attended Phædo's school at Elis. They were under a necessity of supporting themselves by the manual labour of masons. They left their country for the sake of enjoying the advantages of Plato's school at Athens, and gained a subsistence by grinding in the night in one of the public prisons, that they might be able to spend the day in the academy. When the Athenian magistrates, upon inquiring into their mode of subsistence, were informed of this circumstance, which manifested their ardent desire of knowledge, they applauded their zeal, and presented them with 200 drachmas. In advanced life Asclepiades lost his sight, but bore the affliction with cheerfulness. Athen. l. iv. c. 19. Cicero Tusc. Disp. l. v. c. 39. Diog. Laert. vit. Mened. Brucker by Enfield, vol. i. p. 197.

ASCLEPIAS, in Botany, swallow-wort. (From *Æsculapius*, the god of medicine,) Linn. gen. 306. Schreb. 429. Juss. 147. Gært. t. 117. Class, *pentandria digynia*. Nat. Order, *Contortæ*.—*Apocineæ*, Juss. Gen. Char. *Cal.* perianth five-cleft, sharp, very small, permanent. *Cor.* monopetalous, flat, or reflex, five-parted; divisions ovate-acuminate, slightly bending with the sun; nectaries five, growing to the tube of the filaments, fleshy, or cowed; a sharp horn protruding from the bottom, bending inwards. *Stam.* filaments five, collected into a tube, swelling at the base; anthers oblong, upright, two-celled, terminated by an inflex membrane lying on the stigma, having a reversed wing on each side; the pollen is collected into ten corpuscles, inversely lanceolate, flat, hanging down into the cells of the anther, by short threads, which are annexed by pairs to five cartilaginous twin tubercles, each placed on the tip of the wings of the anthers, adhering to the angles of the stigma, between the anthers. *Pist.* germs two, oblong, acuminate; styles two, subulate; stigma common to both, large, thick,

five-cornered, covered at the top by the apexes of the anthers, umbilicate in the middle. *Per.* follicles two, large, oblong, acuminate, swelling, one-celled, one-valved. *Seeds*, numerous, imbricate, crowned with down; receptacle membranaceous, free.

Eff. Gen. Char. Contorted; nectaries five, ovate, concave, putting forth a little horn. Species:—

* *Leaves opposite, flat.*

1. *A. undulata*, waved-leaved swallow-wort, apocynum africanum, lapathi folio, Comm. Rar. t. 16. "Leaves sessile, oblong, lanceolate, waved, smooth." A native of the Cape of Good Hope. It was introduced into our gardens in 1783. Its flowers appear in July. 2. *A. crispa*, curled-leaved swallow-wort; apoc. erectum afric., &c. Herm. par. 25. Comm. Rar. t. 17. "Leaves cordate, lanceolate, waved, scabrous, opposite; umbel terminal." Its stem is pubescent, branching at the bottom; leaves subsessile, repand; one umbel of yellow flowers terminates the stem. Found at the Cape by Sparrman. Introduced into the Kew garden by Mr. Masson, in 1774. 3. *A. pubescens*, pubescent swallow-wort; apoc. afr. tuberosum, &c. Morr. Hist. 3. 610. Pluk. 139. f. 1. "Leaves ovate, veined, naked; stem shrubby; peduncles villose;" the stem is shrubby, simple or little branched, very shortly villose; leaves on very short footstalks, villose, pointed, much veined, rather crowded; peduncles and umbels villose; flowers purple. A native of the Cape of Good Hope. 4. *A. volubilis*, twining swallow-wort, Rheed. Mal. 9. 21. t. 13. Rumph. Amb. 5. t. 175. f. 1. "Leaves ovate, entire, acuminate; stem arborescent, twining; umbels erect;" stem smooth; branches shining; leaves petioled, ovate-subcordate, veined; umbels simple, on peduncles the length of the petiole; flowers greenish. A native of Malabar and Ceylon. 5. *A. asthmatica*, asthmatic swallow-wort. "Leaves petioled, cordate-ovate, above smooth, entire; stem shrubby, twining, hirsute; umbels few-flowered." The whole plant is villose, except the upper surface of the leaves, which resemble those of laurel, heart-shaped at the base, pointed at the apex; umbels shorter than the leaves, often proliferous; flowers small. Found in the woods of Ceylon by Koëning. The root is esteemed in asthmatic cases. 6. *A. gigantea*, curled flowered gigantic swallow-wort, Brown, Jam. 182, 1. "Leaves obovate-oblong; petioles very short; segments of the corolla reflex, involute." It rises six or seven feet in height; leaves thick; flowers white; pods very large; nectaries without horns. Brown says, in Jamaica it is called auricula, or French jasmine. Cultivated at the royal garden, Hampton court, in 1690. It flowers from July to September. 7. *A. syriaca*, Syrian swallow-wort. Hort. Cliff. 78. 8. *A. exaltata*, Lin. Spec. 313. "Leaves oval, tomentose underneath; stem simple; umbels nodding;" root creeping; stem strong, four feet high, on the sides of which, and near the top, the flowers appear, these are of a dingy purple, succeeded by large oval pods. A native of North America, and cultivated by Parkinson in 1629. In Canada, the French eat the tender shoots as asparagus. Poor people collect the cotton, from the pods, with which they fill their beds. On account of the silkiness of this cotton, Parkinson calls the plant Virginian silk. 8. *A. amoena*, oval-leaved swallow-wort; apocynum, Dill. Elth. 31. t. 27. f. 30. "Leaves ovate, rather hairy underneath; stem simple; umbels and nectaries erect." From a foot and half to more than three feet high; stems round, smooth, the size of a swan's quill. At each joint are placed two large leaves, which are blunt, thickish, stiff, smooth, with purple nerves; lower leaves smaller and rounder; the umbels arise from the top of the stalk, and some of the upper axils; the nectaries approximate more, are

are straighter, longer, stiffer, more acute, and less excavated than in the other species; the flowers are of a bright purple colour. Cultivated by Dr. Sherard, at Eltham, in 1732. A native of North America. 9. *A. purpurascens*, purple Virginian swallow-wort, Dill. Elth. 32. t. 28. f. 31. "Leaves ovate, villose underneath; stems simple; umbels erect; nectaries resupinate;" stems many, as thick as the little finger, at bottom obtusely quadrangular; leaves on short footstalks, from four to six inches long, with a purple midrib; flowers of a dusky herbaceous colour; horns of the nectaries horizontal. A native of North America. Cultivated by Dr. Sherard, in 1732. Linnæus observes that this species is nearly related to *A. Syriaca*. 10. *A. variegata*, variegated swallow-wort, apoc. americanum. Dill. Elth. 32. Pluk. Alm. 34. t. 77. f. 1. "Leaves ovate, wrinkled, naked; stem simple; umbels subsessile; pedicels tomentose." According to Miller, this resembles the foregoing sort, but the leaves are rough, and the umbels of the flowers are more compact; they come out on the side of the stalk, are of an herbaceous colour, and not succeeded by pods in this country. A native of North America. We learn from Plukenet, that it was cultivated here in 1696. 11. *A. curassavica*, Curassoa swallow-wort, battard ipecacuanha, Brown, Jam. 183. 2. Apocynum, Dill. Elth. 34. t. 30. f. 33. Sloan. 1. t. 129. f. 4, 5. "Leaves lanceolate, smooth, shining; stem simple; umbels erect, solitary, lateral." The stem is from one to two or three feet in height; leaves opposite, and decussated, petioled, acute, entire, smooth on both sides; flowers in umbels; umbellules terminal; involucre a few subulate leaflets; pedicels one-flowered; corolla reflex; the flowers, according to Brown, are of a saffron colour in the low lands, but in the cooler inland pastures they change to a white. This species so much resembles *A. nivea*, that Swartz doubts whether it be really distinct from it. Miller affirms that the roots have been sent to England for ipecacuanha. The juice of the plant has been used as a vermifuge. It is a native of South America, the West Indian islands, and China. In 1692, it was cultivated in the royal garden at Hampton-court, where it flowered from June till September. 12. *A. nivea*, white or almond leaved swallow-wort. Apocynum, Dill. Elth. 33. t. 29. f. 32. Plum. Spec. 2. Ic. 30. "Leaves ovate-lanceolate, smoothish; stem simple; umbels erect, lateral, solitary;" stems two feet high, straight, round, the size of a swan's quill, dark green; leaves like those of common pericaria, deep green above, pale beneath, smooth, rather stiff. The principal difference between this and the *curassavica* is in the flowers, which are green with white nectaries. A native of North America. Cultivated by Dr. Sherard in 1732. 13. *A. incarnata*, flesh-coloured swallow-wort, Jacq. hort. 2. t. 107. "Leaves lanceolate; stem divided at the top; umbels erect, twin." This puts out several upright stalks, about two feet high; at the top of which are produced close umbels of purple flowers in August. A native of North America. Cultivated by Miller in 1731. 14. *A. decumbens*, decumbent swallow-wort. "Leaves villose; stem decumbent." The stalks are declining, hairy, a foot and a half high; leaves narrow; umbels compact, at the extremity of the branches; flowers of a bright orange colour. A native of North America. 15. *A. latifera*, milky swallow-wort; "leaves ovate; stem erect; umbels proliferous, very short." This is so like the *viscetoxicum* as scarcely to be distinguished from it; the leaves however are less cordate, the corymbs compound, and scarcely longer than the petioles. A native of Ceylon. 16. *A. viscetoxicum*, officinal swallow-wort, Flor. Dan. 849. Woodv. Med. Bot. Supp. β *A. lutea*. Mill. Dict. "Leaves ovate, bearded at the base;

stem erect; umbels proliferous;" root divided and fibrous; stems about two feet high, slender, woody, round, hairy, simple; leaves cordate-ovate, acuminate, smooth, entire, on short footstalks; peduncles axillary, many-flowered; corolla white; follicles ovate-acuminate; seeds small, brown, inclosed in cotton. It flowers during the month of June, July, and August. It is common in the northern parts of the continent. The medical virtues of the root are stated by Bergius to be diuretic, sudorific, emmenagogue, and alexipharmic. 17. *A. nigra*, black swallow-wort, Villars' Dauph. 487. "Leaves ovate, bearded at the base; stem twining a little at the top." This agrees with the officinal species in the shape of its roots, leaves, and flowers, but the stalks extend to a greater length, and at the upper part twist round other plants, &c. near them; the flowers are black. A native of the south of France.

** *Leaves revolute at the sides.*

18. *A. arborescens*, arborescent swallow-wort, apoc. frutesc. &c. Burn. Afr. 21. t. 13. "Leaves ovate; stem shrubby, subvillose;" stem upright, as thick as the finger, rough, with hairs; leaves opposite, on very short petioles, obtuse, but with a minute smooth point; peduncles from the summit of the stem, umbelled, villose; corollas white. A native of the Cape of Good Hope. Cultivated by the dukes of Beaufort in 1714. It flowers in December. 19. *A. fruticosa*, shrubby, or willow-leaved swallow-wort, *A. glabra*, Mill. Dict. n. 2. apoc. erectum africanum, &c. Mill. fig. 45. β *A. crassifolia*, Lin. Syst. ed. 13. "Leaves linear-lanceolate, stem shrubby;" the nectaries are compressed, without a claw, instead of which are two long reflex ears; follicles inflated, set with soft prickles. This is a native of the same place, and was cultivated in the same year, and by the same person, as the *A. arborescens*. 20. *A. repanda*, repand swallow-wort, apoc. erectum afric. subhirsutum, &c. Herm. Par. 45. Comm. Rar. t. 17. "Leaves revolute, repand, hairy;" this is given on the authority of Reichard. Its native country is unknown. 21. *A. sibirica*, Siberian swallow-wort, Murr. Comm. Gott. 1779. t. 7. Gmel. Sib. 4. 77. n. 21. "Leaves linear-lanceolate, opposite, or in threes, stem decumbent." This varies with alternate leaves. It is a native of Siberia, and cultivated in 1775, by Mr. J. Gordon. It flowers in July. 22. *A. verticillata*, verticillate swallow-wort, apoc. marianum, &c. Pluk. Mant. 17. t. 336. f. 4. "Leaves linear verticillate, stem erect;" stalks slender, upright; flowers small, white, in umbels at the top of the stems; leaves frequently four together. A native of North America. Cultivated by Miller in 1759.

*** *Leaves alternate.*

23. *A. rubra*, red swallow-wort. "Leaves ovate, umbels many, from the same common peduncle." Stem upright, simple, annual; leaves acuminate; several umbels on a peduncle. A native of Virginia. 24. *A. tuberosa*, tuberous swallow-wort, apoc. Novæ Angliæ, &c. Herm. Lugdb. t. 647. Dill. Elth. 35. t. 50. f. 34. "Leaves lanceolate; stem divaricate, hairy." Stems a foot high, hairy, round, dusky red; leaves alternate, except at the upper part of the stem, and where the branches arise; flowers of a bright orange colour; the tuberous roots are very large. A native of North America, flowering in August. Cultivated in 1690, in the royal garden at Hampton-court.

**** 25. *A. filiformis*, narrow-leaved swallow-wort. "Leaves filiform; stem erect; umbels lateral, elongate, peduncled." This species was found at the Cape of Good Hope, by Thunberg. 26. *A. grandiflora*, great flowering swallow-wort. "Leaves petiolate, oblong, hairy; stem simple, rough, erect; flowers axillary, peduncled." The flower of this is very large, coloured, and tessellated like that of the

frutillary

fritillary. It also was found at the Cape by Thunberg. 27. *A. carnosifolia*, fleshy-leaved swallow-wort. "Leaves ovate, fleshy, very smooth;" leaves about four inches long, without veins; petioles fleshy, half the length of the leaves; umbel simple, axillary, solitary; calyx minute; corolla scarcely half five cleft, flat. This differs much from the other species. A native of China. 28. *A. scandens*, climbing swallow-wort, Mill. Dict. n. 19. "Leaves oblong, lanceolate, subhirsute; stem shrubby, climbing; umbels lateral, compact." It climbs to the height of ten or twelve feet. At the joints are two opposite leaves, on short foot-stalks. Flowers of a sulphur colour, and appear in August. A native of Carthage. Cultivated by Miller in 1759. 29. *A. procera*, bell-flowered gigantic swallow-wort, Ait. Hort. Kew. *A. gigantea*, Jacq. Obs. 3. 17. t. 69. "Leaves obovate-oblong, petioles very short; corollas tubercampulate." A native of Persia. Cultivated in 1714 by the dukes of Beaufort. It flowers from July till September. This ought to be placed before *A. gigantea* at 6. 30. *A. parviflora*, small-flowered swallow-wort, Ait. Hort. Kew. 1. 307. A native of Carolina and East Florida. Introduced by Dr. Fothergill in 1774. 31. *A. linaria*, toad flax-leaved swallow-wort, Cavan. Hisp. 42. t. 57. "Leaves scattered, subulate, channelled; umbels lateral, many-flowered." A foot high; leaves narrower at the base, numerous; corolla white. We are ignorant of its native country. It has been cultivated in the royal garden at Madrid since 1788, and flowers in autumn. 32. *A. mexicana*, Mexican swallow-wort, Cavan. Hisp. 42. t. 58. "Leaves six together in whorls lanceolate; flowers umbelled." Stems upright, smooth, a foot and a half high; leaves quite entire, with a short petiole; corolla white, deeply five-parted. A native of Mexico, and cultivated at the royal garden Madrid. 33. *A. fusca*, Lour. Cochinch. 170. "Stem creeping; leaves cordate, lanceolate; umbels axillary, in pairs." Stem herbaceous, twining, slender, much branched at the top; leaves opposite, small, bearded at the base; flowers dusky purple, small, with five ear-shaped nectaries. A native of Cochinchina. 34. *A. viminalis*, Swartz. Prodr. 53. Brown, Jam. 183. 3. Sloane, 1. 207. t. 131. "Stem suffruticose, twining, filiform; leaves opposite, lanceolate, smooth; umbels lateral, many-flowered." Stalks slender, weak, spreading to the distance of some yards. It has very few leaves, but many flowers disposed in large umbellate groups; it abounds with a milky juice. A native of Jamaica, in woods.

Propagation and Culture. In this numerous genus, only two species, viz. 16. and 17. are European; two or three are from South America; the rest are natives of North America, the East and West Indies, or Africa. Such as are inhabitants of North America, 7—10, 12, 13, 14, 22—24, are, as well as the European, hardy enough to bear the open air, and therefore are proper for large borders in pleasure grounds, and to mix with shrubs. The other species require the protection of the green-house or stove; all of them are tall perennials, flowering from June till August or September, mostly dying down to the root in autumn. They should have little water, especially in winter: they may be propagated by seeds, where they can be obtained, or by cuttings; the hardy sorts may be increased by parting the roots. 1, 2, 3, 18—20, 25—27, 30, must have the shelter of a green-house in winter; 4, 5, 6, 11, 15, 28, 29, 31—34, will not live but in a stove. These must be raised from seeds sown in the spring on a hot-bed, and being transplanted into pots filled with rich earth, must be plunged into the tan-bed in the stove. After the second year, the 11th sort becomes naked, and does not produce many

flowers, so that young plants ought to be raised to succeed them, especially as it produces plenty of seeds in England. All the Cape sorts, 1, 2, 3, &c. may be propagated by seeds sown in April on a bed of light earth in the open air, and when the plants are three or four inches high, they should be each planted in a small pot filled with light earth, and shaded till they have taken new root; then they may be placed with other exotic plants in a sheltered situation until October, when they may be removed into the green house or dry stove. They may also be increased by cuttings. The roots of the 8th and 22d should be planted in a warm border, and in winter covered with old tan. The 14th and 24th are propagated by seeds in pots placed in a moderate hot-bed, and gradually enured to the open air as soon as the weather will permit. When they are of a proper strength they may be planted in a warm border, and treated as other tender plants. See Martyn's Miller's Dict.

ASCLOSTER, in *Geography*, a town of Sweden, in South Gothland, twelve miles south of Wardberg.

ASCO, a town of Spain, in Catalonia, seated on the Ebro, ten leagues from Tortosa.

ASCODRUTÆ, in *Antiquity*, a sect in the second century, who rejected all use of symbols and sacraments; on this principle, that incorporeal things cannot be communicated by things corporeal, nor divine mysteries by any thing visible.

ASCOGEPHYRUS, in *Middle Age Writers*, denotes a bridge supported on bags made of leather or bullocks hides. Such bridges appear to have been in use among the ancients, and to have given the denomination to a tribe of Arabs, hence called *Ascite*.

Hence also the appellation *ascomanni*, given to pirates, by reason of their using bridges, or rather boats made of leather. Plin. Hist. Nat. lib. vi. c. 9. Du-Cange.

ASCOLI, in *Geography*, a town of Italy, in the citate of the church, and marquise of Ancona, seated on a mountain between the rivers Tronto and Castillano; twenty leagues south of Ancona, twelve north-east of Aquila, and thirty north-east of Rome. N. lat. 42° 50'. E. long. 15° 5'.

ASCOLI de Satriaco, a town of Italy, in the kingdom of Naples, and province of Capitanata, the see of a bishop. This town was almost destroyed by an earthquake in 1399. N. lat. 41° 8'. E. long. 15° 32'.

ASCOLIA, in *Antiquity*, a feast which the peasants of Attica celebrated in honour of Bacchus.

They sacrificed a he-goat to him (as being the destroyer of vines); and of the victim's skin made a foot-ball, which they blew up, and anointed with some unctuous matter; or, as Potter thinks, they made a bottle of it, which they filled with oil and wine. The young people playing at this, and keeping themselves always on one foot, whilst the other was suspended in air, by their frequent falls gave occasion of diversion to the spectators. He that held the sport longest, and made the largest hops, was the conqueror. Hence the game called *ascoliafm*. Ptitiscus.

ASCOMARII, in *Ancient Geography*, a people of Asia, in Sarmatia. Pliny.

ASCONA, in *Geography*, a town of Switzerland, lying on the Locarno lake, in which is a college for the instruction of youth, founded in the sixteenth century.

ASCONIUS, PADIANUS, in *Biography*, a Roman grammarian, was a native of Padua, and lived in the time of Augustus; the friend of Virgil, and the acquaintance of Quintilian and Livy. His notes on Cicero's orations are judicious, and still exist, though in a mutilated state. They were first published, with those of Luscus, in folio, at Venice, in 1477; and

and at Padua in 1493. They have been intermixed with those of other commentators, and may be found in Gronovius's edition of Cicero, published in 4to. in 1692. Fabr. Bib. Lat. l. ii. c. 6.

ASCORA, in *Geography*, a province of the empire of Morocco. See ESCURA.

ASCORDUS, in *Ancient Geography*, a river of Greece, in Macedonia, one day's journey from Agassia. Livy.

ASCOTANÆ, a people of Asia, in Scythia, on this side of Imaus. Ptolemy.

ASCOYTIA, in *Geography*, a town of Spain, in the province of Guipuscoa, on the river Urola, west of Tolosa, and two leagues east of Placentia.

ASCRA, in *Ancient Geography*, a town of Greece, in Bœotia, near mount Helicon. From its having been the place where Hesiod was brought up, though he was born at Cuma in Eolis, it was called his country.

ASCRIPTI, or ADSCRIPTI, in *Antiquity*, those who entered their names in the colonies, and became *coloni*.

ASCRIPITII, or ADSCRIPTITII, a kind of villains, who coming from abroad, settle in the lands of some new lord, whose subjects or servants they commence; being so annexed to the lands, that they may be transferred and sold with the same.

The ascriptitii are annexed to the land they hold, so that they cannot stir from it; besides that, whatever they acquire accedes to the benefit of the lord of the land. Du-Cange and Calv. Lex. Jur.

ASCRIPITII is sometimes also used in speaking of aliens or foreigners, newly admitted to the freedom of the city or country.

ASCRIPITII was also used in the *Military Laws*, for the recruits appointed to supply the losses of the legions; called also ACCENSI.

ASCULUM APULUM, or *Asculum* of Apulia, in *Ancient Geography*, now *Ascoli* of Capitanata, was situated in the Trajan way which passed from Beneventum to Canusium, between Trivicum to the west, and Canusium to the north-east. This place is famous as the scene of the first battle in which the Romans obtained success against the Epirots, under the command of Pyrrhus. Of this action, however, historians give a different account. Plutarch pretends that Pyrrhus gained a complete victory; whereas Eutropius affirms, that he was entirely defeated, and fled to Tarentum. Dionysius of Halicarnassus says, that the victory was doubtful and claimed on both sides, and that Pyrrhus being congratulated upon his success, replied, "Such another victory would undo me."

ASCULUM PICENUM, now *Ascoli* of Ancona, was the capital of the Piceni. It was a municipal town, and a Roman colony. Cicero (De Orat. c. 46.) commends an orator, named "Betucius Barrus," who was born in this city, and of whose discourses delivered at Asculum, some remained in his time.

ASCURA, a town of Asia, in the greater Armenia. Ptolemy.

ASCURUS, a river of Colchis, according to Arrian.—Also a town of Africa, in Mauritania.

ASCUS, in *Natural History*, a word used by De Laet, as the name of that pouch or bag with which nature has supplied the animals of the *Diadelphis* or *Opossum* tribe, for the protection of their young; and in which they are contained in a state of imbecility, or time of danger. Later writers, as Linnæus, Gmelin, and others, call this abdominal pouch, or receptacle, *folliculus*: it is not the womb, as is vulgarly

imagined, but a kind of skinny bag, situated under the belly, and in most species containing the teats of the animal.

ASCYRUM, in *Botany*, a genus of plants resembling St. John's wort (supposed from *α*, and *σκιρ*, or *σκιρ*, *asperatus*, not rough, a soft plant). Lin. g. 903. Schreb. 1225. Gærtn. 62. Juss. 254. Class. *polyadelphia polyandria*. Nat. Ord. *Rotacea*.—*Hyperica*, Juss. Gen. Char. *Cal.* perianth four-leaved: the outer leaves opposite, very minute-linear; the inner heart-shaped, large, flat, erect, all permanent. *Cor.* petals four, ovate; the outer opposite, very large; the inner less. *Stam.* filaments numerous, bristle-shaped, slightly united at the base in four parts; anthers roundish. *Pist.* germ oblong; style scarcely any; stigma simple. *Per.* capsule oblong, acuminate, one-celled, two-valved, inclosed by the larger leaves of the calyx. *Seeds*, numerous, small, roundish, fixed to the edge of the valves.

Ess. Gen. Char. *Cal.* four-leaved; petals four; filaments many, in four divisions.

Species, 1. *A. crux Andree*, common ascyrum, or St. Andrew's cross. "Leaves ovate; stem round; panicle dichotomous." Stalks about six inches high, slender, dividing into two towards the top; from between the divisions of the branches loose panicles of small yellow flowers are produced; capsule small, pointed at the ends, compressed like a lens, obscurely two-furrowed. A native of North America. Cultivated by Miller, in 1759. It flowers in July and August. 2. *A. hypericoides*. Brown, Jam. 309. Swartz. Obl. 294. *Hypericoides*, &c. Plum. Gen. 51. t. 152. f. 1. "Leaves oblong; branches ancipital." An elegant little shrub, three feet high, full of leaves and branches. Branches dichotomous; twigs compressed and ancipital; leaves opposite, subsessile, lanceolate, obtuse, entire, very finely perforated, smooth, at their base small glands; flowers terminating, solitary, yellow; two leaflets of the calyx four times larger than the others. A native of South Carolina, Virginia, Maryland, and the cooler mountains of Jamaica. Cultivated by Miller. 3. *A. villosum*. "Leaves hirsute; stem stiff and straight." This grows about three feet high. The flowers are produced at the ends of the stalks, and are of the same shape and colour as those of common St. John's wort. It grows wild in Virginia, and was cultivated by Miller in 1759.

Propagation and Culture. These are perennial plants, the stems decaying in the autumn. The first may be increased by laying down its branches; it loves a moist soil and shady situation. The second sort rarely produces seeds in England, but may be propagated by cuttings of the young shoots in May, planted in pots, and plunged in a moderate hot-bed, and afterwards transplanted into a warm border; but in severe winters they must be defended from the frosts by covering the roots with tan. The third may be increased by parting the roots in autumn, and planting them in a loamy soil. See Martyn's Miller's Dict.

ASCYRUM. See HYPERICUM.

ASDRUBAL, in *Biography*, a name given to several of the Carthaginian generals. *Asdrubal*, the son-in-law of Hamilcar, the father of Hannibal, accompanied Hamilcar into Spain after the first Punic war; and on his death, was elected by the army his successor. Having made considerable conquests in Spain, he built a city called New Carthage, now Carthagera, in order to secure them. Hannibal served during three campaigns under him. His administration in Spain was prosperous for eight years; but it terminated with his assassination, which was effected by a Gaul, whose master he had put to death. The assassin was so gratified with his revenge, that he smiled in the midst of the tortures

with which he was executed.—*Afdrubal Barca* was the son of Hamilcar and brother of Hannibal. He commanded in Spain, while his brother was in Italy. After extinguishing a rebellion of the natives, he was summoned to the assistance of his brother, but in his progress was completely defeated by the Romans. Afdrubal and the other Carthaginian generals maintained themselves with difficulty in Spain, and were frequently defeated by the two Scipios; but at length these two leaders were overpowered by the Carthaginians, and killed. Whilst he was advancing along the coast of the Adriatic to join his brother, and the existence of the Roman state was threatened by his numerous army, he was met at the river Metaurus, now Metaro, by the two consuls Livius and Claudius Nero with their united forces; and a bloody engagement ensued, which proved decisive, for Afdrubal was slain, and almost the whole of his army destroyed. Claudius Nero carried the head of Afdrubal to his station before Hannibal; and when it was thrown into the Carthaginian trenches, it was presented to Hannibal, who recognizing his brother's features, exclaimed "I perceive the fortune of Carthage," and then retired, in the year before Christ 203, into the extremity of Italy.—*Afdrubal*, the son of *Gisco*, served in Spain with the former Afdrubal, and afterwards in Africa, against Scipio. He was father of the celebrated Sophonisba.—Another *Afdrubal* defended Carthage in its last siege by Scipio, and foreseeing its fate, surrendered himself to the Romans. When his wife, who was left behind him with her two children in the temple of Æsculapius, perceived that the temple was set on fire, she appeared on the walls magnificently adorned, with her two children; and having reproached and execrated her husband for basely deserting her, she first stabbed her children, and then threw herself into the flames. See **CARTHAGE**.

ASDYNIS, in *Ancient Geography*, an island of Egypt, in the lake Mæris, according to Eudoxus, cited by Steph. Byz.

ASE, in *Biography*, a celebrated Jewish rabbi, was born at Sora in Persia, and was chosen chief of the famous academy in that place, in the fourteenth year of his age, which dignity he retained during sixty years, that is, till the year 427, in which he died. Ase was the principal compiler of the Babylonish talmud. During his long residence at Sora, he published a collection of his decisions, which he divided into four parts: the first contained the rules and maxims of the Mishna, with the doubts and solutions relating to them: the second was chiefly occupied with the various questions of their doctors, and the sentiments of the Thannaim and Gemarists: the third comprehended the decisions and maxims published since Judah the saint: and the last recapitulated the texts of scripture relating to law-suits, with the comments of their learned men. This was the first division of the Babylonish talmud; but as Ase did not live to complete it, his disciples altered his method, and made several additions, which are thought to have rendered the work more obscure. See **TALMUD**.

ASEA, in *Ancient Geography*, a town of Arcadia, north-east of Megalopolis.

ASEERGUR, in *Geography*, a town of Hindoostan, in the Candehis, fifteen miles from Burhampour, and eighty-five south of Indore.

ASEIAC, a town of Persia, in the province of Chufistan, thirty leagues south-west of Isfahan.

ASEKI, or **ASEKAI**, the name which the Turks give to the favourite sultaneesses who have brought forth sons. These are greatly distinguished above others in their apartments, attendants, pensions, and honours. They have

sometimes shared the government. The sultana, who first presents the emperor with a male child, is reckoned the chief favourite, is called *buguk aseki*, and ranks as a legitimate wife: though from the time of Bajazet I. the sultans are forbid to marry by a public law, which Solymán II. violated in favour of Roxalana.

ASELE, *Asele-Lapmark*, or *Angermannland Lapmark*, in *Geography*, a province of Lapland, lying near the Angermannland river, borders on Angermannland, towards the east, on Umea-Lapmark towards the north, and joins to the mountains on the west, and to Jamtland on the south. In length it is about thirty Swedish miles. In the reign of Charles XI. about the year 1673, measures were taken for improving the population of this country. In this Lapmark lies the parish of Asele, about eight or nine Swedish miles long, of which the southern part is inhabited by Swedish peasants. This district is not capable of much improvement, and few parts of it have been cultivated. Barley is the only grain that is sown, and when the crop fails, the inhabitants are reduced to the necessity of mixing the bark of fir-trees dried and pulverized with their barley-meal, and of this mixture to make their bread. They chiefly subsist by breeding of cattle and fishing. The country is infested by a kind of fœtid gnats, which are very troublesome, against which they secure themselves by besmearing their faces with an ointment of tar and grease, and which they drive from the houses by smoke. Service is performed in a wooden church, built by queen Christina in 1648, once on every other Sunday; and the Lapps meet once a fortnight, on Friday evening, and continue till Sunday evening in their huts erected near the church, and the peasants in the houses built by them for the same purpose. At the fair which is held every year at Xenac near Asele church, the Lapps sell the flesh and skins of rein-deer, furs, whittings, fowls, &c.; and the Lapland peasants carry butter, cheese, dried fish, fowls, and some sort of furs, to the same market.

ASELLA, in *Entomology*, a species of *PHALÆNA* that is found in Germany. The wings are brownish, and without spots. Fab. It belongs to the Bombyx family.

ASELLI, in *Astronomy*, two fixed stars of the fourth magnitude, in the constellation Cancer.

ASELLII Pancreas, in *Anatomy*. See **PANCREAS**.

ASELLINA, in *Natural History*, a species of *LERNEA* described by Linnæus. Fn. Sv. The body is lunated, and the thorax heart-shaped. Found on the gills of some fishes.

ASELLIUS, **CASPAR**, of Cremona, in *Biography*, born toward the end of the sixteenth century, taught anatomy at Paris with great reputation. In 1622, while prosecuting his studies, he discovered "*casu magis quam concilio*," Douglas says, the lacteals running across the mesentery, in a dog that had been opened alive soon after eating a plentiful meal. He describes these vessels as passing from the intestines to the liver, not knowing their real course, and mistaking the lymphatics of that viscus for them. He saw their valves, preventing the regurgitation of the chyle. The lacteals, he candidly observes, had been mentioned by some of the earliest medical writers, but not described, or their functions stated, and as none of the modern restorers of anatomy noticed them, the discovery is properly attributed to him. Caspar Hoffman ridiculed the invention of them; and our great countryman, Harvey, supposed them to be only destined to convey the lymph.

Afelliuss mistook a collection of glands in the mesentery for the pancreas, and described the pancreas as a new discovered gland, which, with his error in describing the course

of the lacteals, threw much obscurity on his discovery. He died some time in the year 1626, and was buried at St. Peter's at Milan, aged, as appears by the inscription on his tomb, only forty-five years. The year following, his friends, Alexander Padinus and Senator Septalius, published, from a manuscript that had been prepared by the author, "*De Lactibus seu Lacteis Venis, quarto Vaforum Mefaraicorum Genere, novo invento, Differtatio, cum figuris elegantissimis, Mediolani, 1627, 4to.*" It was republished at Bâle 1628, at Leyden 1648, and afterwards among the works of Spigelius and Mangeti, in folio. Haller Bib. Anat. Eloy Dict. Hist.

ASELLUS, in *Ichthyology*, the name of a tribe or genus of fishes adopted by Willughby, Ray, and other old writers on Natural History. Linnaeus arranges the fishes of this kind in the *GADUS* genus; as for example: *asellus major* of Aldrovandus, is *gadus aeglefinus* Lin. (Hadock.) *asellus fuscus* of Ray, is *gadus luscus* Lin. (Bib.) *asellus mollis minor* of Willughby and Ray, is *gadus minutus* Lin. (Poor), &c. &c. See *GADUS*.

ASELLUS, in *Entomology*, a specific name of the common wood-louse, or hog-louse, as it is called in England. It belongs to the *ONISCUS* genus. It is of an oval shape; and has an obtuse tail, which is furnished with two simple styles. This well-known creature delights in moist places, lurking under stones, in walls, in damp and rotten wood, &c. The young are contained in a four-valved receptacle, under the abdomen of the female.

ASELLUS, in *Conchology*, a species of *CHITON*, found in the North seas, most frequently adhering to *mytilus modiolus*. The shell consists of eight valves, is very black, convex above, with a yellowish dorsal spot on each valve. Chemnitz, Gmel. &c.

ASELLUS, a species of *CYPRÆA*, very common about the Madeira islands. It is white, with three brown bands. Linn. This shell is called *Asellus* also by Rumphius and Argenville. The shape is oblong; and the brown bands are bordered with yellow, or sometimes reddish.

ASEMOS, ἀσημος, from α negative, and σημος, a sign, is an epithet applied to events that fall out contrary to all appearance, and without any manifest cause.

ASENA, in *Ancient Geography*, a town of Spain, in the territory of the Carpetani.

ASENI, a people of India, whose capital was Bucephala. Pliny.

ASEPTA, in *Medicine*, ἀσηπτα, from α negative, and σηπω, to putrefy; signifies any thing unputrefied, or uncorrupted.

ASER, in *Geography*, a town of Asia, in the Arabian Trac, situated on the Tigris, eight miles west-north-west of Bassora.

ASES, in *Ancient Geography*, a Scythian people, who inhabited the vicinity of the Cimmerian Bosphorus.

ASFACA, in *Geography*, a town of Persia, in the province of Mecran, 52 leagues north-west of Mecran.

ASFELD LA VILLE, a town of France, in the department of the Ardennes, and chief place of a canton in the district of Rethel, thirteen miles north of Rheims. The place contains 1080 and the canton 7832 inhabitants: the territory includes 230 kilometres and 19 communes.

ASFUN, or ASFOUN, a town of Egypt, four miles north of Erment. This is the site of one of the cities called *APHRODITOPOLIS*.

ASFUR, in *Ichthyology*, a species of *CHAETODON*, found on the coasts of Arabia. It is black, with a yellow transverse lunar-wedged band. Forsk. Fn. Arab. The same author describes a variety of this fish, of a bluish colour, with oblique bands, blotches, and fine lines of violet.

Length five inches; body oval, covered with rhombic scales, disposed in a quincunx order, and finely dentated; a strong spine on the gill-cover half an inch in length; lateral line curved; dorsal and anal fin falcated; tail rounded, fulvous, and edged with black.

ASGILIA, in *Ancient Geography*, an island situated in the Persian gulf, on the coast of Arabia Felix. Pliny.

ASGILL, JOHN, in *Biography*, an English barrister of singular character, was born about the middle of the 17th century, and educated at Lincoln's Inn, under Mr. Eyre, a very eminent lawyer. His political talents and singular vein of humour were manifested in two pamphlets, which were printed in 1698, and which attracted public notice; the first was entitled, "Several Assertions proved in order to create another Species of Money than Gold and Silver;" and the second, "An Essay on a Registry for Titles of Lands." These were followed, in 1700, by another whimsical and enthusiastical treatise, intitled, "An Argument, proving, that, according to the Covenant of eternal Life, revealed in the Scriptures, Man may be translated from hence, without passing through Death, although the human Nature of Christ himself could not be thus translated, till he had passed through Death." This publication excited a general clamour against the author as an infidel and a blasphemer. Before this time he had removed into Ireland, and pursued the practice of the law with so much success, that he was enabled to purchase an estate, and to obtain a seat in the Irish parliament; but this publication occasioned his expulsion from the house, as a person whose blasphemous writings rendered him unworthy of representing a Christian people. On his return to England, he obtained a return to the British parliament, in 1705, for the borough of Bramber in Sussex, and held his seat for two years. But his want of economy involved him in debts which he was unable to discharge, and during the interval of privilege, he was arrested and committed to the Fleet prison. On the opening of the next session of parliament, in 1707, he was demanded by the serjeant at arms, released from custody, and resumed his seat. However, his embarrassed circumstances, and the consideration of his being a privileged debtor, created a prejudice against him in the house, and a committee was appointed to examine his offensive publication, in order to justify the proposed measure of his expulsion. This committee reported that his book contained several blasphemous expressions, and that it seemed to be intended for exposing the scriptures; and though Asgill made a spirited defence, and solemnly protested, that he published his treatise under a firm belief of the truth of the scriptures as well as of his own argument, he was expelled. In consequence of this measure, as his debts increased, he was thrown by his creditors into the King's Bench prison, where he remained thirty years; furnishing himself with amusement and occasional supplies, by writing pamphlets, chiefly political, against the pretender, and by practising in the way of his profession. Notwithstanding his misfortunes, and the consciousness of his own indiscretion, he retained great vivacity of spirits, and peculiar powers of entertaining conversation, till his death, which happened within the rules of the King's Bench, in 1738, at the age, as some say, of 80, or according to others, 100 years. Asgill seems to have been a visionary and enthusiast, rather than an infidel or blasphemer; and his eccentricities rendered him more the object of contempt or pity, than persecution and punishment. Biog. Brit.

ASH, *Common, Flowering, and Manna*, in *Botany*. See *FRAXINUS*.

ASH, *Mountain*. See *SORBUS*.

ASH, *Poison*. See *RHUS*.

Ash-Balls, are formed of the ashes produced by a slow incineration of the green plants of fern, which contain a considerable portion of alkali, and are used in making lye for the scouring of linen. See *FILIX*.

Ash-Tree, in *Planting*, a tree of the deciduous kind, of which there are several species cultivated either for the sake of variety, or for the purpose of ornamenting pleasure grounds, &c.; but the kind which deserves attention here, is the common ash, so well known as a timber tree as to need no description. See *FRAXINUS*.

The ash tree will thrive in barren soils, and in the bleakest and most exposed situations; but it grows to the greatest advantage on such lands as have a tolerable depth of soil, and on which water is not liable to stagnate. It is found to be of so hardy a nature, as to withstand the effects of the sea-winds; it may therefore be planted on the coasts where but few other kinds of trees are found to prosper. When planted on the sides of ditches, or in moist meadow lands, from the spreading of its roots it has been found to render the ground more firm and dry. From this, as well as other causes, it is, however, highly prejudicial when planted on arable land; it ought therefore to be chiefly planted on the waste nooks and corners of fields, or perhaps, on improvable swampy lands, and on the springy sides of hills, as it would not only render them useful as plantations, but, from the spreading of its roots, make them more firm and dry.

This sort of tree propagates itself plentifully by means of seeds, which being scattered in autumn in places where cattle do not come, plenty of plants come up in the spring. Where any person is desirous of raising a quantity of these trees expeditiously, the seeds should be sown as soon as they are ripe, and the plants will then come up in the following spring; but if the seeds be kept out of the ground till spring, they will not come up till the second year. The ground should be kept clean all the summer where they are sown, and not disturbed, lest the seeds be turned out of the ground, or buried too deep to grow. When the plants are come up they must be kept perfectly clean from weeds during the summer months, and if they make good progress in the seed-bed, they will be fit to transplant by the following autumn; some ground should therefore be prepared to receive them, and as soon as their leaves begin to fall, they should be transplanted. In removing the plants, care should be taken not to break or tear off their roots; to prevent which, they should be taken up with a spade, and not drawn up, as is frequently practised; for as many of the plants which rise first from seed will outstrip the others in their growth, as is a frequent practice to draw out the largest, and leave the others to grow a year longer before they are transplanted; and to avoid hurting those that are left, the others are drawn out by hand, and consequently many of their roots torn off or broken. It is therefore much the better way to take all up, little or big, together, and transplant them out, placing the large ones together in rows, and the small ones by themselves. The rows should be three feet asunder, and the plants a foot and a half distant in the rows. In this nursery they should remain two years, by which time they will be strong enough to plant out where they are to remain; as the younger they are planted out the better they will grow, so that where they are designed for use they should be planted very young, and the ground where they are raised should not be better than that where they are to grow. For when plants are raised in good land, and afterwards planted into worse, they very rarely thrive well; on which account it is much the best method to make the nursery upon a part of the same land where the trees are designed to be planted, and then a suffi-

cient number of trees may be left standing upon the ground, which will generally outstrip those which are removed, and grow to a larger size.

Where planters reside in the neighbourhood of ash-trees, they may supply themselves with plenty of self-sown plants, provided cattle are not suffered to graze on the land; and where the seeds fall in hedge-rows and are protected by bushes, the plants mostly come up and thrive well; in such hedge-rows the trees are frequently permitted to grow till they have destroyed the hedge, for there is scarcely any tree so hurtful to all kinds of vegetables as the ash, as it robs every plant of its nourishment within the reach of its roots; it should therefore never be suffered to grow in hedge-rows, as the hedges are not only killed, but corn, or whatever is sown near them, greatly impoverished. If a plantation of this kind of trees be rightly managed, it will turn greatly to the advantage of the owner; for by the underwood which will be fit to cut every eight or ten years, there will be a continual income more than sufficient to pay the rent of the ground and all other charges, and still a stock will be preserved for timber, which, in a few years, may be worth forty or fifty shillings, or perhaps much more, per acre. In the sixth volume of the Bath papers, Mr. South observes, that the growth of ash, in soils adapted to its nature, is little inferior to that of elm or beech; but that there is no timber whatsoever that differs more in its value than this does, according to its situation. The productions of dry and healthy grounds will prove acceptable to most purchasers; those of woods are generally clean in the shaft, and more valuable than the former. The nearer the ground the tougher is the timber; the shaft therefore is coveted, the brittle branch is rejected; the buyers of this timber accepting the shaft and its continuation, or best bough; the rest, be they ever so large, go with the top. When this sort of timber is raised in damp meadows or moorish soils, it becomes light, spongy, brittle, and of small value in comparison of that on dry and healthy spots. In meadows these trees will attain a size which cannot be expected in moors and bogs; for when the roots reach the peat, the bark grows mossy, and the top decays: how long stubs may be productive of poles in such situations, remains to be determined; but experience determines that ash thus planted will never become timber of any value, as the roots must perish before the tree arrives to perfection. If ash-trees get disbarked, though in appearance they should be flourishing, on being felled, the roots will be frequently found decayed, and the stems at bottom a complete shell; they ought not, therefore, in point of profit, to be suffered to stand. These trees, when they stand among firs and larches if planted close, will grow too tall and slender, but thrive well when planted alone. They are frequently known to have thriven for at least ninety years, as may be seen by their ring. But in the first ten years, as well as the last, the growth has been observed slow. It is remarked by Mr. Marshall, in his "Rural Economy of the Midland Counties," that in the intermediate years, the different thicknesses of the rings in different years were striking. This kind of timber is generally esteemed next in value to that of the oak, and in some places even nearly equal to it. It is of great value to the coach-maker, the wheelwright, and cartwright, for ploughs, axletrees, felloes of wheels, harrows, ladders, and other implements of husbandry; and also to the ship-builder, for oar-blocks, for pulleys, and many other purposes.

The best season for felling this sort of timber is from November to February; for if it be done either too early in the autumn, or too early in the spring, the wood will be
subject

subject to be infested with worms and other insects; but for lopping of pollards, the spring is preferable for all soft woods.

Great attention has lately been paid to the planting of this useful timber tree in different parts of the kingdom. According to the Transactions of the Society of Arts, near Great Finborough in Suffolk, Mr. Wollaston has planted twenty acres; and at Buttsfield near Durham, Mr. White has covered thirty-five acres; in Kent a still larger extent of land has been planted by Mr. Day of Friembury; and at Buscot, near Farringdon, Berkshire, Edward Loveden Loveden, esquire, is said to have planted thirty-three thousand on seven acres and nine perches; in Staffordshire, six thousand have been set by Mr. Sneyd of Belmont; and in Westmoreland, the bishop of Landaff has planted eleven acres with twenty thousand. In Scotland, likewise, something has been done in the cultivation of ash-timber; in Cromarty forty-two thousand have been planted by Mr. Ross; and fifty-seven thousand by the earl of Fife, in the county of Murray.

The ashes resulting from the combustion of this kind of wood, are found to contain good potash in a larger proportion than most other kinds of green wood.

ASH, *Bitter*. See QUASSIA AMARA.

ASH-Weed. See ÆGOPodium.

ASHA, in *Geography*, a town of Germany, in the archduchy of Austria, four miles north of Essending.

ASHAJA-TUSLA. See SOLI.

ASHAN, in *Scripture Geography*, a city in the tribe of Judah (Joshua xv. 42.): but, perhaps, afterwards surrendered to Simeon. (Josh. xix. 7.) According to Eusebius, Beth-Ashan was 16 miles west from Jerusalem.

ASHARIANS, a branch of the Mahometan sect of *Safatians*. See ASCHARIANS.

ASHAU, in *Geography*, a river of Germany, in the circle of Lower Saxony, which runs into the Lechte, near Zell.

ASHBOURN, a town of England, in the county of Derby, on the east side of the river Dove; its weekly market is on Saturday; distant north-north-west 139 miles from London. N. lat. 53°. W. long. 1° 35'.

ASHBURNHAM, formerly *Dorchester-Canada*, a town of America, in Worcester County, in Massachusetts, 30 miles north of Worcester, and 54 from Boston, was incorporated in 1765, and contains 951 inhabitants. In this township is a white sand, which is thought to be fit for making fine glass.

ASHBURTON, an ancient borough town of England, in the county of Devon, which sends two members to parliament; it lies in a valley, with hills to the north and south. It is one of the four stannary towns of Devonshire; and has in its neighbourhood mines of tin and copper. It has two weekly markets, one on Tuesday, chiefly for woollen yarns, for the accommodation of the serge manufacture which is carried on in the town; and one on Saturday, for provisions. This town gives the title of baron to the family of Dunning. It is distant west-south-west from Exeter 19 miles, and 191½ west from London. N. lat. 50° 30'. W. long. 3° 10'.

ASHBY, a township of America, in Middlesex county, Massachusetts, 50 miles north-west from Boston; containing 751 inhabitants.

ASHBY de la Zouch, a town of England, in the county of Leicester, near the borders of Derbyshire; the principal trade of the town depends upon the making of malt; its market is on Saturday. The decayed castle, which was formerly the property of the family of de la Zouch, now belongs to the earl of Huntingdon. It is distant 17 miles north-west from Leicester, and 114½ north from London. N. lat. 52° 40'. W. long. 1° 20'.

ASHCUTNEY, or ASACUTNEY, a mountain of America, in Vermont, situate partly in the townships of Windsor and Weathersfield, and opposite Claremont, on Sugar-river, in the state of New Hampshire. It is 2031 feet above the sea, and 1732 feet above high water in Connecticut river, which runs by its eastern side.

ASHDOD, in *Ancient Geography*. See AZOTUS.

ASHDOTH-PISGAH, a city in the tribe of Reuben, so called from אֲשֶׁרֶת, *well-watered places*, and situated in the fertile plains at the foot of mount Pisgah, or at the springs of Pisgah; whence its name.

ASHENAGUR, a province of India, corresponding with the country of the Affacani, in which Alexander warred; on the west of the Indus, situate at or near the conflux of the Penje-korch and Sewad rivers, and two marches from Bijore. The present Sewad is part of the ancient province Ashenagur. Rennell's Memoirs, p. 159.

ASHER, the son of Jacob, by Zilpah, gave denomination to one of the twelve tribes which was settled on the north-west of the province of Lower Galilee, in a very fertile country producing abundance of corn, and wine, and oil, of the best kinds, with Phœnicia west, mount Libanus north, mount Carmel and the tribe of Issachar south, and Zebulun and Naphtali east. It contained some considerable cities near the sea, but no sea-port of any note. This tribe never possessed the whole extent of district assigned to it, which was to reach to Libanus, Syria, and Phœnicia.

ASHER, a city of Palestine between Scythopolis and Shechem.—Also, according to Eusebius, a large town between Azoth and Ascalon.

ASHES, in *Chemistry*. This is a term of general import, which is applied to the pulverulent residue left after the combustion of any substance whatever. In this sense, the combustion of metallic bodies has been said to yield *metallic ashes*, but to these the terms *calx* and *oxyd* have been substituted; and it is only vegetable and animal matters that are now said to afford ashes after burning.

To consume vegetable or animal substance to ashes, the free access of air is requisite, more particularly with the latter.

Vegetable Ashes. When a vegetable is set on fire, a vast quantity of aqueous vapour first escapes, together with the component parts of most of the other vegetable principles, such as the native juices, the acids, the sugar, the oil, &c. which latter either burn with flame, or are driven off in a dense smoke. The more solid carbonaceous part requires a longer continuance of heat, and a free access of air for its complete combustion; but when this is effected, a certain portion of white or grey ashes remains behind, consisting of the fixed saline, the earthy, and the metallic ingredients. In general, it is found (as would be expected) that the watery, succulent, and herbaceous plants, yield a less quantity of ashes than the hard and woody parts of vegetables; but there are numerous exceptions to this rule, as the hardness of texture is more determined by the quantity of carbonaceous matter. A very violent heat either melts the ashes into a *slag* or *scoria*, or dissipates their saline ingredient, and leaves only the earthy and metallic; so that a certain management of the fire is requisite in order to procure the greatest possible quantity of ashes from vegetable matter.

From the saline ingredient are procured those very important articles in chemistry and manufacture, the *fixed alkalies*, both vegetable and mineral; the former distinguished according to its species and purity by the terms *wood-ashes*, *pearl-ash*, *pot-ash of commerce*, *salt of tartar*, or *salt of wormwood*; the latter by the terms *natron*, *barilla*, *kelp*, and *soda*.

As the combustion of vegetables, when carried on in the large way, is always directed to the object of procuring the alkaline salt, and as this subject includes a variety of interesting observations, and the particulars of the analysis of ashes, we shall refer the whole of this article to those above mentioned, and especially to that of *CARBONAT of Potash and of Soda*.

We may add, however, that though vegetable ashes are composed of fixed earths and alkalies combined with acids, and of some metallic oxyds, especially those of iron and manganese, almost every possible variety of combination and proportional quantity of ingredients is to be met with, according to the nature of the plant, the composition of the soil, the season of the year, climate, and the like. In general, chemical analysis has detected the following substances in vegetable ashes; silicea, magnesia, lime, pot-ash, soda; the sulphuric, carbonic, phosphoric, and muriatic acids; and the oxyds of iron and manganese. The most usual states of combination of these ingredients are, the sulphates of pot-ash, soda, lime, and magnesia; the muriates and carbonates of the same, and the phosphate of lime. It is still a question, which of the saline ingredients represent the actual state of the vegetable juices, and which of them are formed by the process of combustion; the acid of the carbonates may with great probability be supposed to arise from the latter cause.

When the saline part of vegetable ashes has been separated by lixiviation, the light earth that remains, probably still mixed with a portion of sulphat of lime, is sometimes employed, after being well washed, for the formation of the large CUPELS used in the *refining of silver*.

The ancient alchemists paid considerable attention to the ashes of different plants; and some of the Rosicrucian school of deceived and deceiving impostors, pretended to be able, by a species of *palingsensia* or re-production, to exhibit in the ashes of a plant a complete miniature representation of the gradual growth and maturity of the individual vegetable.

Animal Ashes. A very few words will be requisite on this subject taken separately. Animal matter is much more difficult of complete combustion than vegetable; the volatile part of each is driven off by heat without much difficulty, but the coal of animal substance is of very difficult incineration, often requiring a very long continued and violent fire. This is probably owing in part to the greater quantity of oxyd of iron which, uniting with the carbonaceous matter by the assistance of heat, forms a *carburet of iron* that burns with extreme difficulty. The saline and earthy parts almost peculiar to animal ashes are the phosphate of soda, phosphate of ammonia, and phosphate of lime, and often the carbonates of soda and lime. The proportion of earthy salt in bones, horn, and the harder parts of animals, is generally full one half the weight of the substance when fresh from the body: in *bone* it is almost entirely phosphate of lime, mixed however with a small portion of sulphat and carbonate of lime; in *shell* the earthy part is principally carbonate of lime.

For further particulars concerning animal ashes we must refer the reader to the individual articles of animal matter; such as *BLOOD, BONE, HARTSHORN, SHELL*, and to the above-mentioned earthy and alkaline salts.

The only animal ashes employed to any extent in the arts are the lixivated ashes from bones, which when mixed up in water, and cast in proper moulds, form the CUPELS that are employed in *ASSAYING* and *REFINING of gold and silver*. The finer and whiter ash of calcined horn is employed to a small extent in medicine, under the term *cornu cervi calcinatum*, or *calcined hartshorn*.

ASHES, in *Agriculture*, the earthy or other particles of combustible substances after they have been burnt in the fire. The beneficial effects of such matters, as manures, may probably, in a great measure, arise from the portion of alkaline saline matter which they contain, which by its action on, and combination with the materials that are present in soils, may render them more soluble and proper for the nutrition of plants. Considerable utility may also be derived from their operating mechanically, and in that way lessening the tenacity and stiffness of the heavier kinds of soils, and likewise by their absorbent powers in lands of the more moist kind. Ashes are of different sorts, as *bleachers' ashes*, *coal ashes*, *peat ashes*, *pot ashes*, *soapers' ashes*, *turf-ashes*, *wood ashes*.

The first sort consists principally of the hard undissolved parts of pot-ash, kelp, weed-ash, and barilla. Laid on land alone, they are too stimulating; they ought therefore, perhaps, never to be used but in union with earth, or earth and dung. It is said, however, they answer well with blood, garbage, and putrid animal substances. They are generally laid upon fallows for wheat. The greatest advantage derived from them is upon clays or deep loams. Upon rusty grounds, or coarse wet meadows, they will be found particularly useful, in destroying the coarse plants that infect them.

The second sort, or coal ashes, probably from their containing a portion of calcareous matter, are found to be highly beneficial on stiff and sour lands; for which purpose they are successfully used in the neighbourhood of many great cities, where coal is much burnt for fuel. They also open the texture of clayey grounds, and correct their tenacity, and other bad qualities. The gardeners and farmers about London know their value, and make a very profitable use of them; particularly in bringing into order those grounds which have been dug up for brick-earth. Mr. Bradley long ago, indeed, blamed the people of Staffordshire, and the countries adjoining, where there are coal-pits, for not improving their heavy grounds around them, by manuring them with coal ashes, which might be easily burnt out of the waste coals of such pits; and suggests "that wherever there are plenty of coal-pits, there can be no want of good profitable land." Mortimer held the same opinion, esteeming sea-coal ashes as the best manure of any for cold lands, as well as the most lasting and fittest to kill worms and slugs. And Worley looked upon them as an excellent compost, when mixed with horse dung; remarking, that they have great effects in removing moss and rushes in moist grounds. Ashes of this kind are employed in different proportions, in different places according to the particular circumstances of the crop, and the land on which they are applied. It is observed by Mr. Farey, in the *Annals of Agriculture*, that about Dunstable they are used at the rate of from fifty to sixty bushels to the statute acre, for a complete dressing; and that they succeed, well sown on clover, in March or April, on dry chalky lands. They have also much effect on sward-land, when applied during the winter or spring; but they are never used on wheat. It is likewise further remarked by the same writer, that in very dry seasons they do little service, except on cold swards, which they invariably improve; and that on light land they require rain, after being sown or spread over the land, in order to promote their operation.

The ashes formed from peat, are found, from long experience, to be a very good manure. The author of *Modern Agriculture* remarks, that in many parts of the kingdom peat-earth cut and dried in the course of the summer, is the only fuel; and that the peat dug from the mosses that are so firm as to bear cattle to tread on them, is the best
both

both for fuel, and afterwards for manure. The ashes of the sward, or what is pared from the surface of heaths and commons by the cottagers in many parts, as about Bedford, are, he says, of little value, when compared to those above mentioned. It is probable that Berkshire is the only district of Great Britain, where peat ashes, without the mixture of any other substance, are at present generally used as manure. The ashes of peat, dug from extensive meadows in that county, have been proved by the experience of sixty or seventy years, to be a most excellent manure, when used as a top dressing on almost all kinds of crops; as oats, wheat, barley, turnips, clover, sainfoin, meadows, pastures, &c. The quantity generally used is about twenty bushels, more or less, as the condition of the land seems to require; and the price about three-pence or four-pence a bushel. To such an extent is this mode of manuring carried on in that county, that the proprietors often receive two or three hundred pounds the acre for the liberty of cutting and carrying off peat to the depth of five or six feet. It would be absurd to suppose, says he, that the peat ashes of Berkshire are superior, as manure, to those in every other part of the island; and as their effects in that country, when applied to the soil, have been conspicuous for a great number of years, it is certainly a circumstance meriting the attention of those who reside where peat is the only fuel, to ascertain whether peat ashes in such districts do not possess all the fertilizing qualities of those in Berkshire. The experiment is easily made; all that is necessary being to keep the ashes dry, and under cover during winter; and to sprinkle them with the hand over the crops in spring, at the rate that has been just mentioned.

Lord Dundonald, in his Treatise on the Connection of Agriculture with Chemistry, however, remarks, that the ashes procured from peat in the neighbourhood of Reading, in Berkshire, seem to possess a fertilizing power infinitely greater than ashes obtained from most other peat. They certainly, he believes, contain no alkaline salts; and in an hasty analysis made some years since, no saline matter, says he, is recollected to have been got from them, but a small proportion of Epsom salt. Had these ashes, however, been analysed with more care, and when newly made, they probably would, he thinks, have been found to contain a *hepar of lime*, a salt which is soluble in water; whilst gypsum, to which it reverts on exposure to the air, is insoluble. To this *hepar*, therefore, says he, may the fertilizing power of these ashes most probably be attributed. And the writer of the survey of the County of Middlesex suggests, that as the hills on each side of the meadows which produce the Newbury peat ashes, consist of chalk, easily dissolvable by heavy rains, which wash it off the ridges, down the furrows, ditches, and streamlets, to the low grounds, where mixing with the floods, it is floated over the meadows, and deposited with the peat; consequently the peat of that district differs from that of most others, by the quantity of chalk which it contains, and that when dug, dried, and burnt, the fire reduces the chalk to lime, and the rest to ashes. Hence Newbury ashes are a mixture of lime and vegetable ashes; and it is very probable, he thinks, that any common peat ashes, or the ashes of rough grass land, of turf, heath, furze, ling, wood, &c. produced by the operation of paring and burning, being mixed with chalk-lime in due proportion, would be equally fertilizing as those noted ashes. It has indeed been long since observed by Miller, that these ashes are greatly bettered by being mixed with lime before they are put on the land. These ashes are produced from land that is black and crumbly at top, under which lies the peat to the depth of several feet. They do not burn the peat in the field by choice, because the peat

is burnt for ashes, when it cannot be dried for sale; and then it is burnt in large heaps, with a smothering fire, as is likewise the superficial black earth, or moory soil, together with the refuse of the peat: the ashes of these are laid up in round or long heaps, rising at top like the ridge of a house, in order to throw off the rain and keep them dry till they are sold. Sometimes they are laid under dry sheds or in houses to save them from wet, which they cannot be wholly protected from by laying them up in ridges exposed to the weather, into which the rain penetrates for some inches deep; but these ashes are never so good manure as those that are kept dry. Near the surface of the peat earth there is sometimes a bed of whitish earth called *maurn*, which is a composition of earth and very small shells of the periwinkle kind; this is also burnt to ashes for manure, and the quantity of it in some places is so great, that the ashes are of a whitish colour, while those from the peat or moorish earth are reddish. The white are esteemed to be as good manure as the red; and being a kind of shell-marl, would make good manure without being burnt; as indeed they rarely are thoroughly, though they seldom lay them upon land till they have passed the fire, or are mixed with the ashes of the peat-earth. The ashes of the peat sold for fuel, and burnt in chimnies, are much stronger manure than the ashes burnt in the field; and if care be taken to keep them dry, are sold for nearly double the sum of the field ashes. Mr. Farey states, in the Annals of Agriculture, that he has found field ashes to improve the chalky soils about Dunstable, but on the wet lands, or cold fwards, and hot sandy lands, they did little good. They may be employed on the same kinds of crops, and in the same way as coal ashes, and also on the wheat crops about April. But Mr. Middleton says that he has tried the Newbury peat ashes on wheat, tares, seeds, and meadows, in various quantities to the acre, without producing any sensible effect. In Norfolk, ashes are not in estimation as manure; even those of the hearth are in some degree neglected. But the meadows and fens abound with peat-bogs, which in some places would be considered as inestimable sources of manure; and the peat earth in such meadows, when burnt, would no doubt afford an ample supply of ashes. In many places, much advantage has been supposed to arise from the practice of mixing lime with peat ashes before they are applied to the ground.

The refuse, or ashes, remaining after the burning of different green vegetable matters from which the alkaline salt called pot-ash has been extracted, is a kind of ashes which has been found of great service to most sorts of land; but as they have been in a great measure deprived of their saline property, it is necessary to lay them on much thicker than any other sort of ashes. Mr. Bradley asserts that a bushel and a half of these may be used in the room of a bushel of fresh ashes; and that they should always be mixed with some other light ingredient which may be used in any quantity when laid on very stiff land; but if the land be not over stiff, they may be laid on it with less mixture. As in places far removed from the means of improvement, a substitute for common manures, that is of easy carriage, and can be had at a moderate expence, must be valuable, pot-ash may be employed; for, from experiments that have been made, it appears that two hundred pounds of it are sufficient for an acre of strong land. For lighter soils much less is required, if laid on by itself; on these, however, a compost of this and train or refuse oil incorporated with mould, will be the best way of employing it. Upon strong clays and deep loams, however, it ought always to be applied by itself. When the expence of carriage is considered, this will often be found a cheaper manure than lime; and in one respect it

is superior, for the union of pot-ash with all the different acids forms a neutral salt which is in some degree useful in vegetation; whereas when lime meets with vitriolic acid, it is almost entirely lost to the purposes of agriculture. A considerable part of what is used in manufactures (glass excepted) may be useful as a manure, after the purposes of the different manufactures have been served; particularly in bleaching, the alkali of which will be found improved in consequence of the mucilage or oil which it has imbibed from the cloth or other matters.

The soapers' ashes are a composition of wood ashes and lime, remaining after the soap-makers have drawn off their lye. These are in general a very valuable manure; but there is great difference in the quality and effects of them. Those from wood ashes are the weakest sort, as, wood ashes being very light and spongy, their salts are soon dissolved, and extracted by the lye; so that there remains but a very slight portion of salt in the ashes. But when the soap-boilers make use of kelp instead of wood ashes, the kelp, from its being of a harder nature than wood ashes, is not so easily separated and dissolved by the lye; consequently, much more of the saline matter remains in the ashes. The soap-boilers also make use of another kind of potash called barilla, which is imported from Spain and other places in large lumps, and which is much harder than common pot-ash; and though they break this sort very small, and sometimes screen or sift it, much more salt remains than when pot-ash is employed; so that the ashes from barilla are for the most part stronger than any other; and if the same quantity of them were laid upon land as is commonly the case with wood ashes, they would burn and destroy the crop. Farmers should therefore use soap-boilers' ashes with caution, till they know their qualities and strength. Wood ashes and pot ashes are used in various places for making soap; but in and near London, very little of any thing but barilla is employed. The ashes from the barilla are a strong rich manure, and sold at five shillings per cart-load. They are not now however so good as they were formerly, the soap-makers having found means to extract more of their salt from them; as they also take the salt from the lye which was formerly rather superior to the ashes as a manure, and to be had for nothing, being all thrown away as useless. This excellent manure was first used by the Flemings with great success. Two loads of these ashes are sufficient for an acre of arable land. They should be laid on the ground when the weather is inclined to be moist, in order that the rain may more easily dissolve and wash them in. As soapers' ashes principally consist of lime, which is used by soap-makers to deprive the alkaline salts of their fixed air, the addition of lime to the ashes is unnecessary. They are used to most advantage when made into composts with earth and well-fermented dung in the proportion of two loads of dung to one of earth; the ashes being then added in the quantity of one load to ten of this mixture, turning and incorporating the whole completely. The quantity necessary for strong clays or deep loams is ten cart loads to an acre. If the dung has been well fermented, perhaps the most profitable way of using this compost may be as a top-dressing harrowed in with the grain, taking care, however, that the caustic quality of the ashes be properly blunted by a sufficient mixture of dung and earth, or rich earth only. These ashes, when beat small, may be made into a rich compost with refuse oil and earth, and used as a top-dressing for young crops. They will destroy slugs and vermin of every description, and are therefore highly valuable on lands where the early wheat is injured by the worm. Laid upon grass lands in the end of autumn, this manure, it is said, produces a deep

verdure during the winter, and an early vigorous vegetation in the spring; it is therefore particularly calculated for cold wet pasture lands.

In respect to turf ashes, produced by burning turf or the paring of the surface of heathy, moorish, and other lands, their utility as a manure, perhaps, chiefly depends upon the proportion of alkaline saline matter which they contain, and which is produced by the burning of the fresh vegetable substances of turf, and the combination of vital air or oxygen, with the clayey part of the soil during the process of combustion, as well as by the mechanical action of such substances on the tenacious earthy matters of the soils. According to the Rev. Mr. Comber, the ashes in the moors of Yorkshire are carried out daily, or once in two or three days, to the dunghill; and the farmer takes the opportunity of his first leisure towards the end of the year, to carry them out to his meadow lands on which he lays them thicker or thinner as he has more or less land which he apprehends to want them, and more or less of them. The first rains wash them in, and the next summer never fails to shew their good effects. It would however be probably a much better practice to apply them to the land in the early spring when the weather is rather wet, and not to leave them to be washed away by the heavy rains and land-floods during the winter months. They would also be much more efficacious if kept in sheds, or other suitable places, instead of being carried out to the dung-heap; where the rains must dissolve and carry away their most nutrient properties; as these ashes are much finer or more pulverized than those of coal, they may insinuate themselves more into the soil, but they are probably not so lasting in their effects. Of the truth of this a remarkable instance is mentioned.—A field, whereof the soil was a poor gravel, that had a crop of the broad or red clover growing upon it, was dressed, one side of it with peat ashes, and the other side with turf ashes. The farmer laid upon this field all the ashes he had of these two sorts, and the middle of the field had no dressing. The clover in the middle part not dressed was a very poor crop, the plants being short, yellow, and stunted; the side dressed with turf ashes was much better than the middle; the plants being taller, of a better colour, and promised to be double the crop of the undressed part; but that side dressed with peat ashes produced a crop that appeared to be as much superior to the part dressed with the turf ashes, as this last was superior to the middle that had no dressing at all. The ashes were sown upon the clover by hand, and the improvement made upon the clover was so great, that the cast of the sower's hand was extremely plain next to the middle, and appeared like an indenture; and the vigour of the plants there was so much greater than the undressed plants, that the extent of the peat ashes might be plainly distinguished almost to an inch. This observation was however made in the beginning of summer, before the clover had arrived to its full growth. See **PARING**, and **BURNING**.

Ashes produced from wood and most green vegetable products contain a considerable quantity of fixed alkaline salt blended with the earthy particles; but none or very little can be produced by the combustion of dead or decayed vegetable matters. It is from the ashes of the former kinds of vegetable matter that the alkaline salts called potash and pearl-ashes are commonly extracted. It seems also probable, from the observations of the earl of Dundonald, that the effects produced upon land by the application of the ashes of fresh vegetable products, arise from the vegetable alkaline salt which they contain, which, by its action on what he terms the *oxygenated* or inert mould or earth of the soil, renders it soluble, and more suitable to the nutrition of plants,

plants. As the saline matters contained in these substances are liable to be lixiviated and carried away by moisture, they should always be kept dry and free from water, either by means of sheds or other conveniences. It has been long ago observed by Mortimer, that one load of dry ashes will go as far as two not kept so; but though rain-water diminishes their salts, so the moistening them with chamber-ley or soap-suds will add greatly to their strength. Two loads of these ashes will manure an acre of land, better than six loads of those that are exposed to the rain, and that are not ordered so, which is the common allowance for an acre, though some lands require more, and some less. That the ashes of any sort of vegetables are very advantageous to land, is what is experienced in most parts of England, by the improvement that is made by burning of furze and stubble, straw, heath, furze, sedge, bean-stalks, &c. Mr. Young, in the first volume of the *Annals of Agriculture*, approves of charcoal-ashes, in preference to powdered charcoal itself. And wood ashes mixed with mud (he says) are superior to ashes alone, and four times better than mud alone, as a manure. In the second volume of the same useful work, he adds, that wood ashes appear to be a most powerful manure. In a neighbourhood abounding with vitriolic acid (he says), they more than neutralize that salt; they furnish, besides, the food of plants. In neutralizing it, the fixed vegetable alkali they contain forms with the acid a vitriolated tartar, which is beneficial to vegetation. From the alkaline saline matter contained in ashes, and its known operation on earthy substances, they may probably be used to great advantage in combination with good mould or earthy materials, and dung, in the proportion of one load of ashes to ten of the compost; and thus may be applied to tillage-lands as well as those under grass, in their simple state; but in the former they would seem to be the most proper, when conjoined with other matters, such as have been mentioned above. They may, when employed in the unmixed way, be sown upon the surface, and harrowed in with the crop to which they are used. But in whatever way they are made use of, they should be spread out as equally as possible on the land. Most grass-lands are improved by their application, but more especially those that are wet, and given to the production of wild forrel, rushes, or other coarse plants of the same kind. When used in the way of compost on tillage lands, they are generally laid on at the rate of about ten or twelve loads to the acre, but on pasture or grass-lands, the quantity applied varies very considerably, as from one hundred to one hundred and sixty bushels. These substances have been found highly useful, when sown on the green wheat and clover crops in the spring, and also when harrowed in with turnip seeds, or sown over the young plants when they first appear, as by this practice the ravages of the fly are said to be greatly lessened in many cases. See MANURE.

ASHES, *Volcanic*. See VOLCANO.

ASHFIELD, in *Geography*, a township of America, in Hampshire county, Massachusetts, about 15 miles north-west of Northampton, and 117 west from Boston; containing 1459 inhabitants.

ASHFORD, a town of England, in the county of Kent, seated on the river Stour. It has a monthly market for cattle on the first Tuesday, and a weekly market on Saturday for corn, &c. It is distant 45 miles E.S.E. from London. N. lat. $51^{\circ} 15'$. E. long. $0^{\circ} 45'$.

ASHFORD, a township of America, in Windham county, Connecticut, incorporated in 1710; distant about 38 miles north-east from Hartford, and 76 south-west from Boston.

ASHFORD, *New*, a township of America, in Berkshire

county, Massachusetts, 155 miles west from Boston; containing 460 inhabitants.

ASHKENAZ, in *Ancient Geography and History*, one of the sons of Gomer, is supposed to have settled near Armenia, in the eastern part of Asia Minor; or towards the north-west of that continent; for it is said, that with reference to his name, there was in Bithynia the Ascanian lake, a river called Ascanius, and a bay of the same name; and in Lesser Phrygia there was a city called Ascania, with isles called the Ascanian islands: and it is further observed, that besides Ascanius, the son of Æneas, Homer mentions a king of that period who was at the siege of Troy; and as a proof that the Ashkenaz, mentioned by Jeremiah, were people of these parts, it is shewn from Xenophon, that Hytaspes having conquered Phrygia, that lies on the Hellespont, brought thence many of the horses and soldiers which Cyrus carried with him to the siege of Babylon. Moreover, the Pontus Euxinus, or Axinus as the Greeks first called it, is supposed to be a corruption for the sea of Ashkenaz.

ASHKOKO, in *Zoology*, a very singular kind of quadruped, described by modern naturalists under the names of Syrian hyrax, hyrax syriacus, and briefly cavy: for a full and accurate description of this species we are however indebted to that indefatigable and learned traveller, Mr. Bruce, who observed it in several parts of Abyssinia, and gives us the following account of it in the Appendix to his Travels.

"This curious animal," says Mr. Bruce, "is found in Ethiopia, in the caverns of the rocks, or under the great stones in the mountain of the sun, behind the queen's palace at Koscam. It is also frequent in the deep caverns in the rocks in many other parts of Abyssinia. It does not burrow or make holes as the rat and rabbit; nature having interdicted him this practice by furnishing him with feet, the toes of which are perfectly round, and of a soft, pulpy, tender substance; the fleshy parts of the toes project beyond the nails, which are rather broad than sharp, much similar to a man's nail ill grown, and these appear rather given him for the defence of his soft toes than for any active use in digging, to which they are by no means adapted.

"His hind foot is long and narrow, divided with two deep wrinkles or clefts in the middle drawn across the centre, on each side of which the flesh rises with considerable protuberancy, and it is terminated by three claws; the middle one is the longest. The fore-foot has four toes; three disposed in the same proportion as the hind-foot; the fourth, the largest of the whole, is placed lower on the side of the foot, so that the top of it arrives no farther than the bottom of the top of the toe next to it. The sole of the foot is divided in the centre by deep clefts like the other, and this cleft reaches down to the heel, which it nearly divides. The whole of the fore-foot is very thick, fleshy, and soft, and of a deep black colour, altogether void of hair, though the back or upper part of it is thick-covered, like the rest of the body, down to where the toes divide, there the hair ends, so that these long toes very much resemble the fingers of a man.

"In place of holes, it seems to delight in less close or more airy places, in the mouths of caves, or clefts in the rock, or where one projecting, and being open before, affords a long retreat under it, without fear that this can ever be removed by the strength or operations of man. The ashkoko are gregarious, and frequently several dozens of them sit upon the great stones at the mouths of caves, and warm themselves in the sun, or even come out and enjoy the freshness of the summer evening. They do not stand upright upon their feet, but seem to steal along as in

fear, their belly being nearly close to the ground, advancing a few steps at a time, and then pausing. They have something very mild, feeble, and timid in their deportment, are gentle, and easily tamed; though when roughly handled at the first, they bite very severely.

"This animal is found plentifully on mount Libanus: I have seen them also among the rocks at the Pharan promontorium, or cape Mahomet, which divides the Euxine from the Heroopolitic gulf, or gulf of Suez. In all places they seem to be the same; if there is any difference, it is in favour of the size and fatness which those in the mountain of the sun seem to enjoy above the others. What is his food I cannot determine with any degree of certainty: when in my possession he ate bread and milk, and seemed to be rather a moderate than a voracious feeder. I suppose he lives on grain, fruit, and roots. He seemed too timid and backward in his own nature to feed upon living food, or catch it by hunting.

"The total length of this animal, as he sits, from the point of his nose to the extremity of his body, is seventeen inches and a quarter: the length of his snout, from the extremity of the nose to the occiput, is three inches and three eighths; his upper jaw is longer than his under; his nose stretches half an inch beyond his chin. The aperture of the mouth, when he keeps it close, in profile, is little more than an inch. The circumference of his snout around both his jaws is three inches and three eighths; and round his head just above his ears, eight inches and five eighths; the circumference of his neck is eight inches and a half, and its length one inch and a half. He seems more willing to turn his body altogether, than his neck alone. The circumference of his body, measured behind his fore-legs, is nine inches and three quarters; and that of his body, where greatest, eleven inches and three eighths; the length of his fore-leg and toe is three inches and a half; the length of his hind thigh is three inches and one eighth, and the length of his hind leg to the toe, taken together, is two feet two inches; the length of the fore-foot is one inch and three eighths; the length of the middle toe six lines, and its breadth six lines also. The distance between the point of the nose and the first corner of the eye is one inch and five eighths; and the length of his eye from one angle to the other four lines. The difference from the fore angle of his eye to the root of his ear is one inch and three lines; and the opening of his eye two lines and a half. His upper lip is covered with a pencil of strong hairs for mustachoes; the length of which is three inches and five eighths, and those of his eye-brows are two inches and two eighths. He has no tail, and gives at first sight the idea of a rat rather than of any other creature. His colour is a grey mixed with a reddish brown, perfectly like the wild or warren rabbit. His belly is white from the point of the lower jaw to where his tail would begin if he had one. All over his body he has scattered hairs, strong, and polished like his mustachoes; these are for the most part two inches and a quarter in length: his ears are round, not pointed: he makes no noise that ever I heard; but certainly chews the cud. [Dr. Shaw observes, that this particular of the ashkoko seems very doubtful, and may probably be owing to the peculiar motions of the mouth resembling those of the hare, which has also been supposed by some to ruminate. Gen. Zool.] To discover this was the principal reason of my keeping him alive: those with whom he is acquainted he follows with great assiduity. The arrival of any living creature, even of a bird, makes him seek for a hiding-place; and I shut him up in a cage with a small chicken, after omitting to feed him a whole day; the next morning the

chicken was unhurt, though the ashkoko came to me with great signs of having suffered with hunger. I likewise made a second experiment, by inclosing two smaller birds with him for the space of several weeks; neither were these hurt, though both of them fed without impediment of the meat that was thrown into his cage; and the smallest of these, a titmouse, seemed to be advancing in a sort of familiarity with him, though I never saw it venture to perch upon him, yet it would eat frequently, and at the same time, of the food upon which the ashkoko was feeding; and in this consisted chiefly the familiarity I speak of, for the ashkoko himself never shewed any alteration of behaviour upon the presence of the bird, but treated it with a kind of absolute indifference. The cage indeed was large, and the bird's having a perch to sit upon in the upper part of it, they did not annoy one another.

"In Amhara, this animal is called ashkoko, which, I apprehend, is derived from the singularity of those long hercinacious hairs, which, like small thorns, grow about his back, and which, in Amhara, are called athok. In Arabia and Syria, he is called Israel's sheep, or Gannim Israel, for what reason I know not, unless it is chiefly from his frequenting the rocks of Horeb and Sinai, where the children of Israel made their forty years peregrination; perhaps this name obtains only among the Arabians. I apprehend he is known by that of Saphan in the Hebrew, and is the animal erroneously called by our translators cuniculus, the rabbit or coney." Bruce Append.

M. Schreber, who names this animal *hyrax syriacus*, gives it this specific character: *H. plantis tridactylis, unguibus omnibus subæqualibus*. (Feet tridactyle, with all the claws nearly equal.) To this Dr. Shaw, in his Zoology, adds, that it is rufous-grey, and white beneath. Gmelin also has *hyrax syriacus, pedibus unguiculatis*. See *HYRAX Syriacus*.

ASHLAR, a term used among *Builders*, by which they mean common or free stones, as they come out of the quarry, and of different lengths and thickesses.

ASHLEP, in *Agriculture*, a term sometimes applied to soapers' ashes or wash. See *Soapers' ASHES*.

ASHLERING, among *Builders*, signifies quartering, to lath to, in garrets, about 2½, or 3 feet high, perpendicular to the floor, up to the underside of the rafters.

ASHLEY, in *Geography*, a river of North America, which runs into the sea on the south-west side of Charlestown, in South Carolina.

ASHMOLE, ELIAS, in *Biography*, an eminent antiquarian of the 17th century, was born at Litchfield in 1617; and at the age of sixteen was received into the family of his kinsman James Paget, esq. a baron of the exchequer, where he studied the law and other branches of knowledge. Having married in 1638, he settled in London as an attorney; but on the commencement of the civil war, his wife being dead, he entered into the king's service, and was employed in the department of the Ordnance, first at Oxford, and afterwards at Worcester. At Oxford he became a student of Brazen-nose college, and directed his attention to mathematics, natural philosophy, and astronomy. From the study of the latter important and useful science he deviated to that of astrology, to which he seems to have been much addicted. In 1646, he was admitted into the society of free and accepted masons, and his election into this society was considered by him as a distinguishing æra of his life. His valuable collections very much contributed to the illustration of its history in this kingdom. Upon the surrender of Worcester to the parliament in this year, he withdrew first to Cheshire, and afterwards came to London, where he formed an

an intimate acquaintance with the astrologers of that period, Moore, Lilly, and Booker. In 1647, he retired to Englefield in Berkshire, and applied to the study of botany. Here he became acquainted with a rich widow, whom he married in 1649, and then removed with her to London, where his house was a place of resort for all the proficients in the curious and occult sciences. Having acquired from an adept in Berkshire a taste for alchemy, he published, under a feigned name, a treatise by the famous Dr. Dee, and another by an anonymous author, on this subject; and with great labour and expence he made a collection of the MS. works of English chemists, which he published in 1652, under the title of "*Theatrum Chymicum Britannicum*," in 4to. Having brought to a favourable termination some legal disputes occasioned by his wealthy marriage, he devoted himself with singular assiduity to the study of antiquity and the perusal of records; and relinquishing hermetic philosophy with a preface to a treatise on the philosopher's stone, which he edited, he began to make collections for the work which conducted much more to his literary reputation, than any of his astrological and alchemical pursuits, and this was his "*History of the Order of the Garter*." As he was fond of the study of botany, he chose for the place of his residence the house of John Tradescant, a scientific gardener of Lambeth; and became possessor of the collection of rarities that had been made by Tradescant and his father, and which was conveyed to Mr. Ashmole, by a deed of gift, in 1659. On the restoration, Ashmole was particularly noticed, on account both of his loyalty and learning, by the king, who appointed him Windsor herald, and committed to him the description of the royal medals. He was also made a commissioner, and afterwards comptroller of the excise; he was called to the bar in the Middle Temple, admitted a fellow of the Royal Society that had been recently established; presented, by the university of Oxford, with the degree of doctor of physie; and promoted to other offices, both honourable and lucrative. Upon the death of his second wife, he married the daughter of his friend Sir W. Dugdale. In 1672, he presented to the king his book "*On the Order of the Garter*," intitled "*The Institutions, Laws, and Ceremonies of the Most Noble Order of the Garter*, collected and digested into one body;" and printed at London in folio, in 1672. In 1679, he resigned his office of Windsor herald, and declined accepting that of garter king at arms, on two vacancies which occurred. His valuable library, which he had been thirty-three years in collecting, and also his cabinet, consisting of nine thousand coins, and many curious antiquities, were destroyed by a fire, which happened in the chambers adjoining his own, in the Middle Temple; but his MSS. and gold medals were preserved at Lambeth. When the university of Oxford had finished an edifice for a museum, in 1683, Mr. Ashmole sent thither his Tradescantian collection of rarities, with the additions which he had made to it; and he afterwards added to this donation, his books and MSS. Thus commenced the "*Museum Ashmoleanum*," now subsisting at Oxford. Mr. Ashmole, having attained the 76th year of his age, died in 1692, and was buried in the church of Great Lambeth. Some few of his numerous MSS. chiefly on antiquities, have been published since his death; and also "*A Diary of his Life*," written by himself. His rank in literature and philosophy may be estimated by the brief account that has now been given of his researches and pursuits. Whilst a sober judgment will hesitate in admitting the extravagant panegyric of the "*Biographia Britannica*," which records him as "*one of the greatest men in the last century*," he will be allowed to have possessed, in a high degree, industry, perseverance, curiosity, and

exactness; and "*Anthony Wood*," says one of his biographers (see Aikin's *Gen. Biog.*), "*in his quaint language, has perhaps not ill characterised him, as—the greatest virtuoso or curiofo that was ever known or read of, in England, before his time.*" Biog. Brit.

ASHMOT, in *Geography*, the principal harbour in Isle Madame, which is dependant on Cape Breton.

ASHMOUNEIN, probably, says Bruce (*Trav. vol. i. p. 91.*), the ancient Latopolis, a large town of Egypt, which gives name to the province. See ACHMOUNAIN.

ASHMUN-TANAH, a town of Egypt; on a canal, between the Nile and the lake of Tennis, twelve miles east of Mansora, and twenty south of Damietta.

A-SHORE, in *Nautical Language*, a term signifying on the shore, as opposed to a-board. It also means A-GROUND.

ASH-PIT, is the lower part of any air-furnace, which serves to receive the ashes of the fuel as it is consumed, and in general to supply the air necessary for the combustion. See FURNACE.

ASHUELOT, or ASHWILLET, in *Geography*, a small river of America, having many branches, whose most remote source is at the north end of the Sunapee mountains, in New Hampshire. It runs south-westerly through part of Cheshire county; below Winchester, its course is west by north, and it discharges itself into Connecticut river at Hinsdale.

ASHUR, in *Ancient Geography and History*, the second son of Shem, occupied at the dispersion the country called after his name, and by the Greeks Assyria, at present Kurdistan, or the country of the Kurds. Pezron supposes that he was driven out of Shinaar by Nimrod, the grandson of Ham; but however this be, it seems to have been Ashur, (*Gen. x. 11.*), and not Nimrod, who went out of Shinaar into Assyria, and built Nineveh, and other cities; and thus Perizonius maintains, that the text ought to be understood. See ASSYRIA.

ASH-WEDNESDAY, the first day of Lent, supposed to have been so called from a custom in the church, of sprinkling ashes that day on the heads of penitents then admitted to penance.

ASHWELL, GEORGE, in *Biography*, an episcopalian divine, was born in London in 1612, and educated at Wadham college, Oxford. He was rector of Hanwell in Oxfordshire for thirty-five years, and distinguished as a zealous advocate for the doctrine and worship of the church of England, in defence of which he wrote several treatises; "*Fides Apostolica*," or "*A Discourse on the Authors and Authority of the Apostles' Creed*," with "*A double Appendix on the Athanasian and Nicene Creeds*," printed at Oxford, in 8vo. in 1653; "*Gestus Eucharisticus*," or "*The Gestures to be used at the receiving of the Sacrament*," 8vo. Oxford, 1663; "*De Socino et Socinianismo*," "*De Ecclesia Romana*," 4to. Oxford, 1688; and an English translation of Pococke's Latin translation of an Arabic work, intitled "*Philosophus Autodidactus*," or "*The self-taught Philosopher*, Hai Ebn Yokdan," by Tophail. Biog. Brit.

ASIA, in *Geography*, one of the four grand divisions of the earth, and the second in order, though the first inhabited. It is separated from Europe by the Mediterranean, the Archipelago, the Euxine, the Palus Meotides or sea of Azof, the Don, and the Dvina; from Africa by the Red sea and the isthmus of Suez. On the other sides, it is surrounded by the Great South sea. It does not join to America. Its principal parts are, Arabia, Asiatic Turkey, Persia, India, Tartary, Asiatic Russia, China, Japan, the

kingdom of Ava, that of Siam, the island of Ceylon, and the Sunda islands, whereof the chief are Sumatra, Borneo, Java, Celebes, the Moluccas, the Philippines, the Maldives. Asia, according to Mr. Pinkerton, extends in length, from the Hellefpont to what is called the East cape; that is from about the twenty-sixth degree of longitude, east from London, into the other hemisphere to near 190 degrees of east longitude, or 170 degrees west from London; being no less than 164 degrees, or (taking the degree at a medial latitude) more than 6500 geographical miles. From the southern cape of Malacca, to the Severovostoksmoi-nofs the north-eastern cape, now called the cape of Taimura, which braves the ice of the Arctic ocean, the breadth extends from about the second degree of northern latitude, to about the seventy-seventh, or nearly 4500 geographical miles. If, for the sake of a rude and merely comparative calculation, one-sixth part be added for the difference between the flatute and geographical mile, the length of Asia in British miles would be about 7583, and the breadth 5250.—Under their proper heads, will be found the names of the places it contains, and such general accounts of them as the limits to which we are confined on this subject will allow.

For ascertaining the real length of the continent of Asia, there was no guide as to its southern and eastern part, even beyond the Ganges, except from the accounts that were obtained from the time that the navigations began in the sixteenth century, and their disagreements with the arbitrary alterations that had been made. A long period elapsed before it was possible to settle the position of that portion of Asia, still susceptible of much correction, notwithstanding the observations of the Jesuits at Pekin, the most accurate of any extant. We shall content ourselves then with relating the result of the latest observations of the academy of sciences at St. Petersburg, of the latitude and longitude of the following places in the north of Asia:

	Lat.	Long. from Ferro.	from Greenwich.
Bolcheretsk,	52° 55'	174° 13'	156° 38'
Harbour of St. }			
Peter and Paul, }	35 1	176 10	158 36
Eastern extre-			
mity of Siberia, }	66 0	200 0	182 25

Unalashka, by the general map of Russia, lies in 58° of latitude from Ferro, 223° of longitude; and from Greenwich, 205° 25'. The same place, according to the chart of Krenitzin and Levashev, is in 53° 30' latitude, longitude from Ferro 205° 30', from Greenwich 187° 55'; the longitude from Ferro to Greenwich being computed at 17° 34' 45".

If the ancients had so slight a knowledge of the southern countries of Asia on the other side the Ganges, we ought not to be surpris'd if what they have been able to hand down to us concerning the hyperborean regions, coasts, and seas, or the northern extremities, should be considerably more so; and it must have been merely by chance that Pliny obtained some slight knowledge of cape Tabin and of the island Tazzata; as we have learnt a few uncertain notices about those vast lakes towards the west of America, from savages taken prisoners, and others, and from vague report, with which we are obliged to be satisfied for want of better information. It was impossible to acquire any more authentic except by the means of the Russians, with whom, till the seventeenth century, we were scarcely any more acquainted than with the savage inmates of those northern coasts. Nay, had it not been for the Russian, Anika Stroganof, who formed speculations for profiting by the lucrative commerce which the Samoyedes carried on at

Mosco, in peltries brought from countries beyond them, Siberia, properly so called, would have remained a great while longer unknown to the Russians themselves. Thus, as a thirst for riches had been the chief motive that excited the Spaniards to the discovery of America, and attracted the attention of other maritime nations to that quarter, so the same greediness of gain occasioned the discovery and conquest of northern Asia, a country till then unknown to the Europeans. The first foundation of this conquest was laid by the celebrated Yermak Timofeiyef, at the head of a band of adventurers, less civilized, though not so inhuman, as the conquerors of America. By the accession of this vast territory, now known by the name of Siberia, the Russians have acquired an extent of empire, never before attained by any other people. (Tooke's View of the Russian Empire, vol. i. p. 303.) It was however owing to Anika Stroganof and his comrades, that this conquest was undertaken, who also shewed the way to subjugate, by degrees, farther distant nations. The Russians themselves became known to the Europeans, through the voyages undertaken by the latter. The English and Dutch obtained some intimation of them while in quest of a north-east passage; they learnt of the Samoyedes that the little sea froze over in winter, but the great sea was never frozen; that they went thither to fish between the mouths of the Pisida and the Yenisey; that opposite to the east and north point of Nova Zemla, was another, making a great salient angle, from which the coast afterwards declined towards the east and south-east, nearly to the hot countries. Here we see to what a small matter was confined the knowledge at that time obtained of the southern part of Asia, and the only materials from which they could lay down their charts. They were puzzled how to reconcile these statements, and the more, as the coast between the Pisida and the easternmost point of its cape was unknown to them. Some knowledge of it by land had indeed been obtained; and even the coasts of the sea to the westward of it as far as its mouth, are filled with simovies, or winter-huts, consequently peopled; but those situate beyond that little river were so indistinctly known to them, that they thought it best to mark them down in an indeterminate manner.

They reasoned thus: cape Tabin must form a finis terræ, the extremity of Asia towards the north. There is a sea that washes all those shores; and we are assured there is another that divides Asia from America: these two seas therefore must join, and at that place form an angle, which will prove to be this Tabin; having an island to the westward which they laid down as lying at the mouth of a river. This notion, notwithstanding the numerous discoveries that might have destroyed it, has always subsisted, under one form or another, to the very times in which we live. Some, building on the report of the Samoyedes, marked the coast from the cape to the Taimura, as declining gradually towards the south-east. Others, willing to reconcile one with the other, laid down this declension only to the Lena, at its mouth, having got intelligence of some islands there; accordingly they carried the coast north-eastwards, for the sake of preserving this Tabin. On learning that the Russians and others regarded Svetoi-no's as the most advanced promontory, they gave its name, or Promontorium Sacrum, to the pretended Tabin. Afterwards, being informed that this Svetoi-nofs lay to the east of the Lena, they marked it accordingly, and hence were more firmly persuaded, that the isles at the mouth of that river were those of Tazzata; while, on the other hand, they persisted in the idea of a cape finis terræ, which they left subsisting under the names of Tabin (which we shall continue

to use while speaking of it in this sense), Svetoi-nofs, Caput Sacrum, Tshukchi-nofs, Tshalakskoi-nofs, &c.

Strahleberg notices this cape in a striking manner; and the navigators of the seventeenth century, likewise, even so early as Linschotten and his contemporaries, were persuaded that it was no other than that prominent angle towards the Taimura: indeed it is the most advanced cape of all that coast, lying beyond the $77\frac{1}{2}^{\circ}$ or in 78° , and therefore the finis terræ towards the north. But Strahleberg at the same time points out the isle of Tazzata, which he proves to be Novaya Zemla, since the ancient Scythians and their successors began with the northern nations of Europe, by the river Taas, whence they denominate the great gulf to which we give the name of Oby, the gulf of Taas, and from which Novaya Zemla, situate over against it, was called Tazzata. This is so natural, and can be the less doubted of, as that island has always been reputed as lying to the west of cape Tabin, near the mouth of a river. Whence Strahleberg concludes, that those geographers who mark it more to the east are greatly mistaken, "*huc uspiam Tazzata insula a Plinio ponitur.*"

After the conquest of Siberia, some Russians fell upon the same reflections as Anika Stroganof and his companions had done concerning the wealth that might be drawn from these oriental parts by the articles of peltry, on going direct to obtain them, either by the chace or by commerce; several companies were accordingly formed of people who were then, and are still known by the name of Promyschlenniye.

They considered that the method of making the greatest profit possible would be by going to sea coastwise, and trafficking with these unknown tribes, who, being ignorant of the value of their peltries, would give them for a low price. In this they were not deceived: and, notwithstanding the great risk they ran, as their vessels were small and crazy; as they were no less unskilful in the art of constructing than in managing them; as in not venturing far from shore, they were in jeopardy every moment of foundering among the ice; yet the thirst of lucre was too strong to prevent them from being deterred from their projects; and the government was well satisfied with them, as they furnished it with the means of rendering all these people tributary.

They began their courses from Yakutsk about the year 1636: proceeding in this manner step by step, they every year almost discovered some new river, some new cape, the Yena, the Indigirka, the Alafea, the Kovyma. No sooner were they come to the last of these rivers, than their curiosity was excited to know what other streams might be beyond it, in the two-fold view of rendering the nations bordering on them tributary to the empire, and of prosecuting the expected capture of fables for their own emolument. The first voyage from the river Kovyma was undertaken in 1646, by a free company of these Promyschlenni, under the conduct of a certain Isaac Ignatief, a native of Mosen. They found the sea full of ice: between the ice, however, and the main land, was an open passage, along which they proceeded twice 24 hours; when, coming to an inlet between the rocks and the shore, they ran into it. These 48 hours make seven degrees and a half, and the bay they entered lies in 72° deg. Here they met with people of the Tshuktschi nation, with whom they began to trade in the manner customary with uncivilized people; spreading their commodities on the shore, of which the Tshuktschi took what they pleased, and deposited in their place walrus-teeth, and articles made of that species of ivory. None of the mariners would venture on shore to the Tshuktschi,

particularly as they had nobody on board who could serve as interpreter. Contenting themselves, therefore, with having made this first discovery, they returned to the river Kovyma.

The accounts brought home by these people of the walrus-teeth, induced some other Promyschlenni some years afterwards to undertake a second voyage. To this end Fedot Alexeyef, a native of Kolmogor, associated himself with a Mosco merchant of the Gostinna sotna, a vassal of Alexey Ussof, and was immediately considered as the chief of the enterprise. He thought it, however, expedient to ask of the commandant at Kovyma, one of his kozaks, to look after the concerns of the crown during the voyage, who appointed one Simeon Ivanof son Deshnef, to attend him, with proper instructions. Four kotiches, a species of barks, sailed at the same time in June 1647, from the river Kovyma. Some loose information having been obtained of a river Anadir, or, as it was then pronounced, Anandir, the borders of which were inhabited by numerous tribes of strange people, it was calculated that this river must fall into the Frozen ocean; one of the objects, therefore, of the present voyage was to discover its mouth. However, in this as well as all the rest, they completely failed; the sea, even in summer, being too full of ice to permit them a free navigation.

Nevertheless, the passion for discoveries for augmenting the revenues of the crown, and the wealth of private individuals, was so great, that no thoughts were entertained of giving them up. Indeed the number of adventurers seemed rather to increase, both among the Kozaks and the Promyschlenni, so that the following year seven kotiches were fitted out in the same design; what became of four of these vessels the accounts received make no mention. Of the three others, Simeon Deshnef, and Gerasim Ankudinof, were commanders on the part of the Kozaks, and Fedot Alexeief, the principal of the Promyschlenni. Previous to their departure, a quarrel broke out between the two former, arising from the jealousy of Deshnef, that Ankudinof should share in the honour as well as in the profits to accrue from the future discoveries. The crew of each vessel might consist of about thirty persons; at least that was the number of Ankudinof's people.

It is to be lamented that the accounts of Deshnef, the original whereof Mr. Müller was lucky enough to find among the archives of Yakutsk, should say so little, and even nothing at all concerning the fate of four of those kotiches; nothing of what happened to him and his companions on board the other three till they came to the Great Cape; nothing about the ice, because, doubtless, says Mr. Müller, there was none; and, as Deshnef remarks in another place, the sea is not every year navigable.

The relation begins at this cape. His words are: "This cape is entirely different from that which projects near the river Tshukotsha, westward from the Kovyma. It is situate between the north and north-east, forming a semicircle towards the Anadyr. On the Russian, or western side, the Tshuktschi have raised by the side of a river, a number of whalebones in the form of a tower (according to other reports they are the tusks of the walrus). Opposite to the promontory (it is not mentioned on which side) are two islands, whereon were seen people of the nation of Tshuktschi, distinguished by wearing pieces of the teeth of the walrus inserted in their upper lip. It is possible, with a very good wind, to stretch from the promontory as far as the river Anadyr in three times 24 hours; and it would require no longer time to do it by land, as the Anadyr discharges itself into a bay." On this promontory it was that

that Ankudinof's kotsch perished; the people, however, were saved, and put on board the other two kotsches. Shortly afterwards these were separated, and never again got sight of each other. Deshnef, after being driven about by wind and weather till October, suffered shipwreck, as far as can be collected from circumstances, considerably to the south of the river Anadyr, somewhere about the river Olutora. What became of Fedot Alexeief and his ship's company, we shall mention presently.

Deshnef, with his followers, five and twenty in number, now set out in search of the Anadyr, which they did not discover till after they had wandered about, for want of a guide, the tedious space of ten weeks. The region where they came up to the Anadyr was not far from its mouth, a country entirely void of inhabitants, and destitute of forests; circumstances that naturally threw them into the extremity of distress, as perceiving no means of obtaining sustenance. Wild animals were not to be expected, as they usually haunt the woods; and they had no implements for fishing. In this perplexity, twelve of the company went up the course of the river; but after a devious journey of twenty days, still finding no traces of mankind, they turned about to regain the station where Deshnef and the rest were waiting for them; which, however, on account of hunger and fatigue, only a few of them reached.

After undergoing incredible hardships, Deshnef, in the summer of 1649, with the small remains of his people, went up the Anadyr by water, till he came to a people, called Anauli; and there he founded the Anadyrskoi ostrog, which was followed by other buildings. Deshnef observed a great sand-bank lying at the mouth of the Anadyr, advancing on the northern side far into the sea, the resort of a vast number of morshes and other amphibious animals. This circumstance was too flattering to be neglected. Accordingly, he began to fell timber, in 1653, for the construction of a kotsche, to be employed in conveying the tribute to Yakutsk by sea; but was obliged to desist from his purpose, from the want of other materials, and because he learnt that the sea about Tshukotskoi-nofs was not every year equally free from ice.

In 1654, he made another expedition to the korga, or sand-bank, for the purpose of collecting morsh-teeth. He now associated with him a Kozak named Yufko Seliverstov, who had accompanied Mikhaila Stadikin on his voyage of discovery in the Frozen Ocean, and was sent from Yakutsk to collect these teeth for the benefit of the crown. In his instructions, mention is made of a river Shendon, falling into the bay at Penhiuk, as well as of the Anadyr; and he was ordered to levy a tribute on the inhabitants dwelling about both these rivers; as what Deshnef had been doing was not as yet known at Yakutsk. On this occasion new discontents arose. Seliverstov arrogated to himself the discovery of the korga, as having sailed to that place with Stadukin, in 1649. Deshnef however proved that he had not even reached the great Tshuktsihi-nofs, which he affirmed to be formed of nothing but bare rocks, as was but too well known to him, since Ankudinof's vessel had been wrecked upon them. He farther alleged, that this was by no means the first promontory that appeared under the appellation of Svætoi-nofs. The two islands lying opposite the Tshuktsihi-nofs, belonging to the tooth-lipped people before mentioned, being the peculiar marks of it. That Deshnef alone, and neither Stadukin nor Seliverstov, had seen these people: and concluded by insisting that the korga at the mouth of the Anadyr was at a great distance from them.

Deshnef, while surveying the sea-coast, learnt of the

Koriacs the fate of the two Ankudinofs Fedot, and Gerasim, as well as of Fedot Alexeief.

In 1659, other expeditions were again undertaken; but, from the foregoing impediments, though they set sail in July, they suffered so much damage from the floating ice between the eastern mouths of the Lena and Svætoi-nofs, that they were deterred from such voyages for a long time; and it was not till the reign of Peter the Great that these enterprises were resumed. It is well known that his comprehensive mind conceived only vast ideas and grand projects; that being principally desirous to establish an extensive commerce by means of navigation, he began by opening to himself the navigation of the Baltic, by the foundation of St. Petersburg; Archangel already existed on the shore of the White Sea; he thought himself secure in the navigation of the Euxine, by the possession of Azof, and that of the Caspian by Astrakhan, which he succeeded in bringing to effect. He now conceived that it might not be impossible for him to participate in the lucrative commerce of the Indies, of Japan, of China, and of America, by establishing factories at the extremity of Asia, in the proximity of those countries. The Dutch East India company declining to attempt the discovery of the north-east passage, the czar adopted the project, as well as that of subjecting the countries adjacent to the objects of his commerce, beginning by Kamtschatka, of which some obscure information had been obtained.

Thither, in 1696, he sent Vladimir Atlassof, stationed as commandant of the Kozaks at Anadyrskoi-ostrog, a settlement that had been retained ever since its first erection by Deshnef, as before related, who was naturally supposed to have acquired an extensive knowledge of all the neighbouring countries. He accordingly dispatched sixteen Kozaks of Yakutsk, to render the Koriaks on the river Opuka tributary; Morosko, their chief, acquitted himself well of his commission, and even took a Kamtschadale ostrog. Atlassof, profiting by this advantage, put himself at the head of sixty Kozaks, and as many Yukagirs, and led them to the river Kamtschatka, and the surrounding districts. In his juridical declaration, he relates, among other things, before he continues the recital of his progress to Kamtschatka; that, between the Kovyma and Anadyr is a *double cape*, which some have called Shalatkskoi cape and Anadyrskoi cape. Of the latter he affirms, that it can never be doubled in vessels of the ordinary construction, because on the western or northern side are always vast pieces of floating ice (stationary and solid in winter); and that the other side of the sea of the Anadyrskoi cape is at all times free from ice. That, though he himself was not personally at the height of these capes, yet he learnt from the Tshuktsihi, who dwelt about the mouth of the Anadyr, that over against this cape is a large island, inhabited by people who come to them in winter over the ice, and bring them bad fables.

To avoid prolixity, we omit the remainder of his account, only observing, that Mr. Müller seems rather to depart from his usual candour, in regard to this narrative, which he acknowledges to be really Atlassof's, but suggests that it does not exactly tally with a letter of his in 1700, nor with his juridical deposition in 1701. In order to have given validity to his doubts, he should have communicated these pieces among the great number with which he has enriched his valuable collection. This he has not done. And since the czar, who was an excellent judge of mankind, was so well satisfied with him, that he made him colonel of the Kozaks at Yakutsk, this circumstance ought to have its proper weight with us.

Parties were repeatedly sent against the Tshuktsihis, without

out being able to subdue them. In 1711, the Yakutsk-Kozak Peter Ilin sin Popof, the promyshlenik Yegor Vassilief sin Toldin, and the newly baptized Ivan Vassilief sin Terezhkin, made a vigorous attempt to compel those who dwell on the other side of the bay, and of the cape or nofs, to pay the tribute; which they as strenuously refused. They, however, obtained from them a great number of particulars concerning the situation of the surrounding countries; and, among others, that opposite, whether to the Kovyma or to the Anadyr they could not sufficiently comprehend, is situate a spacious island, to which the Tshuktshi gave the name of *the great land*, the inhabitants whereof pierce their cheeks, and pass large pieces of teeth through the orifice; not having the same language with the Tshuktshi, who have been at war with them from time immemorial. Popof saw ten of them, who were prisoners to the Tshuktshi; and he remarked that these pieces were those of the walrus. He learnt that in summer they pass over to this island in baidars in one day, and in winter likewise in one day in sledges on the ice.

On the promontory or land of this cape no other animals than wolves and foxes are seen, since there are no forests; whereas on the other land are all sorts of animals that furnish the finer sorts of furs. The inhabitants keep numerous herds of rein-deer. The country produces cedars, firs, pines, larches, and other trees. Popof supposed that the number of the Tshuktshi at the cape might amount to two thousand men, and that of the islanders to triple that sum; that, from the Anadyrskoi-ostrog they go by land to the nofs, along the rock Matkol, which runs out from a great gulf.

At the time of which we are speaking, there being yet no implements for navigation at Okhotsk, and the use of the compass not being known there till the year 1714, by the express command of the great czar Peter I., the governor prince Gagarin supplied both these defects. Probably the governor at first imagined that the purposes of discovery might be effected without these helps; for the first order relating to the discovery of a passage by sea to Kamtschatka, dated the 17th of February 1713, directed to the voivode Yeltshin, contains not a word about the construction of vessels, nor of people expert in the art of navigation: accordingly, nothing farther appears than that the dvoranin Ivan Sorokaumof, who was charged with the business at Yakutsk, after arriving with twelve Kozaks at Okhotsk in the autumn of that year, committed a great many blunders, and was brought back to Yakutsk in custody. It was now found necessary that the governor should immediately send some able seamen and ship-carpenters. By these, who arrived at Yakutsk the 23d of May 1714, and were sent off to Okhotsk the 3d of July, under the command of a Kozak named Kosmas Sokolof, with about twenty Kozaks, the long-wished-for discovery was made.

One of the sailors, by birth a Dutchman, a native of Hoorn, (Strahlenberg calls him a Swedish corporal, who had formerly been a ship-carpenter; but Busch himself says, that he had served in various places many years as a sailor, and at last in the Swedish cavalry, and so came to be taken prisoner at Vyborg, in the year 1706), named Henry Busch, was still living at Yakutsk in 1736, when Mr. Müller made some stay there; and, in answer to his inquiries, he learnt of him the following particulars. After they were come to Okhotsk, the carpenters built a vessel of the same kind with the Russian loddies, in which they used formerly to go from Archangel to Mesen, Pustozero, and Nova Zemlia. These labours occupied the whole of the year 1715. The vessel was very stout and substantial. It was eight fathoms and a half in

length, and in breadth three fathoms. When loaded, it drew three feet and a half of water. All things necessary for the voyage being ready, the first expedition was undertaken in June 1716. They coasted north-eastwards, as far as the region of the river Oka. It was intended to pursue the same course farther; but a contrary wind drove the vessel, as it were against the will of the navigators, across the sea to Kamtschatka. What they first desired, as they afterwards were informed, was a promontory, starting northwards from the mouth of the river Tigil. The coast seemed steep and rocky, therefore they would not venture on shore, destitute as they were of any pilot or guide. Proceeding, however, to keep the sea, a contrary wind arose, which drove the vessel back upon the Okhotskian shore. The wind afterwards coming favourable, the navigators tacked about, and came exactly back to the Tigil, where they now cast anchor. Some of the people went on shore in search of human beings, but found only empty huts. The Kamtschadales had perceived the vessel approaching, and had fled for fear into the forests and mountains. Our mariners therefore again set sail, passed the Tigil, and in the space of a day reached the stream Chariufosca, having two small islands lying in its vicinity. The former, being the largest, is at the distance of five versts from the main land; the other, consisting only of barren rocks, a little farther. Leaving the Chariufosca, they stood out to sea the whole night, and the next morning found themselves in with the land at the river Itsha. Here they sent some of the crew on shore; who, finding however neither people nor habitations, presently returned. Continuing to sail along the coast, they came up with the river Krutogorova, into which they would have run, but missed the inlet; luckily, however, a bay opening to the south of the river being found convenient, in it they dropped their anchor. A detachment of them, while exploring the country, met with a Kamtschadale girl picking up edible roots in the fields. She directed them to some huts, where just at that time a party of Kozaks had put up for the purpose of collecting the tribute. These, on being sent to, came and served them as guides and interpreters. The vessel was brought to the mouth of the river Kompakova, which they found a good birth to moor in for the winter. Here they had not been many days when a whale was thrown ashore by the sea: in the body of the fish was sticking a harpoon of European manufacture, marked with Roman letters. If I could have surmised, continues Mr. Müller, that the sailor who related to me this fact, had known of the like accident that happened to the shipwrecked Dutchmen on the coast of Korea, in 1653, (Witsen, ed. 2. p. 45. Voyage au Nord, tom. ix. p. 308.) I might have been led to suspect, that he perhaps was amusing me with a tale that had no other foundation than what he borrowed from the former. This, however, was not the case. For he was a completely illiterate man, could neither read nor write, and scarcely knew that there was such a place as Korea in the world; consequently the fact is only the more confirmed by two examples. The commander Sokolof, during the winter, made a journey to Nishnei Kamtschatskoi ostrog, whence he returned to the ship in spring, and at the beginning of May 1717, put again to sea. The sea, however, was so full of ice, that on the fourth day from their departure they were completely jammed in between some fields of it, where they were obliged to remain fixed upwards of six weeks, before they could proceed on the voyage. In the mean time they were in great want of provisions. Happily they regained the Okhotskian shore, between the river Ola and Taniskoi ostrog, where they remained at anchor a few days; and about the middle of July returned to Okhotsk. From
this

this time a navigation has been uninterruptedly kept up between Okhotsk and Kamtschatka.

While all this was transacting, governor prince Gagarin, in the year 1716, dispatched colonel Jacob Ageef son Yeltshin, formerly voivode at Yakutsk, with a considerable party of officers and people, to the same regions, with orders to make diligent inquiries concerning Kamtschatka, and chiefly such as related to the object in question. Kosirefsky mentions, that ships from Japan came to the sixth of the Kurilli islands, Shokoki, for ores or minerals, which they carried back to their island. This, however, seems to be not quite correct, as differing widely from all the other accounts, which say, that the Japanese (probably when driven about by adverse winds and storms) used never to proceed farther than Matmai. Nor had any subsequent information confirmed what he advances. This therefore was one of the principal matters into which the colonel was instructed by the governor to inquire; he was likewise to proceed from Tshukotskoi-nofs to the opposite islands, and thence to the main land. By his instructions also he was to gain accurate information about the islands of Shantary; to attempt to settle a regular traffic with the Japanese, and whatever else he could effect in consequence of his own observations: nothing, however, of importance ensued from it. The governor had given the colonel, a Swedish lieutenant named Ambjorn Molyn, who was to construct the vessels proper for the several enterprises at Okhotsk. This man pretended that there was no timber to be found at that place fit for the purpose. (See also Strahlenberg, p. 17.) Disputes arose now between the colonel and the voivode of Yakutsk, Ivan Vassilief son Rakitin, which likewise probably threw great impediments in the way of this expedition; and the disgrace of prince Gagarin happening soon after, the whole business came to nothing. The only benefit accruing from it was a voyage set on foot by Yeltshin, in the year 1718, to the Shantary islands, and performed by the son boyarskoi Prokofey Philkeief. This person was still living when Mr. Müller was at Yakutsk, and from whom he learnt the following particulars of his voyage.

Philkeief was provided with able seamen, the better to ensure success: when they were out at sea, these men declared to him that they were resolved to visit not only the Shantary, but all the other islands lying in those seas, as far as the Kurilli; which done, they would winter on the largest of the Shantary islands, which by way of eminence is denominated Shantar. This not being agreeable to Philkeief, he caused himself, with a couple of Kozaks, to be put on shore at the mouth of the river Tugur. The rest accomplished their design, passed the winter on the isle of Shantar, and had a rich capture of fables. Having negligently, however, left a fire they had been using, the flames caught the trees, so that the whole forest of the island was in a blaze, by which they also lost their fables. The next summer they returned to the continent, where, intending to fish along the coast between the Tugur and the Amoor, the greater part of them were slain by the Giliaks. They computed the isle of Shantar to be from south to north about twenty versts, and three or four versts in breadth, without any mountain upon it. How then were these islands to be seen from the mouth of the river Ud? This therefore seems to confirm Philkeief's assertion, that they are situate in the proximity of the Tugur, and that it requires eight days to pass from the Ud to the Tugur, in lodkas or small craft. If we admit the situation of the coasts to be as they appear upon the maps, namely, as stretching directly south from Okhotsk to the Amoor, then the difficulty is much increased; because in that case there must be

several promontories projecting so far as to conceal these islands from the view. But various reasons may be found for believing that the coast from Okhotsk to the river Ud runs south-westwards, and from the Ud to the Amoor south-eastwards. If so, as it is highly probable it will hereafter be found, then the Shantarian islands may lie in such a manner as to follow one another in succession northwards from the river Tugur. There may be more of them than we imagine, since the number of them is by no means ascertained. In that case, the nearest may unquestionably be discerned from the river Ud.

In 1718, a tribe of Tshuktsis came voluntarily to surrender themselves at the Anadirkoi ostrog, declaring that they inhabited the promontory between the Anadyr and the Kovyna; that they were in number about 3500 men; that this promontory was covered with rocks and mountains, but that the flat country consisted of turf-land; that opposite to the cape was seen an isle of moderate dimensions, the inhabitants whereof bore a resemblance to the Tshuktsis, but spoke a different language; that from the point they could go over to the isle in half a day; that beyond it was a large continent, which might be seen from the island in fair weather: that its inhabitants likewise resembled the Tshuktsis, had a different dialect, numerous forests, &c. (giving an exact description of the great island mentioned above); that with their baidars, or boats, by coasting the promontory, they could make the voyage from the bottom of the bay of Anadyr, to the extreme point of the promontory, in three weeks, and often in less time.

Peter the Great, desirous of obtaining a more accurate knowledge of these parts and passages; and, unable to induce the Dutch East India Company to take up the matter, resolved himself to prosecute the design with vigour. Accordingly, in 1727, he sent two geodesists, or geometers, to Kamtschatka. Of what they executed or discovered, nothing ever came to the ears of the public. It is only known, that on their return, the czar gave them a very gracious reception; whence it may be presumed, that they acquitted themselves of their trust to his satisfaction.

In short, the czar being resolved to satisfy his curiosity, by causing these latitudes to be explored, and, above all, to be certified whether Asia was contiguous to America on the north-eastern side, towards Tshuktsi-nofs, since on the north side it undoubtedly was not; he made choice of Vitus Beering, an expert Danish mariner, for that purpose, to whom he joined lieutenants Spangberg and Tshirkof. Peter had this business so much at heart, that, though confined to his bed by the disease that put an end to his life, he conversed with Beering, and even drew up with his own hand a set of instructions for his guidance, which paper was delivered to him five days after the demise of that great monarch.

He set sail the 14th of July 1728, from the river of Kamtschatka, and steered north-eastwards, following the land so as seldom to lose sight of it. Of this he drew a chart, so accurate as to be still the best extant.

The 8th of August, being in lat. 64° 30', a baidar, having eight men on board, came up to his vessel. These proved to be Tshuktsis, who told him that the coast was covered with the dwellings of their people, and gave him to understand, that not far off the land trended towards the west; they also pointed out an isle at no great distance, which Beering came up with on the 10th of August, and gave it the name of Saint Lawrence.

On the 15th of the same month, in 67° 18' lat. perceiving that, as the Tshuktsi had said, the coast bent towards the west, and no longer to the north, it is said that he drew

this false consequence, that he had reached the extremity of the north-east of Asia; that the coast thenceforward taking a western direction, it was impossible there could be a junction of Asia with America; and that he had fulfilled his commission. Mr. Müller adds, that he was mistaken, since he was only then at Serdzekamen, whence the coast indeed turns to the west, forming a large gulf; but that it afterwards returns to the north and north-east, as far as the great Tshuktshi-nofs. On his passage back, the 20th of August, forty Tshuktshi approached his ship in four baidars, and informed him, that their countrymen frequently went to the Kovyra by land, with merchandises, but never by water.

Afanasy Sheftakof, colonel of the Yakutskoi Kozaks, having made several proposals to the senate, to render the obstinate Tshuktshi tributary, it will be necessary to say something of his expedition, as being of some consequence to the history of navigation. Sheftakof was resolved to reduce not only the Tshuktshi, but likewise the Koriaks, who dwell on the Siberian coast of the Penzhinskian sea, and likewise inhabit both shores of the northern part of Kamtschatka, and were frequently in a state of rebellion, to obedience. He purposed to visit the country lying opposite to Tshukotsk-nofs, and subject the inhabitants to the Russian authority. It was part of his plan likewise to make an attempt to discover the pretended land in the Frozen ocean; and, lastly, before his return, to explore the Shantarian and Kurilly islands. The eloquence, with which he accompanied the delivery of his project, gained him universal approbation, and high and low became interested in the success of his enterprise, all conceiving it extremely probable that great public benefit might accrue from it. Accordingly he was appointed commander of a particular expedition. The admiralty of St. Petersburg gave him a pilot, named Jacob Hens, with an assistant, Ivan Fedorof, a geodesist, Michael Gvosdef, a mineralogist, named Herdehol, and ten sailors. At Ekatarinenburg, he was supplied with field-pieces and mortars, with all proper appurtenances. At Tobolsk, a captain of the Siberian regiment of dragoons, Dmitri Pavluzki, was ordered to join him, with four hundred Kozaks, under their united command; and they were farther empowered to increase their strength from all the garrisons, ostrogs, and simovics, in the territory of Yakutsk, wherever they should come, at their discretion.

These preparatives being made, Sheftakof set out from St. Petersburg for Siberia in the month of June 1727. At Tobolsk he tarried till the 28th of November, passed the winter in the upper regions of the Lena, and reached Yakutsk in the summer of 1728. Here a violent quarrel arose between Sheftakof and Pavluzki, which probably occasioned them to part, though they prosecuted their several purposes to the same end. Sheftakof, in 1729, repaired to Okhotsk, and there took to his use the vessels with which captain Beering had lately returned from Kamtschatka. Having dispatched his kinsman, the fin boyarskoi Ivan Sheftakof, on the first of September, in one of them, the Gabriel, to go to the river Ud and thence to Kamtschatka, for the purpose of examining and describing all the islands he might meet with on that voyage; he failed in the other vessel, the Fortuna, for Taviskoi ostrog, but had the misfortune to suffer shipwreck, and to see the greater part of his people perish in the billows, with great difficulty saving himself and four other persons from sharing their fate. The 30th of September, he sent from Taviskoi ostrog a kozak, Ivan Ostafief, in company with an elder of the Koriaks, forwards along the coast, with orders to proceed to the river Penzhina, and, by kind words and fair promises, to persuade the

refractory Koriaks dwelling in that tract, to submit to the Russian government. He himself followed, at the commencement of December, with the rest of his men, took up Ostafief by the way, and arrived within two days journey from the Penzhina, where he fell in with a prodigious host of Tshuktshi on their march to make war upon the Koriaks. Though the number of Sheftakof's followers, Russians, Okhotskian Tunguses, Lamutes and Koriaks, all together consisted of not more than 150 men, yet he did not hesitate to risk a battle with the Tshuktshi. This, however, had an unfortunate issue: Sheftakof was struck by an arrow from the enemy, which deprived him of life, and those who escaped falling with him, were entirely put to flight. This happened the 14th of March 1730, near the stream Yegath, which falls into the Penzhinskian gulf between the rivers Paren and Penzhina.

Three days prior to this disastrous event, Sheftakof had sent an order to Taviskoi ostrog, directing the Kozak, Trypho Krupishef, to proceed in one of the vessels to Bolsheretskoi ostrog, from thence doubling the southern point of Kamtschatka, to sail on towards Nishnei Kamtschatkoi ostrog, to continue his voyage in the same ship to the river Anadyr, and invite the inhabitants of the vast tract of country lying opposite, to pay tribute to Russia. In this dispatch he recommended Krupishef to take with him the geodesist, Gvosdef, in case he were inclined to go, and to treat him with all possible kindness. Concerning what came of it, no accounts are extant. Only thus much is known, observes Mr. Müller, that the geodesist, Gvosdef, was actually, in the year 1730, between the 65th and 66th degrees of latitude, at a short distance from the country of the Tshuktshi, on an unknown shore, situate over against the said country; that he even found people there, with whom, however, he was unable to converse for want of an interpreter.

During these transactions, the fin boyarskoi Ivan Sheftakof, was sailing on board the Gabriel to Kamtschatka, and, on the 19th of September 1729, arrived at Bolsheretskoi. For, though his instructions were to proceed first to the river Ud, he was prevented from doing so by violent adverse storms. The following summer, however, he made the voyage to the Ud, touched at Udskei ostrog, where he found people who had been sent thither by colonel Sheftakof, and had built a vessel; but that not being fit for his purpose, he returned to Kamtschatka, having seen both on his passage outwards, and on his way back, several islands, and at last made again the port of Okhotsk.

While Sheftakof was on his passage back to Okhotsk, Jacob Hens, the pilot, received a dispatch from captain Pavluzki, who had come directly from Yakutsk, by the common inland road, to Nishney Kovymskoi Simovie, or ostrog, informing him that he had heard, by way of Anadyrskoi ostrog, of the death of the Kozak, colonel Sheftakof; but that this would cause no impediment to the progress of the expedition: at the same time ordering the pilot Hens to go, with one of the vessels which captain Beering had left at Okhotsk, round by Kamtschatka to Anadyrsk, whither likewise captain Pavluzki would proceed without delay. In pursuance of this order, Hens went on board the Gabriel, and sailed for Kamtschatka. On the 20th of July 1731, he arrived at the mouth of the river Kamtschatka, intending to pursue his voyage to the Anadyr, when a report was brought to him, that the same day a rebellious crew of Kamtschadales were come to Nishney Kamtschatkoi ostrog, where, after murdering most of the Russians, they had set fire to the dwelling of the inhabitants. The few remaining Russians took refuge on board the vessel, and Hens sent a party of his people on shore to reduce the Kamtschadales

to obedience; in which they succeeded; but the event effectually stopped the navigation of the river Anadyr.

In the mean time, captain Pavluzky had arrived, the 3d of September 1730, at Anadyrskoi ostrog. From that place in the ensuing summer, he marched on an expedition against the refractory Tshuktshi. Pavluzky opened his campaign the 12th of March 1731, his force consisting of 215 Russians, 160 Koriaks, and 60 Yukagirs. He took the road across the sources of the rivers Uboina, Bela, and Ticherna, which fall into the Anadyr, advancing directly north towards the Frozen ocean, and leaving the head of the Anadyr to the left. Of the other rivers which he crossed, nothing is known, as there was nobody to inform him of them, or tell their names. After a course of two months, in which they could not proceed above ten versts a day, and that only by resting at times, Pavluzky came to the Frozen ocean, at a place where a considerable river disembogues into it, but the name of which he could not learn. He now proceeded fourteen days eastward along the coast, mostly over the ice, without observing any mouths of rivers, as they were oftentimes obliged to keep out on the ice at a distance from land. At length they perceived a great troop of Tshutshi advancing towards them, apparently intending to come to an engagement with them. Pavluzky, by an interpreter, summoned them to surrender to Russia; which, on their peremptorily refusing to obey, he immediately attacked them, and had the good fortune to give them a total defeat. This happened on the 7th of June.

After resting one week, Pavluzky continued his march, and at the latter end of June came to two rivers that discharge themselves into the Frozen ocean, at the distance of a day's journey asunder. On the bank of the latter of these rivers, on the 30th of June, a second battle was fought, which terminated as happily as the former.

They now lay still for three days, then proceeded to Tshukotskoi-nofs, resolving to go right across it to the Anadyrskian sea, when a third time they saw advancing towards them a numerous army of Tshuktshi, collected together from both coasts. Here on the fourteenth of July was fought the third battle, in which the slaughter on the enemy's side was greater than the advantage on that of the Russians; as, notwithstanding their defeat, the Tshuktshi would hearken to no terms of submission or tribute. Among the spoil were found many articles that had belonged to the Kozak, colonel Sheftakof, and were lost in the engagement that happened near the stream Yegatsh. That affair therefore was thus amply revenged; especially as in all the three battles, not more than three Russians, one Yukagir, and five Koriaks, were left on the field. It was affirmed, that among the killed of the enemy in the last encounter, one was found who had a hole in the upper lip on each side of the mouth, in which pieces of the walrus's tooth were inserted.

Pavluzky now marched triumphantly across Tshukotskoi-nofs, in which he had to climb over the summits of huge mountains, and at the end of ten days happily reached the other coast. Here he sent off some of his people by water in baidars; but remained himself with the greater part of his followers on shore, and kept along the coast, which there stretches south-eastward, so that every evening he received reports from the baidars. On the seventh day they came up to the mouth of a river, and twelve days after, to that of another, from which, at the distance of about ten versts, a point of land runs far out into the sea, which at first is mountainous, but terminates in a plain extending as far as the eye can see. This point is probably the same that obliged captain Beering to put back. One of the mountains is by the inhabitants of Anadyrskoi-ostrog called Serdzekamen.

Pavluzky hence turned in land, and returned to Anadyrsk the twenty-first of October, by the same way that he went out.

Mr. Müller speaks of the ardent zeal which M. Kerilof, at that time secretary of the senate, manifested for the success of these discoveries in 1732.

Having related what information has been obtained from the Russians, and particularly from the indefatigable Mr. Müller, we shall now proceed to deliver, as briefly as possible, what we gather from other authors, more ancient.

Pere Avril was informed by a vaivode, that the people dwelling about the Kovyma frequently went to the shores of the Frozen ocean to pursue the morfes, for the sake of their teeth. M. Witsen, justly celebrated for his persevering diligence, from about 1670 to 1692, in the discovery of these unknown countries, says, that "the great projecting point, which he calls cape Tabin, extends near to America; that about fifty or three score men, coming from the Lena, a little before 1692, put out to sea in the Frozen ocean; and, having turned to the right, came to the point against which the fields of ice driving from the north strike with their whole force, &c. It was therefore not possible for them to double this cape, nor to perceive its extremity from the mountains of the north-east of that point of Asia which is not extremely wide in that place; they remarked that the sea was free from ice on the other side, that is, the southern, whence it may be inferred that the land of that point extends so far to the north-east, that the floating ice, coming down from the north, cannot pass on the southern side."

Mr. Buache, from whom this passage is taken (Consider. Geograph. p. 105, 106.) corroborates and illustrates the account thus: "The first pieces of ice (he says) coming from the north, stop at the island between the cape and America, and on the shallows which connect it to the two continents; these large flakes, accumulating on one another, form a sort of bridge; and it is only then, that the others which afterwards come down from the north, are unable to pass to the south, &c. On this point (continues M. Witsen) are found men who wear little stones and pieces of bone inserted in their cheeks, and seem to have a strong affinity with the North Americans."

Kämpfer, in 1683, sparing no pains that might any way lead to the knowledge of the northern regions, was informed by several persons, that the Greater Tartary was joined by an isthmus, composed of lofty mountains, to a neighbouring continent, which they supposed to be America. He was shewn the first maps of the Russian empire, laid down some years before, without degrees of longitude. On them appeared several considerable capes on the eastern shores of Siberia; one of them, too large for being comprised within the border of the map, which was cut in wood, was abruptly shortened by it. This is the point spoken of by M. Witsen; but at that time, it is said to have been thought more near to Russia than it really is.

Isbrandt Ides, from informations carefully taken in 1693 and 1694, speaks of Kamtschatka, as of a town, which, with the surrounding country, was inhabited by the Xuxi and Kœliki (Tshutshi and Koriaks); says, that the cape of ice is a tongue of land projecting into the sea, where it is intersected by several arms of water, which form gulfs and isles above Kamtschatka; the sea has an entrance frequented by the fishermen; here are the towns Anadyrskoi and Sabatka (on the map, and according to others Sabatia), inhabited by the two nations above mentioned. The inhabitants of Yakutsk go to cape St. Sabatia, Anadyr, Kamtschatka, &c. in quest of the narval.

The Swedish officer, who was a prisoner in Siberia from

1709 to 1721, contending against the opinion of those who imagined that Asia was contiguous to America, positively asserts that the Russian vessels, coasting along the main land, ordinarily pass the Svætoi-nofs, in order to trade with the Kamtshadales on the shore of the Eastern ocean, about the fiftieth degree of latitude: but for this purpose they are obliged to pass between the main land, and a great island lying to the north-east of Svætoi nofs, and that this isle is the north-west of America. Strahlenberg mentions nothing farther in his work than the facts already related, excepting that the Yukagirs are a people settled near the Frozen ocean, between the mouth of the Lena and cape Tabin. It has been found, that in the part of the continent of America of which some knowledge has been obtained, opposite the cape, there is a large river, wafting down its current numbers of great trees, &c.

From all these, and various other documents and data, M. Engel endeavours to establish some important facts; such as, that the position of this pretended cape Tabin owes its origin to the desire of fixing that of Pliny spoken of above; and this motive having subsisted till within a few years past, or at least the idea of a finis terræ towards the north-east, it has been preserved, and some cape or other was to be found for that purpose. That the largest of all, that which extends farthest into the sea; and the most formidable, according to all accounts, is the double cape, called Serdzekamen, or heart of stone, north of the Anadyr, which may in some years, at least, without difficulty be doubled; since it is not owing to its proximity to the pole, but to the occasional conjunction of vast bodies of ice, that renders it at such times impracticable.

M. Gmelin says: "There are even traces of a man who in a small boat, not much bigger than a fisherman's canoe, doubled the Shalaginiskoy cape, and made the voyage from the Kovyma to Kamtshatka." It may be asked, adds M. Engel, whether I am so credulous as to believe it? No: if I should grant what he means by that cape; since this man must have sailed, according to the arbitrary distances laid down in the charts, five or six hundred leagues. But if according to my system, we banish cape Tabin into its proper nonentity, diminish the extent of the coasts, approximate the rivers, especially the Kovyma (for the supposed declension of the coast, and the greater proximity of the Indigirka and the Kovyma, are confirmed by various arguments); by doubling the Serdzekamen, as the sole and real cape Shalaginiskoy, then it would be by no means impossible, in one of those years, when, as M. Müller allows, there are no masses of ice in its environs.

The authorities whereon M. Müller and the Russian geographers fix the longitude of the eastern extremity of Asia beyond the two hundredth degree from the first meridian of Ferro, or $180^{\circ} 6' 15''$ from Paris, are derived from the observations of Jupiter's satellites, taken by Krassilnikof, at Kamtshatka and in several parts of Siberia; as also from the expeditions, both by land and sea, of the Russians towards Tshukotkoi-nofs.

M. Engel disputes the accuracy of these observations, and deducts no less than twenty-nine degrees from the longitude of Kamtshatka as stated by the Russians. M. de Vaugondy, however, sees no sufficient reasons for so extraordinary a subtraction; and contents himself with curtailing the continent of Asia of no more than eleven degrees of longitude. M. Buache dissents from the opinions both of Engel and Vaugondy; defending the system of the Russian geographers on the authority of tables drawn up by M. Maraldi.

It is certain that Krassilnikof compared his statements with correspondent observations made at Petersburg, and the

results were; on comparing an observation of an eclipse of the first satellite of Jupiter, taken at Okhotsk, Jan. 17, 1743, with an observation of an eclipse of the same satellite taken at Petersburg, Jan. 15, of the same year, the difference of longitude between Petersburg and Okhotsk appeared to be 7 hours, 31 minutes, 29 seconds; from a comparison of two subsequent similar observations, the difference of longitude was found to be 7 hours, 31 minutes, 34 seconds; the proportional mean whereof, rejecting the half second, is 7 hours, 31 minutes, 31 seconds, the true difference between the meridians of Petersburg and Okhotsk according to these observations. Adding the longitudinal difference between Petersburg and Paris, which is 1 hour, 52 minutes, 25 seconds, we get the longitude of Okhotsk from Paris, 7 hours, 23 minutes, 56 seconds, differing only 26 seconds from the result of M. Maraldi. (See Nov. Comm. Petropol. tom. iii. p. 470.) So likewise the longitude of Bolsheretsk, from correspondent observations taken there and at St. Petersburg, appears to be 10 hours, 20 minutes, 22 seconds, differing from Maraldi about 2 minutes, 5 seconds. (Id. ib. p. 469.) But the longitude of the haven of Peterpavlovsky, calculated in like manner by correspondent observations, disagrees with the longitude as computed by Maraldi no more than 20 seconds. (Ibid.) Besides, the results deduced from correspondent observations of the eclipses of Jupiter's satellites taken at Bolsheretsk, and at the haven of Peter and Paul, by Krassilnikof, and at Pekin by the jesuit missionaries, evince by their near agreement the care and attention with which the observations must have been conducted; whence there is great reason to suppose, that the suspicions of inaccuracy imputed to Krassilnikof are destitute of any just foundation. (Observ. Astron. ecl. Sat. Jovis, &c. Nov. Comm. Petropol. tom. iii. p. 452, & seq. Observ. Astron. Pekini factæ. Ant. Hallerstein. Curante Max. Hell. Vindibonæ, 1768.)

For supporting, however, in some sort, these suspicions, H. Vaugondy pretends, that the time-pieces and other instruments used by Krassilnikof at Kamtshatka, were greatly damaged by the length of the journey; and that the person who was sent to repair them was not expert in his business. But this opinion seems to have been too hastily adopted; for, though Krassilnikof does indeed allow that his time-piece sometimes stopt, and that too when he wanted to ascertain the true time of the observation; and farther admits, that consequently the observations taken by him under these disadvantages, when he was unable to correct them by former or subsequent observations of the sun or stars, are not to be relied on, and which he has therefore distinguished by an asterisk; there are nevertheless many others not liable to any objections of this nature; and the observations alluded to above fall under this description. (See Nov. Comment. Petrop. tom. iii. p. 444.) However, the testimony of the late professor Müller, who was in those parts with Krassilnikof, as to the sufficiency of the instruments, entirely removes that objection.

The best way of trying the accuracy of the Russian geographers in settling the longitude of Kamtshatka, will be by comparing it with that of Yakutsk, which has been clearly established by a variety of observations taken at different times and by different persons. If therefore any error be in placing Kamtshatka so far to the east, it is in the longitude between Yakutsk and Bolsheretsk.

Now, Krassilnikof, on his return from Kamtshatka, observed at Yakutsk several eclipses of Jupiter's satellites, from which it appears, on comparing them with calculations of the same eclipses made by M. Wargentin for the meridian of Paris, that the mean of the result is 8 hours, 29 minutes, 5 seconds. The observations of M. Islenief, taken at Ya-

kutsk in 1769, whither he had been sent to observe the transit of Venus, received the sanction of the imperial academy of sciences. (Nov. Comment. Acad. Petrop. tom. xiv. pars iii. p. 268—321.) The longitude given by him to Yakutsk is eight hours, 29 minutes, 34 seconds, a sufficiently accurate agreement with the longitude resulting from the observations of Krassilnikof.

The longitude therefore of Yakutsk from Paris being 8 hours, 29 minutes, 5 seconds, or $127^{\circ} 16' 0''$; and of Bolsheretsk 10 hours, 17 minutes, 17 seconds, or $150^{\circ} 19' 15''$, the longitudinal difference of these two places, from astronomical observations, is 1 hour, 48 minutes, 8 seconds, or $27^{\circ} 3' 0''$. The latitude of Bolsheretsk is $52^{\circ} 55' 3''$, and that of Yakutsk $62^{\circ} 1' 50''$; then the difference of their longitude being from the foregoing statement $27^{\circ} 3' 0''$, the direct distance between the places measured on a great circle of the earth will appear by trigonometry to be $16^{\circ} 57'$, or about 1773 versts, reckoning $104\frac{1}{2}$ versts to a degree. This distance consists partly of sea and partly of land; and a constant intercourse is kept up between the two places, by means of Okhotsk, which stands in the intermediate space. The distance by sea from Bolsheretsk to Okhotsk is estimated by nautical reckonings to be 1254 versts, and the distance by land from Okhotsk to Yakutsk is 927, making together 2181 versts. The direct distance deduced by trigonometry, supposing the difference of longitude between Bolsheretsk and Yakutsk to be $27^{\circ} 3'$, is 1773, falling short of 2181 by 408; a difference naturally to be expected, on considering that neither journeys by land, nor voyages by sea, are ever performed precisely on a great circle of the globe, which is the shortest line between any two places.

Such being the agreement between the distance thus estimated, and that deduced by calculation, admitting the difference of longitude between Yakutsk and Bolsheretsk to be $27^{\circ} 3'$, it seems highly improbable that there should be an error of many degrees in the astronomical determination.

Since then the longitude between Ferro and St. Petersburg is confessedly 48° ; that between St. Petersburg and Yakutsk $99^{\circ} 21'$; and, as the distance in longitude between Yakutsk and Bolsheretsk cannot be materially less than $27^{\circ} 3'$: it follows, that the longitude of Bolsheretsk from Ferro cannot be much short of $174^{\circ} 24'$. How then are we to find room for so considerable an error as 29 degrees, which, according to M. Engel, or even of 11° , which, according to M. Vaugondy, is chargeable on the Russian geographers in determining the longitude of Kamtschatka?

From the isle of Ferro the longitude of

Yakutsk is	-	-	$147^{\circ} 0' 0''$
Okhotsk	-	-	$160^{\circ} 7' 0''$
Bolsheretsk	-	-	$174^{\circ} 13' 0''$
Peter and Paul	-	-	$176^{\circ} 10' 0''$

As no astronomical observations have been made farther to the east than the haven of Peter and Paul, it is impossible to ascertain with precision the longitude of the north-eastern promontory of Asia. It is nevertheless apparent, from Beering's and Synd's coasting voyages towards Tshukotskoi-nofs, as well as from other expeditions to those parts by land and sea, that the coast of Asia, in lat. 64° , stretches at least $23^{\circ} 2' 30''$ from port Peter and Paul, or to about 200° longitude from the isle of Ferro. But the accuracy of Krassilnikof's observations at the harbour of Peter and Paul has since been confirmed by captain Cook, who places that harbour in lat. $53^{\circ} 1'$, longit. $158^{\circ} 36'$ east from Greenwich; Krassilnikof stating it to lie in lat. $53^{\circ} 0' 38''$, long. $176^{\circ} 10'$ from Ferro, or $158^{\circ} 35'$ from Greenwich. The difference therefore is only twenty-two seconds in the latitude,

and one minute in the longitude. Consequently, the assertion of Vaugondy, that the Russians had advanced the peninsula of Kamtschatka eleven degrees too much to the east; and of Engel, who supposes that error to be no less than twenty-nine degrees, is manifestly refuted; and the accuracy of the astronomical observations made by the Russian geographers is now incontestably ascertained.

The next point of land observed by our English navigators, was that promontory, by Beering called Tshukotskoi-nofs, a name adopted by captain Cook, but which is sometimes denominated Anadyrskoi-nofs, from its situation on the bay of the river Anadyr. The application of the term Tshukotskoi-nofs to this promontory, may perhaps occasion some confusion to future navigators and geographers, as that denomination has been usually given, and ought therefore to be appropriated to the eastern extremity of Asia, the east cape of Cook.

From Anadyrskoi-nofs, laid down by the English in lat. $64^{\circ} 13'$, under the appellation of Tshukotskoi-nofs, to cape Serdze-kamen, in lat. 67° , the utmost extent of Beering's navigation to the north, captain Cook does justice to the memory of Beering, by observing, that "he has here delineated the coast very well, and fixed the latitude and longitude of the places better than could be expected from the methods he had to go by." (Cook's Voyage, vol. ii. p. 474.)

Within this track our great navigator has corrected the errors of the Russian charts, and ascertained the position of the real Tshukotskoi-nofs, which Müller had erroneously conjectured to lie above the 70th degree of latitude. He gives the name of East-cape to this great promontory of the Tshuktsi, proves it to be the most eastern extremity of Asia, and fixes its latitude in $66^{\circ} 6'$, and longit. $190^{\circ} 22'$; incontestably shewing, that the Russians were not wrong in asserting that the north-eastern extremity of Asia stretched beyond the 200th degree of longitude from the isle of Ferro, or 182° from Greenwich.

That remarkable expedition of Deshnef, in which, according to professor Müller, he sailed from the mouth of the Kovyma, weathered Tshukotskoi-nofs, or East-cape, and was shipwrecked in the sea of Kamtschatka, was not only the earliest, but the most important of the Russian enterprises in these latitudes; as it first ascertained the separation of the two continents.

Deshnef's description of the north-eastern cape agrees in several material circumstances with that of the same promontory given by captain Cook. According to Deshnef, it "consists entirely of rocks." Cook says, that "it shews a steep rocky cliff next the sea; and at the very point are some rocks like spires. The land about this promontory is composed of hills and vallies; the former terminate at the sea in steep rocky points, and the latter in low shores. The hills seemed to be naked rock." (Voyage, vol. ii. p. 472.)

Deshnef adds, that, on the coast near the promontory, the natives had reared a "pile resembling a tower, with the bones of whales." Cook likewise noticed these piles as very common on the coast of the Tshuktsi. "Over the dwelling stands a kind of sentry-box, composed of the large bones of large fish;" and again, "near the dwellings were erected stages of bones, such as before described." (Ib. p. 451. 472.) Cook also coincides with Deshnef in placing two islands directly opposite to the promontory; and captain King confirms another assertion of the Russian navigator, that the passage from the same promontory to the mouth of the Anadyr, may with a fair wind be performed in seventy-two hours. (Id. vol. iii. p. 264.)

It has been objected to Deshnef's narrative, that Cook and Clerke were, in two successive years, prevented by the ice from pushing forward into the Frozen ocean; but in reply to this, it should be observed, that Deshnef failed in a small vessel, more easily worked than the English ships; and that the year in which he passed round is represented as more than usually free from ice. The season also in which Deshnef doubled the great Siberian promontory, probably was more favourable to navigation in the Frozen sea, than the time of year adopted by the English. For, though he failed on the first of July, or June 30, O. S. yet he appears not to have arrived in the Eastern ocean till towards the end of September. Shortly after Anikudino's shipwreck on Thukotskoi-nofs, Deshnef mentions that he landed on the first of October, or September 20, O. S. and skirmished with the Thuktsi. Consequently, from the length of the interval between the day of his departure from the mouth of the Kovyma, to his entrance on the Eastern ocean, it may reasonably be inferred that he was waiting for an opportunity of getting through the ice, which he at length effected. Whereas Cook quitted that dreary region on the 29th of August; and Clerke so early as the month of July. The middle and the latter end of September are generally esteemed the most proper periods for navigating the Frozen ocean.

The sole aim of Deshnef being to sail from the Kovyma to the Anadyr, it was not incompatible with his plan to continue on the coast, and to persevere in expecting a favourable occasion for effectuating his purpose, without exposing himself to those difficulties and dangers which seamen from more distant quarters must necessarily experience. Whereas the grand design of the English navigators being to ascertain the practicability of a north-eastern passage, and having incontrovertibly determined that important question in the negative, they accomplished the primary object of their expedition. They could not therefore, consistently with their views and instructions, by delaying their departure from those frozen regions, expose themselves to the hazard of being hemmed in by the ice, merely for the sake of evincing the possibility of getting round to the Kovyma.

These circumstances seem to prove that Deshnef actually performed this voyage; yet as he neither made any astronomical observations, nor traced a chart on the coast, his expedition, though it decided the long controversy concerning the separation of the two continents, contributed, however, nothing towards an accurate knowledge of the north-eastern extremity of Asia, for which we are indebted to captain Cook alone. (See Coxe's Russian Discoveries.)

In the year 1785, capt. Billings, an Englishman in the Russian service, was sent by Catharine II. on a voyage of discovery into those parts; and the results of his observations are found to agree with those of captain Cook, placing the easternmost extremity of Asia in lat. 66° 6' and ascertaining its longitude at 190° 22' from Greenwich.

The population of Asia, says Mr. Pinkerton, is by all authors allowed to be wholly primitive and original; if we except that of the Thuktsi, who by the Russian travellers and Mr. Tooke are supposed to have passed from the opposite coast of America. A few colonies have migrated from Russia to the northern parts, as far as the sea of Kamtschatka; and well-known European settlements are in Hindostan, and the isles to the south-east; but the first serious attempt to colonize what is deemed a part of Asia, was the recent settlement at Port Jackson. With these and other trifling exceptions, Asia presents a prodigious original population, as may be judged from the following table,

which will be found more clear than any prolix disquisition on the subject.

LINNEÆAN TABLE OF THE NATIONS AND LANGUAGES IN ASIA.

Of the three several appellatives, the first denotes *ordo*, the second *genus*, the third *species*.

1. Assyrians.—Assyrians, Arabians, Egyptians.—Chaldees, Hebrew, &c.

2. Scythians.—Persians, Scythians intra and extra Imaum, &c. Armenians.—(The Parli and Zend are cognate with the Gothic, Greek, Latin, according to sir William Jones. Indian Dissert. vol. i. p. 206. The Pehlavi is Assyrian or Chaldaic. Id. 187, 188. 206.)

3. Sarmats.—Medes and Parthians.—Georgians and Circassians.

4. Seres and Indi.—Hindoos, northern and southern, &c.

5. Sinæ.—Chinese and Japanese.—These have a Tataric form and face; they are probably highly-civilized Tatars, Mongoles, or Mandshurs.

Barbaric Nations from north to south, and according to the degrees of barbarism.

6. Samoyedes, Ostiaks, Yurals, &c.

7. Yakutes.—Yukagirs. (Expelled Tartars, according to Tooke and Lessleps.)

8. Koriaks.—Thuktsi. (From the opposite coast of America. Tooke's Russia. The Yukagirs are a tribe of the Yakutes, around Yakutsk, and both are expelled Tatars. Tooke's View, ii. 80. Lessleps, ii. 312.)

9. Kamtschatdales.—Kurillans.—(These resemble the Japanese.)

10. Mandshures or Tunguses.—Lamutes.—(Ruling people in China.)

11. Mongoles.—Kalmuks.—Soongares, Tungutes, Burats, &c.

12. Tatars or Huns.—Turks, Khafares, Uzes, and Siberians.—Nogays, Bashkirs, Kirghizikaizaki or Kirghize Kaizaks, Teleutes.

After the destruction of Attila's swarms, and the effects of unfortunate inroads, the Huns became subject to the Mongoles, who under Zingis or Chingis khan, Timur, &c. constituted the supreme nation in Asia.—The great share of population which Europe has received from Asia will appear from the following brief statement.

Primitive Inhabitants.

1. Celts.—Irish, Welch, Armoricans.—Ete, Marks, Cornish.

2. Fins (chief god *Jummal*).—Finlanders, Esthonians, Laplanders, Hungarians, Permians or Biarmians, Livonians, Votiaks and Cheremisses, Vogules and Ostiaks.

Colonies from Asia.

3. Scythians or Goths (*Odin*).—Icelanders, Norwegians, Swedes, Danes, Germans, English.—Swiss, Frisic, Flemish, Dutch.

4. Sarmats or Slavons (*Perune*).—Poles, Russians, Kiazaks.—Heruli, Vendi, Lettes.

The inhabitants of France, Italy, and Spain, are also of Asiatic origin; and speak corrupted Roman, which, like the Greek, is a polished dialect of the Gothic, according to sir William Jones, and other able antiquaries. The Heruli, Vendes, and Lettes, used mixed and imperfect dialects of the Slavonic.

Besides these numerous original nations, the Malays and Asiatic islanders constitute another large and distinct class of mankind, with a peculiar speech, in the south of the extensive continent of Asia.

It appears that not above one quarter of Asia was known to the ancients; and this knowledge was little increased till Marco Polo, whose travels became well known in Europe in the fourteenth century, established a memorable epoch in geography, by passing to China, and disclosing the extent of that country, the islands of Japan, and a faint intelligence of other regions, illustrated and confirmed by recent accounts. The wide conquests of the famous Tchingis-khan, commonly called Zingis, in the beginning of the 13th century, first opened the discovery of the distant parts of Asia; the Mongoles, whose sovereign he was, being situated to the east of the Huns, who had before diffused terror over Europe. The primitive seat of the Mongoles was in the mountains which give source to the river Onon; and at a short distance to the south-west was Kara-kum, the first capital of the Mongole empire. The victories of Zingis extended from Cathay, or the northern part of China, to the river Indus; and his successors prosecuted them over Russia, while they made incursions as far as Hungary and Germany. The power of the Mongoles, thus widely diffused, naturally excited an attention, never stimulated by a number of petty barbaric tribes; and at the same time facilitated the progress of the traveller, who, as in Africa at present, had been formerly impeded by the enemies of diminutive potentates. By force of arms the Mongoles also first opened the obscure recesses of Siberia. Sheibani khan, in the year 1242, led a horde of fifteen thousand families into those northern regions; and his descendants reigned in the Tobolsky above three centuries, till the Russian conquest. (Gibbon, xi. 424.) Two European travellers, Carpini and Rubruquis, being commissioned to inspect the power and resources of the new empire of the Mongoles, the latter found at Kara-kum a Persian goldsmith employed in the service of the khan: and by Carpini's relation it appears, that from their brethren in Siberia, the Mongoles had received some intelligence concerning the Samoyedes.

Thus the discovery of Asia, which had lain nearly dormant since the time of Ptolemy, began to revive in the thirteenth century. Yet after the publication of Marco Polo's travels, little was done for two centuries; and the authenticity of his accounts even began to be questioned. From the map of the world by Andrea Bianco, the Venetian, 1440, it sufficiently appears that the discoveries of Polo had, even in his native country, been rather diminished than increased. (See Formalconi, *saggia sulla nautica antica de Veneziani*, Ven. 1783, 8vo.) See also the description of Asia by pope Pius II. who appears not even to have seen the travels of Polo. One man indeed of great mental powers, was impressed with their veracity, and in consequence accomplished a memorable enterprise. This was Christoval Colon, or as we call him, Christopher Columbus; who, led by the relation of Polo, conceived, that as Asia extended so far to the east, its shores might be reached by a short navigation from the western extremity of Europe. In this erroneous idea, when that great man discovered the islands now called the West Indies, he thought that he had arrived at the Zipango of Polo, or Japan; and thus the name of India was absurdly bestowed on those new regions.

After the discovery of America and the cape of Good Hope, the maritime parts and islands of Asia were successively disclosed. Yet the recent voyages of the Russian navigators, of our immortal Cook, and of the unfortunate La Peyrouse, evince that much remained to be done. Concerning the interior of Siberia, scarcely any solid information was had till Peter the Great, after the battle of Pultava, sent many Swedish prisoners into that region; and

Strahlenberg, one of the officers, published an account of Siberia; which, though extremely inaccurate and defective, opened the way to farther intelligence. The knowledge thus obtained was greatly improved and augmented by the well-known journeys of Pallas and the other academicians. Our acquaintance with Asia is still however far from being perfect, especially in regard to Daouria, and other regions near the confines of the Russian and Chinese empires; not to mention central Asia in general, Thibet and some more southern tracts; nor had even the geography of Hindostan been treated with tolerable accuracy, till major Rennell published his excellent map and memoir.

The religions of Asia are various; and the climate admits of every variety, from the equator to the Arctic sea.

Though Asia cannot vie with Europe in the advantages of inland seas, yet, in addition to a share of the Mediterranean, it possesses the Red sea (the Arabian sea), and the gulf of Persia, the bays of Bengal and Nankin, with other gulfs, which diversify the coasts much more than those of Africa or America, and have doubtless contributed greatly to the civilization of this celebrated quarter of the globe.

The Red sea, or the Arabian gulf of antiquity, constitutes the grand natural division between Asia and Africa; but its advantages have been chiefly felt by the latter, which is entirely destitute of other inland seas; Egypt and Abyssinia, two of the most civilized countries in that division, having derived great benefits from that famous gulf, which, from the straits of Babelmandel to Suez, extends about 21° or 1470 British miles; terminating, not in two equal branches, as delineated in old maps, but in an extensive western branch, while the eastern ascends little beyond the parallel of mount Sinai.

The Persian gulf is another noted inland sea, about half the length of the former, being the grand receptacle of those celebrated rivers the Euphrates and the Tigris.

The other gulfs do not afford such strong features of what are properly termed inland seas. But the vast extent of Asia contains seas totally detached, and of a different description from any that occur in Europe or other quarters of the world. Such is the Euxine, and likewise the Caspian, which extends about ten degrees, or 700 miles in length, and from 100 to 200 in breadth. Strabo and Pliny idly supposed this sea to be a gulf, extending from the northern ocean: though Herodotus, many centuries before, had delivered juster notions of it. The Caspian, however, seems, at some remote period, to have spread farther to the north, where the deserts are still sandy and saline, and present the same shells that are found in the Caspian; yet that chain of mountains which branches from the west of the Urals to the north of Orenburg, and reaches to the Volga, must in all ages have restricted the northern bounds of the Caspian. To the east, this remarkable sea, in the opinion of most geographers, extended, in times not very distant, to the Aral. This sea, or lake Aral, a hundred miles eastward of the Caspian, is about 200 miles in length, and about 70 miles in breadth; receiving the river anciently called Iaxartes, more recently the Sirr or Sihon, and the river Gihon, the Oxus of antiquity; both streams of considerable course, flowing from the mountains Belur Tag, or Imaus. The Aral sea being surrounded with sandy deserts, has been little explored; but it is salt, like the Caspian, having many small saline lakes in its vicinity.

Another remarkable detached sea is the Baikal in Siberia, or Asiatic Russia, extending from about the fifty-first to the fifty-fifth degree of north latitude, being about 350 British miles in length, though its greatest breadth is not above 35. The water is fresh and pellucid, yet of a green or sea tinge, commonly

commonly frozen in the latter end of December, and clear of ice in May.

Passing by the other Asiatic seas of inferior note, a few observations may be offered on the remarkable strait that divides Asia from America. This strait, which, as we have already seen, was discovered by Beering, and afterwards by Cook, is about thirteen leagues or near forty miles in breadth. Beering actually passed this strait in 1728, probably in the usual fogs of the climate, without discovering land to the east; but our great navigator gave the name of that Danish adventurer to these straits, when he afterwards explored them with his usual accuracy. On the Asiatic shore is the East-cape; and on the American that called Prince of Wales. The depth of water in the strait is from twelve to thirty fathoms. To the north of these straits the Asiatic shore tends rapidly to the west, while the American proceeds nearly in a northern direction, till, at the distance of about four or five degrees, the continents are joined by solid and impenetrable bonds of ice.

In the Asiatic seas are numerous shoals or sand-banks; but few of them have been described as conducive to human industry.

The chief rivers of Asia are the Kianku and Hoang Ho, the Lena, the Yenisey, and the Oby, streams which rival in the length of their course any others on the globe. Next in consequence are the Amoor, and the Makaung of Laos, if the course be rightly delineated, the Sampoo or Burrampooter, and the Ganges; compared with all which the Euphrates and Indus are but moderate streams.

The Asiatic mountains are reputed not to equal the European in height. The Uralian chain forms one of the boundaries of Europe; and the Altaian ridge may be classed among the most extensive of the globe, reaching from about the seventieth to the hundred and fortieth degree of longitude east from London, or about 5000 miles, thus rivalling in length the Andes of South America. But, as chains of mountains rarely receive uniform appellations, except from nations highly civilized, the Altaian chain, beyond the sources of the Yenisey, is called the mountains of Sayansk; and from the south of the sea Baikal, the Yablonnoy mountains, branches whereof extend even to the country of the Tshukthi, or extreme boundaries of Asia. The chain of Alak may perhaps be regarded as a part of the Altaian, branching to the south; while the Taurus, now known by various names in different countries, was by the ancients considered as a range of great length, reaching from cape Keli-doni, on the west of the gulf of Satalia, through Armenia, even to India: this last chain, however, has not impressed modern travellers with the same idea of its extent. To the south of the Altaian range extends the elevated desert Goby or Shamo, running in a parallel direction from east to west; and the high region of Thibet may be included in this central prominence of Asia. Other considerable ranges of mountains are Bogdo, Khangay, Belur, those of Thibet, the eastern and western Gaults of Hindoistan, and the Caucasian chain between the Euxine and the Caspian.

The Asiatic governments are almost universally despotic; and the very idea of a commonwealth seems utterly unknown to that quarter of the world. The mildest systems are perhaps those found in Arabia. (See Pinkerton's *Modern Geography*, vol. ii.)

Asia, *Proper*, in *Ancient Geography*. Much perplexity has arisen among authors by the diverse acceptations of the term Asia; so as to render it extremely difficult for their readers to know what region was distinctly understood by that appellation; nor is it easy to reconcile the apparent inconsistency between the sacred and profane writers as to the

provinces comprised under this denomination. The ancient geographers divided the vast continent that was known to the Greeks and Romans under the word Asia, first into the Greater and Lesser Asia. The Lesser, commonly termed Asia Minor, comprehended a great number of provinces; but that which included Phrygia, Mysia, Caria, and Lydia, was denominated Asia Proper, or Asia properly so called. Cicero (*Orat. pro. Flacco.*), enumerating the regions contained in Asia Proper, makes no mention of Æolis or Iolia, though undoubtedly a district of it, as being comprehended partly in Lydia and partly in Mysia. Lydia, beside the inland country commonly known by that name, contained also Ionia, lying on the sea side, between the rivers Hermus and Mæander; and Æolis, extending from Hermus to the river Caicus (*Ptol. lib. v. cap. 2.*), or to the promontory Lectum (*Strabo, lib. xii. p. 393.*), the ancient boundary between Troas and the sea-coast of the greater Mysia. Accordingly, Asia Proper comprehended Phrygia, Mysia, Lydia, Caria, Æolia, and Ionia. This tract was bounded, according to Ptolemy, on the north by Bithynia and Pontus, extending from Galatia to Propontis; on the east by Galatia, Pamphylia, and Lycia; on the south by part of Lycia and the Rhodian sea; on the west by the Hellespont, by the Ægean, Scarian, and Myrtoan seas. It lies between the thirty-fifth and forty-first degree of north latitude, and extends in longitude from 55° to 62°.

As Asia Proper is but a part of Asia Minor, so the Lydian Asia is only a part of Asia Proper. Asia, in this acceptance, comprehends Lydia, Æolia, and Ionia; and is that Asia whereof mention is made in the Acts, and the Apocalypse. Aristotle tells us that Smyrna was at first possessed by the Lydians (*Aristot. lib. de poetica apud Plutarch in lib. de vita & poeti Homer.*); and Scylax Coryandensis reckons it among the cities of Lydia, as also Ephesus, Sardis, Philadelphia, and Thyatira, are reckoned by Ptolemy among the cities of Lydia, as is Laodicea by Stephanus. (*Steph. de Urbib.*)

That in ancient times Lydia was called Mæonia, and the Lydians Mæonians, is manifest from Herodotus, Diodorus Siculus, Dionysius Afer, Strabo, Pliny, Stephanus, and others; and that Mæonia was called Asia, is no less plain from Callinus, who flourished before Archilochus, from Demetrius Scephius, contemporary with Crates, and Aristarchus the grammarian, from Euripides, Suidas, the great etymologist, &c.; nay, that Lydia was formerly called Asia is expressly affirmed by the ancient scholiast of Apollonius Rhodius. From whence Lydia borrowed the name of Asia is altogether uncertain; some deriving it from a city of Lydia, seated on mount Tmolus; others from one Asias, king of Lydia, who, according to the Lydians, communicated his name to the whole continent. But, be that as it may, it is certain that Lydia has a better claim to the name of Asia than any other part of that continent.

Asia, in *Modern Geography*, falls into the following divisions: Tartary, China, India, Persia, Turkey in Asia. Tartary is divided into Chinese, Independent, and Russian; Chinese Tartary contains the country of the Mandshu, and that of the Mongole Tartars; Independent Tartary contains the dominions of the khan of the Celäts or Kalmuks, Turkestan, the country of the Ubec Tartars, the Daghestan, Circassia, and the tribes inhabiting mount Caucasus; Russian Tartary contains the governments of Astrakhan and Kazan, and Siberia. China is divided into the northern provinces of Pecheli or Pekin, Changsi, Xensi, Honan, Canton, from east to west, and the southern provinces of Nankin, Chekian, Kiangsi, Fokien, Huquang, Quanton, Quangsi, Queicheu, Yunnan, Suchuen, from east to west. India is

divided into the states of the Great Mogul, comprising the kingdoms of Delhi, Agra, Guzarate, Bengal; the peninsula of India beyond the Ganges, comprising the kingdoms of Vifapoor, Golconda, to the north; Bijnagar, Malabar, in the middle towards the south; the peninsula of India within the Ganges, comprising the kingdoms of Pegu, Tonkeen, Cochinchina; Siam, containing Martaban, Siam, Malacca, from north to south. Persia is divided into the northern provinces of Shirvan, Kilan, Khorazan, from west to east; the middle provinces of Erakatzem, Sablufan, Sitzistan, from west to east; the southern provinces of Klufistan, Fars, Kirman, Makran, from west to east. Turkey in Asia is divided into Natolia or Anatolia, comprising the provinces of Natolia Proper, Amasia, from north-west to east; Karamania, Aladuly, from south-west to east. Syria, comprehending the provinces of Syria Proper, Phœnicia, Palestine, from north to south. Arabia, containing the provinces of Beriara or Arabia Deserta, Barraab or Arabia Petræa, Hyaman or Arabia Felix, comprising Hagia, Theama, Hadramut, Seccer, Oman, Bahraim, Yuhama, from north to south; the provinces of the Euphrates, viz. Diarbek, containing Diarb-k Proper, Erzerum, Yerrack, from north to south; Turcomania, containing Turcomania Proper, the Kûrdistan, from west to east. Georgia, containing Mingrelia, Gurgistan, from west to east. The isles of Japan; Japan, the isle of Xicoco or Tocoesi, Bongo, &c., the isle of Nippon, &c., from north-east to south-west. The Philippine islands; Luçon or Luconia, among which is Manilla, Tandare, Mindanas, &c., from north to south. The Molucca islands; Ternate, the isle of Gilolo, Celebes, isle of Geram, Amboyna, &c., from west to east. The Ladrones; Guan, Tinian, Pagon, &c., from south to north. The Sonda isles; Borneo, Sumatra, under the equator, Java, &c. south of the two former. The Maldive islands, the principal whereof is Male. The number of these is very considerable, but all of them are small. The island of Ceylon, in which are seven kingdoms, the most considerable being that of Candi.

ASIA, in *Ancient Geography*, the name of an island of Ethiopia. Steph. Byz.—A port of the Jews and Phœnicians, on the Red sea. Eusebius.—A lake of Asia; near the Caister. Virgil: *Æn.* l. vii. v. 700.—A town of Asia Minor, in Lydia, situate near mount Tmolus. Suidas.—A burgh or town of Asia, in Sufiana. Ptolemy.—A mountain of Peloponnesus, in Laconia. Pausanias.

ASIA, *Proconsular*, so called because it was governed by a proconsul, comprehended, according to Augustus's distribution of the provinces of the Roman empire, Lydia, Ionia, Caria, Mysia, Phrygia, and the proconsular Hellepont. In the time of Constantine the Great, the proconsular Asia was much abridged, and a distinction was introduced between this and the Asiatic diocese; the former being governed by the proconsul of Asia, and the latter by the vicarius or lieutenant of Asia. The proconsular Asia seems, by the description given of it by Eunapius (in Vit. Maximi.), to have been much the same with the Lydian Asia, which comprehended Lydia, Æolis, and Ionia, and which is the Asia mentioned in Acts, ch. xvi., and including the seven churches of the book of Revelation, ch. ii. and iii. This Lydian Asia was only a part of Asia Proper, or Asia properly so called, which according to Cicero (in Orat. pro Flacco) consisted of four regions, viz. Phrygia, Mysia, Caria, and Lydia. In the reign of Theodosius the elder, who succeeded Valens, the consular Hellepont was taken from the vicarius of Asia, and added to the proconsular Asia; but under Arcadius, the proconsular Asia was abridged of all the inland part of Lydia. However, the southern part of Lydia, lying between the Mæander, and Caister, and the

maritime provinces from Ephesus to Assos, and the promontory Lectum, were left to the proconsular Asia.

ASIA, in *Geography*, an island on the coast of Peru, situate at the distance of seven leagues from Canette on the south-east, and Chilca on the north-west. It is a white island under the shore, about half a league in circuit. S. lat. 13° 6'.

ASIA, in *Mythology*, was one of the nymphs, called Oceanides; and according to Diodorus, the wife of Japetus.

ASIANO, in *Geography*, a town of Italy, in the principality of Piedmont and lordship of Vercelli; four miles south of Vercelli.

ASIANTE, a country of Africa, eastward of the Gold Coast, situated about N. lat. 5° 35' and the same longitude with London.

ASIARCHA, in *Antiquity*, the superintendant of the sacred games in Asia. Montfaucon. Pal. Græc. lib. ii. c. 6. p. 161.

The asiarcha differed from the *Galatarcha*, *Syriarcha*, &c. Some will have the asiarchs to have been persons of rank, chosen in the way of honour, to procure the celebration of the solemn games at their own expence.

As the asiarchs united the magistracy and priesthood, they were entrusted with the care of the temples and sacred edifices; and the expence of the office being considerable, they were selected from persons of great wealth and reputation. In the election of these officers, assemblies were convened in all the towns of Asia at the commencement of the Asiatic year, or about the autumnal equinox. From each of these a deputy was sent to the general assembly of the nation; and of ten persons who were returned to the proconsul, he appointed one to the office of asiarch. The attributes of the asiarch were a crown of gold, with a toga ornamented with gold and purple. This officer existed for some time under the Christian emperors, although they had abolished the sacred games and temples. To these officers there is a reference in Acts, xix. 31. And as they were persons of opulence and dignity, they acted with civility and kindness towards the apostle Paul, in sending a message from the theatre to apprise him of the temper of the people, and to dissuade him from coming thither.

ASIATIC, in a general sense, denotes any person or thing that bears relation to Asia.

ASIATIC, in *Biography*, is a surname given to L. Scipio, the brother of Scipio Africanus, after his defeat of Antiochus king of Syria.

ASIATIC *diocese*, in *Geography*, a part of Asia, which comprehended eight provinces that were governed by the vicarius, or lieutenant of Asia, viz. Lydia, Caria, Phrygia Salutaris, Phrygia Pacatiana, Pamphylia, Lycia, Lycaonia, and Pisidia. Sometimes it is taken in a more strict sense, as distinct from the proconsular Asia, and the provinces under the jurisdiction of the proconsul; and sometimes in a more extensive sense, as comprehending also the proconsular Asia.

ASIATIC *Society*, in the *History of Literary Establishments*. See SOCIETY.

ASIATIC *Style*, in *Rhetoric*. See STYLE.

ASIATICA, in *Entomology*, a species of CHRYSOMELA, found in Siberia. The form is oval; colour brassy-green, very glossy; wing-cases blue. Fabr. Spec. Inf. Gmel. &c.

ASIATICA, an Asiatic species of BLATTA, described by Professor Pallas, It. 3. p. 263. It is of a grey colour, and oblong form; the wings and wing-cases are longer than the body, and narrow or pointed at the end. Gmel. &c.

ASIATICA, a species of SPHEX, found in the island of Antigua,

Antigua. The abdomen is black, with a yellow lunar mark on the first segment. Fabricius, &c.

ASIATICA, in *Ornithology*, a bird of the *MYCTERIA* genus, or *Jabiru*. This is of a large size, white colour, with a black band through the eyes; lower part of the back, quill, and tail feathers, black. Ind. Orn. The bill of this bird is dusky, and the legs pale red. It is a native of the East Indies, and feeds on snails.

ASIATICA, a species of *EMBERIZA*, found in the East Indies, where it is called *GAUR*. We know very little of this bird; it is of a small size, being about four inches and a half in length. Bill pale rose colour; head, neck, back, breast, and belly cinereous, palest beneath; wings and tail brown, with paler edges; legs pale blue. Lath. In the Ind. Orn. it is described specifically, as being of a cinereous colour; wings and tail brown.

ASIATICA, a species of *COLUMBA*, that inhabits India. The colour is greenish ash; head ash; under side of the body white, and a spot of the same on the wings; quill-feathers black with a white exterior margin. The length of this bird is eleven inches; bill bluish at the base, and white towards the tip; tail greenish ash, dusky at the end; legs bluish; claws black. It is called the Indian pigeon. Lath. Ind. Orn.

ASIATICA, a species of *CERTHIA*, or creeper, that inhabits India. It is about four inches in length, and briefly described as being of a deep blue, with brown wings; black bill, and legs of the same colour. Lath. Ind. Orn.

ASIATICUS, a new species of *FALCO*, described by Dr. Latham in the Supplement to his Synopsis of Birds. The length is twenty-one inches; and though smaller, it resembles the common buzzard. The bill is bluish black; breast cream colour, dashed down the shafts with dusky black; belly, thighs, and vent white; quills grey, barred with black; on the secondaries a bar of the same. In his Ind. Orn. this bird is thus specifically described: legs half-downy and yellow; body brown above, beneath white; breast streaked, tail-feathers silvery grey, with five obsolete bands on the exterior ones. Inhabits China, and is called in England the Asiatic falcon.

ASIATICUS, a species of *CAPRIMULGUS*, described by Dr. Latham, Sup. Gen. Syn. under the name of *Bombay Goat-sucker*. It is pale ash colour clouded with black, and ferruginous breast fasciated with ash-colour; a blackish streak on the crown of the head, a pale one on each side of the jaw, and a pale spot on the throat; length eight inches and a half. Inhabits India. In addition to the foregoing specific character, it may be observed, that the plumage of this bird is an elegant intermixture of ash-colour and brown; and that between the legs it is of a pale rufous; quills dusky, barred with rufous; four of the greater quills have a spot of white on the inner web; tail marked in the same manner as the quills, except the two middle ones, which are mottled like the back, and the two outer ones have the ends white for about an inch; the middle toe is greatly pectinated.

ASIATICUS, a species of *TROGON*, in Latham's Ind. Orn. unnoticed by Gmelin. It is green; forehead, crown, and back of the neck red; throat blue, with a red spot; quill and tail feathers black. The length of this bird is nine inches; the red on the forehead is bounded by a white line, and on the crown and neck is bounded below by a white line, and on the sides by a black one; legs green. Inhabits India.

ASIDÆANS. See *CHASIDÆANS*.

ASIGRAMMA, in *Ancient Geography*, a town of India, seated on the Ganges. Ptolemy.

VOL. III.

ASIGRUM, in *Botany*. See *HYPERICUM*.

ASII, in *Ancient Geography*, a tribe or horde of Scythian Nomades, who came from the country beyond the Iaxartes, and deprived the Greeks of Bactria. Strabo, l. xi. p. 779.

ASILIFORMIS, in *Entomology*, a species of *SPHINX*, the wings of which are deeply scalloped and dentated; anterior ones cinereous, with a dark band and black dot upon it; posterior pair red, with a black margin. Inhabits India. Fabricius.

ASILIFORMIS, a species of *MUSCA* (*Syrphus* Fabr.) that inhabits Germany. The thorax is hairy and yellowish; abdomen black; first and second segment whitish. Fabricius, Gmelin, &c.

ASILUS, a genus of dipterous insects in the Linnæan system, the character of which is, that the mouth is furnished with a horny, projecting, straight, bivalve, sucking trunk that is gibbous at the base; and the antennæ filiform. These are the wasp flies of some writers; they prey chiefly on insects, but are very troublesome to cattle.

The species described by Gmelin are numerous; viz. *grossus*, *maurus*, *algius*, *barbarus*, *crabroniformis*, *ephippium*, *æstuans*, *fasciatus*, *barbatus*, *gibbosus*, *ater*, *diadema*, *calidus*, *flavus*, *violaceus*, *gilvus*, *punctatus*, *marginatus*, *plumbeus*, *cayensis*, *teutomus*, *germanicus*, *rufipes*, *maculatus*, *marginellus*, *annulatus*, *stylatus*, *cingulatus*, *nigripes*, *brunneus*, *forcipatus*, *tipuloides*, *cinctus*, *lineatus*, *cyaneus*, *oelandicus*, *morio*, *lusitanicus*, *conopioides*, *linearis*, *cuticiformis*, *villosus*, *pubescens*, *striatus*, *albifrons*, *æstivus*, *nigerrimus*, and *podagricus*; which see respectively. *Algius* has the body entirely brown, and inhabits Africa. Fab. and Gmel. *Æstuans* is a native of North America, is cinereous, and has the three last segments of the abdomen white. Linn. Gmel. *Æstivus* inhabits Europe; the colour is cinereous, with three black lines on the thorax; legs black; flanks testaceous. Schrank. Scopoli describes a variety in which the legs are entirely black.

ASILUS, a species of *ONISCUS*, that inhabits the European ocean. The abdomen is covered with two scales; and the tail is femioval. Linn. Fn. Suec. Fabr. &c. This is *pediculus marinus* of Rondel.

ASINARA, in *Geography*, a small island in the Mediterranean, near the north-west coast of Sardinia, about ten leagues in circumference, is fertile and populous. The mountains abound with wild boars, deer, buffaloes, and falcons. N. lat. 41° 5'. E. long. 8° 30'.

ASINARIA, in *Antiquity*, feasts of the Syracusans, instituted in commemoration of the victory gained by them over Nicias and Demosthenes, the Athenian generals, near the river Asinari, now *Falunera*, from which they took their name.

ASINARII, in *Ecclesiastical History*, an appellation given by way of reproach to the Christians, as well as Jews, from a mistaken opinion, among heathens, that they worshipped an ass. The appellation was originally given to the Jews, and only became applied to the Christians: the Jews were charged with keeping a golden ass's head in the sanctuary of the temple, to which on certain occasions they paid adoration; in memory of a herd of asses, which, in their passing through the wilderness, shewed Moses the way, under a distressing want of water, to a spring. Tacit. Hist. lib. v.

Some had even the impiety to represent Christ with an ass's ears, and one foot hooved, holding a book, with the inscription *Deus Christianorum*, *ὁ οὐρανός*. Crinit. de Honeft. Discipl. lib. i. c. 9. See *ASINUS*.

ASINATA, in *Entomology*, a species of *PHALÆNA* (*Geometra*),

(*Geometra*), about the size of *PHALÆNA chaerophyllata*, or chimney-sweeper moth of the English Aurellans. It inhabits Austria. The wings are greyish, ash colour, and without spots. Fabricius, Gmelin. *Obs.* This is *PHALÆNA griseata* of Wien. Schmettler.

ASINDA, in *Ancient Geography*, a town of India, on this side of the Ganges. Ptolemy.

ASINDO, or ASSIZO, a town of Spain, in Bætica, seated on a mountain, nearly east of Gades.

ASINDUM, a town of Spain, in the country of the Turdetani.

ASINE, a town of Greece, in the Argolide, situate upon the Argolic gulf, north-west of Hermione, and south-west of Epidaurus.—A town of Messenia, south-west of Messene, founded by the Asinæans, after they had been driven from their former city in the Argolide, by the Argives.—A town of the island of Cyprus.—A town of Asia, in Cilicia. Steph. Byz.

ASINELLA, in *Geography*, a river of Italy, in the kingdom of Naples, which runs into the Adriatic near Penac, in the Abruzzo citra.

ASINI, in *Entomology*, a species of *PEDICULUS* that infests the ass. The head is porrected and obtuse; abdomen ovate and striated with brown. Fabricius, Redi, &c.

ASINIUS LAPIS, a name given by some writers of the middle ages to a stone said to be found in those places frequented by the wild ass. See BEZOAR.

ASINUS Pollio, in *Biography*. See POLLIO.

ASINUS, or Ass, in *Zoology*, a quadruped of the HORSE kind, or genus *EQUUS* in the Linnæan system of animals; a native originally of the mountainous deserts of Tartary, of Arabia, Persia, and some other southern parts of the Asiatic continent, and Africa; and at present very generally domesticated throughout most civilized countries.

In point of size, of strength, and of beauty, the varieties of this species, like other domestic animals, have undergone many changes, and differ considerably from each other. Those of the eastern parts of the world, who continue to enjoy the advantages of a climate entirely congenial with their nature, are still observed to possess nearly all that activity, that energetic spirit and beauty of appearance which characterize this animal in a state of independent wildness; they present a race of beings in almost every respect the very reverse of those abject creatures, their degenerate offspring, which we are daily accustomed to see employed in the meanest acts of servitude in the northern parts of Europe. But although the shades of degradation are so much more strongly marked in the latter kinds, than in the rest, all may be definitively traced to a few distinct varieties, and those again to the single species, the primeval stock from which they were at first derived.

The character of the ass, as Linnæus defines it, consists in having the tail bristly at the extremity, and a black cross over the shoulders. To this his editor Gmelin adds, that the hoofs are solid; and that the black cross on the shoulders is peculiar to the male. According to Brisson Quad. it is an *Equus* with long slouching ears, and short mane.

Gmelin divides the species *Asinus* into four varieties, viz. *ferus* α, *asinus silvestris*, *domesticus* β, *mulus* γ, and *binnus* δ. The first is the wild ass, onager of Pliny and other ancient writers; onager, onager, five *asinus silvestris* of Gesner: *equus* (onager) *auriculis longis*, *juba brevi*, *pelle tuberculis parvis* scabra of Brisson; *Pasne sauvage* of Marmol; *af*, and wilder esel of Pallas.—The domestic, or second variety, varying much in different countries, is notwithstanding well known in Europe by the several names of *common ass*, Eng.

Panc, and *Panasse*, Fren. *Asino miccio*, *f. miccia*, Ital. *Asno borrico*, *f. borrica*, Span. *Asno borrico*, *f. asna burra*, Port. *Esel*, Germ. *Eezel*, Dut. *Asna*, Swed. *Asen*, *esel*, Danish. — *Mulus*, or mule, the third variety, it is almost unnecessary to remark, is the hybrid offspring of the male ass with a mare; and *binnus*, the hinny, a similar hybrid product of the male horse with the female ass, and, strictly speaking, ought not to be deemed varieties of the species, *asinus*, but rather monsters, as being out of the course of nature.

Wild asses were perfectly well known to the ancients; they are faithfully described by Pliny and Oppian; and among the sacred writings are frequent allusions to them. They uniformly attracted the notice of travellers in Asia and Africa; and professor Pallas in particular has treated on them with his accustomed accuracy. The appearance both of the wild and tame asses in those parts of the world is altogether striking. "It was with difficulty," says Adanson, when speaking of the asses of Senegal, "that I could recognize this animal, so different did it appear from those of Europe; the hair was fine, and of a bright mouse colour; and the black list that crosses the back and shoulders had a good effect. These were the asses brought by the Moors from the interior of the country." From the best authorities it appears, that in a natural state, the ass has a soft woolly mane; a forehead greatly arched; and ears long, erect, and pointed, particulars in which it differs most obviously from the domesticated kind, which has the ears slouching, and the forehead flattish. The former stands also higher on its limbs, and the legs are more slender in proportion. The colour of the hair is white or silvery grey; the upper part of the face, the sides of the neck, and body, inclining to a straw colour, and the hind part of the thighs the same; the fore part divided from the flank by a white line, which extends quite round from the rump to the tail: the belly and legs are also white; along the very top of the back, from the mane quite to the tail, runs a stripe of bushy waved hairs of a coffee colour, broadest above the hind part, and growing narrower towards the tail; another of the same colour crosses it at the shoulders, and forming a similar mark to that by which the tame ass is distinguished. This is peculiar to the male, and is bounded on each side by a line of white. Its winter coat is very fine, soft, and silky, much undulated, and not unlike that of the camel; greasy to the touch, and the flaxen colour more vivid than in the summer. In its summer dress, there are certain shaded rays that mark the sides of the neck, pointing downwards. These animals inhabit the dry and mountainous parts of the deserts of Great Tartary, but not higher than lat. 48°. They are migratory, and arrive in vast troops, to feed during the summer, in the tracts to the east and north of lake Aral. About autumn they collect in herds of hundreds, and even thousands, and direct their course towards the north of India, to enjoy a warm retreat during winter. But they more usually retire to Persia, where they are found in the mountains of Casbin, and where part of them remain during the whole year. According to Barbago, they penetrate even into the southern parts of India, to the mountains of Malabar and Golconda. The Kirgisees and Arabs hunt them, or take them in snares, for the sake of their flesh. At first when the animal is killed, the meat is hot and unfavourable; but if kept two days after it is boiled, it becomes excellent. The flesh of wild asses, it is well known, was esteemed an article of food among the ancient Romans.

The wild ass feeds chiefly on the most saline or bitter plants of the desert, as the *kalis*, *atriplex*, *chenopodium*, &c. and also prefers the saltiest and most brackish water to that which is fresh. Of this the hunters are aware, and usually station

station themselves near the ponds to which they resort to drink. Their manners greatly resemble those of the wild horse. They assemble in troops under the conduct of a leader, or sentinel; and are extremely shy and vigilant. They will however stop in the midst of their course, and even suffer the approach of man at that instant, and then dart off with the utmost rapidity. They have been at all times celebrated for their swiftness. Their voice resembles that of the common ass, but is shriller.

The Persians catch these animals alive for the sake of domesticating them, or improving the breed of tame asses: they sink, for this purpose, pits of a convenient size and depth, which they half fill with plants, both as a temptation to the creature, and to break its fall. The breed of asses in such high esteem in the east, is produced by crossing the tame kind with the ass reclaimed from a state of wildness. These animals were anciently found in the Holy Land, Syria, Arabia Deserta, Mesopotamia, Phrygia, and Lycæonia; but they rarely occur in those parts at this time; and seem to be almost entirely confined to Tartary, some parts of India, and Africa.

It is said, that neither asses nor horses were found in America, although the climate of South America is perfectly adapted for them. Those which the Spaniards transported from Europe, and left in various parts of the New Continent, have greatly multiplied, and are found in troops in a state of nature at this period.

The excellencies and defects of the common or domestic ass have amply engaged the lively pens of several descriptive writers on the history of animals; and of none with more happy effect than those of the eloquent Buffon, and the ingenious abbé la Pluche: of the latter we shall speak hereafter: the former after entering minutely into a comparison between the horse and the ass, and endeavouring to prove that the two species are distinct (a fact which cannot well be doubted), concludes in a style of language so beautiful, so animated, and well calculated to enforce the tenor of his preceding arguments, that we cannot refrain inserting some few extracts from it.

"The ass is then an ass," says Buffon, "and not a horse degenerated, a horse with a naked tail. The ass is neither a stranger, an intruder, nor a bastard; he has, like other animals, his family, his species, and his rank; his blood is pure and untainted, and although his race is less noble, yet it is equally good, equally ancient, with that of the horse. Why then is there so much contempt for an animal so good, so patient, so steady, and so useful? do men despise, even among animals, those which serve them best, and at the smallest expence? We educate the horse, take care of, instruct, and exercise him, whilst the ass is abandoned to the power of the lowest servant, or the tricks of children; so that instead of improving, he must lose by his education, and if he had not a fund of good qualities, he would certainly lose them by the manner in which he is treated. He is the sport of the rustics, who beat him with staves, abuse him, overload him, and work him beyond his strength. We do not consider that the ass would be in himself, and, with respect to us, the most beautiful, best formed, and most distinguished of animals, if there were no horses in the world; he, however, holds the second, instead of the first rank, and it is from that only that he appears to be of no value. It is comparison alone degrades him; we look at, and give our opinions, not of himself, but comparatively with the horse. We forget that he is an ass, that he has all the qualities of his nature, all the gifts attached to his species, and only think of the figure and qualities of the horse, which are wanting in him, and which he ought not to have.

"He is naturally as humble, patient, and quiet, as the horse is proud, ardent, and impetuous; he suffers with constancy, and perhaps with courage, chastisement and blows; he is moderate both as to the quantity and quality of his food; he is contented with the hardest and most disagreeable herbs, which the horse, or other animals, will leave with disdain; he is very delicate with respect to his water, for he will drink none but the clearest, and from rivulets which he is acquainted with; he drinks as moderately as he eats, and does not put his nose in the water through fear, as some say, of the shadow of his ears; as care is not taken to comb him, he frequently rolls on the grass, thistles, and in the dust; without regarding his road, he lies down and rolls as often as he can, and seemingly to reproach his master for the little care he takes of him, for he never wallows in the mud or in the water; he even fears to wet his feet, and will turn out of his road to avoid it; his legs are also drier and cleaner than those of the horse; he is susceptible of education, and some have been seen sufficiently disciplined for a public show."

"When young, they are sprightly, handsome, light, and even graceful; but they soon lose those qualities, either from age or bad treatment, and become slow, stubborn, and headstrong. The ass is ardent in nothing but love; or rather when under the influence of that passion, he is so furious that nothing can restrain him: he has been known to exhaust himself by excessive indulgence, and die some moments afterwards. As he loves with a kind of madness, he has also the strongest attachment to his progeny. Pliny assures us, that when they separate the mother from her young, she will go through fire to recover it. The ass is also strongly attached to his master, notwithstanding he is usually ill-treated; he will scent him at a distance, and distinguish him from all other men. He also knows the places where he has lived, and the ways which he has frequented. His eyes are good, and his smell acute, especially with regard to females; his ears are also excellent, which has contributed to his being numbered among timid animals, who, it is pretended, have all long ears, and the hearing extremely delicate. When he is overloaded, he shews it by lowering his head, and bending down his ears: when greatly abused, he opens his mouth, and draws back his lips in a most disagreeable manner, which gives him an air of derision and scorn. If his eyes are covered, he remains motionless; and when he is laid down, and his head so fixed, that one eye rests on the ground, and the other being covered with a piece of wood, he will remain in that situation without endeavouring to get up. He walks, trots, and gallops like the horse, but all his motions are smaller and much slower. He can however run with tolerable swiftness, but he can hold it only for a small space, and whatever pace he uses, if hard pressed, he is soon fatigued."

"The horse neighs, but the ass brays; which he does by a long, disagreeable, and discordant cry, by alternative discords of sharps and flats. He seldom cries but when he is pressed by love or appetite. The she-ass has her voice clearer and more shrill." Buff.

"I confess," says the abbé la Pluche, "that the ass is not master of very shining qualities; but then he enjoys those which are very solid. If we resort to other animals for distinguished services, this at least furnishes us with such as are most necessary. His voice is not altogether melodious, nor his air majestic, nor his manners very lively; but then a fine voice has very little merit with people of solidity. With him the want of a noble air hath its compensation in a mild and modest countenance; and instead of the boisterous and irregular qualities of the horse,

which are frequently more incommodious than agreeable, the behaviour of the ass is entirely simple and unaffected; no supercilious and self-sufficient air. He marches with an uniform pace, and though he is not extraordinarily swift, he pursues his journey for a long time, and without intermission. He finishes his work in silence, serves you with a steady perseverance, and discovers no ostentation in his proceedings, which is certainly a considerable accomplishment in a domestic. His meats require no preparation, for he is perfectly well contented with the first thistle that presents itself in his way. He does not pretend that any thing is due to him, and never appears squeamish or dissatisfied: he thankfully accepts whatever is offered him: he hath an elegant relish for the best things, and very civilly contents himself with the most indifferent. If he happens to be forgotten, or is fastened a little too far from his fodder, he intreats his master, in the most pathetic language he can utter, to be so good as supply his necessities. It is very just that he should live, and he employs all his rhetoric with that view. When he has finished his expostulations, he patiently awaits the arrival of a little bran, or a few withered leaves; and the moment he dispatches his meal, he returns to his business, and marches on, without a murmur or reply. His occupations have a tinge of the meanness of those who set him to work; but the judgments that are formed, both of the ass and his master, are equally partial. The employments of a judge, a man of consequence, and an officer of the revenue, have an important air, and their habit imposes on the spectators: on the contrary, the labour of the peasant has a mean and contemptible appearance, because his dress is poor, and his condition despised. But we really make a false estimate of these particulars. It is the labour of the peasant which is most valuable, and alone truly necessary. Of what importance is it to us when a manager of the revenue glitters from head to foot with gold; we have no advantage from his labours. I confess, judges and advocates are, in some measure, necessary; but they are made so by our folly and misbehaviour; for they would be no longer wanted, could we conduct ourselves in a rational manner. But, on the other hand, we could on no account, and in no season or condition of life, be without the peasant and the artisan. These people may be considered as the souls and sinews of the community, and the support of our life. It is from them we are constantly deriving some accommodations for our wants. Our houses, our habits, our furniture, and our sustenance, rise out of their labours. Now what would become of your vine-dressers, gardeners, masons, and the generality of country people, that is to say of two-thirds of all mankind, if they were destitute of either men or horses to convey the commodities and materials they employ and manufacture? The ass is perpetually at their service: he carries fruit, herbs, coal, wood, bricks, tiles, plaster, lime, and straw. The most abject offices are his ordinary lot, and it is a singular advantage to this multitude of workmen, as well as ourselves, to find a gentle, strong, and indefatigable animal, who, without either expence or pride, replenishes our cities and villages with all sorts of commodities. A short comparison will complete the illustration of his services, and in some measure raise them out of their obscurity. The horse very much resembles those nations who are fond of glitter and hurry; who are perpetually singing and dancing, and extremely studious to set off their exterior, and mix gaiety in all their actions. They are admirable on some distinguished and decisive occasions; but their fire frequently degenerates into romantic enthusiasm; they fall into wild transports; they exhaust themselves, and lose the most favourable conjunctures for want of

management and moderation. The ass, on the contrary, resembles those people who are naturally heavy and pacific, whose understandings and capacity are limited to husbandry or commerce, and who proceed in the same track without discomposure, and complete, with a positive air, whatever they have once undertaken."

Of all animals that are covered with hair, it is believed the ass is the least subject to vermin; and the authors of the *Encyclopædia Britannica* have even ventured to say, that it is never troubled with lice. This opinion is altogether erroneous, and the more unaccountable, since a slight acquaintance with the entomological writings of Redi, of Linnaeus, Fabricius, and several others, might have convinced them that it is not only infested with lice, but even with a species peculiar to itself, and for that very reason named *asini*, or louse of the ass. *Pediculus asini*, Red. Exp. 21. *Pediculus asini*, Linn. *Pediculus asini*, capite porrecto obtuso abdomine ovato fusco striato, Fabr. &c. The skin of the ass is extremely hard and very elastic, and is used for various purposes; such as to cover drums, make shoes, or parchment. It is of the skin of this animal that the orientals make the *sagri*, or, as we call it, shagreen.

At two years and a half old, the first middle incisive teeth fall out, and the others on each side soon follow; they are renewed at the same time, and in the same order as those of the horse. The age of the ass is also known by his teeth in the same manner. From the age of two years and a half the ass is capable of procreating its kind, and the female still earlier. The females are in heat in May and June, which, when pregnant, soon goes off. In the tenth month, milk is found in her dugs, and she brings forth in the twelfth, and very rarely has more than one foal. Seven days after she is capable of again receiving the male. At the end of five or six months the foal may be weaned; and it is even necessary, if the mother be again pregnant. The stallion ass should be chosen from the largest and strongest of his species; he must at least be three years old, but should not exceed ten; his legs should be long, his body plump, head long and light, eyes brisk, nostrils and chest large, neck long, loins fleshy, ribs broad, rump flat, tail short, hair shining, soft to the touch, and of a deep grey.

The ass, like the horse, is three or four years in growing, and lives also like him twenty-five or thirty years; it is said the female lives longer than the male; but perhaps this happens from their being often pregnant, and at those times having some care taken of them, instead of which the males are constantly worn out with fatigue and blows. They sleep less than the horse, and do not lie down to sleep, except when they are exceedingly tired. The male ass also lasts much longer than the stallion; the older he is, the more ardent he appears; and, in general, the health of this animal is much better than that of the horse; he is less delicate, and not nearly so subject to maladies.

There are among asses, as among horses, different races, though they are much less known, because they have not been taken the same care of, or followed with the same attention. Travellers inform us, that there are two sorts of asses in *Perù*, one of which, being slow and heavy, is used for burdens; and the other is kept like horses for the saddle. The latter have smooth hair, carry their head well, and are much quicker in their motion; but when they ride them they sit nearer the buttocks than when on horseback. They are dressed like horses, and like them are taught to amble; and they cleave their nostrils to give them more room for breathing. According to Dr. Ruffel, there are two sorts in *Syria*, one of which are like ours, and the other

very large, with remarkable long ears; but both kinds are employed for the purpose of carrying burdens.

The wild mule, the *hemonius* of Pallas, has no claim to consideration in this place. It constitutes a distinct species of *equus* from the species *asinus*, in Gmelin's arrangement, under the name assigned to it by Pallas; and will be noticed hereafter in the article *HEMONIUS*. The common mule, engendered between the male as and mare, is much cultivated in Spain, and is little inferior in size to its female parent.

The as was one of the unclean animals under the Jewish law, as it did not chew the cud; and it prohibited coupling an as with an ox for draught: Lev. xi. 26. The Jews were accused by the Pagans of worshipping the head of an as. See *ASINARIUM*. The author of this calumny seems to have been Appion the grammarian; for he affirmed (Josephus, contra Appion, l. ii.) that the Jews kept the head of an as in the sanctuary; and that it was discovered there when Antiochus Epiphanes took the temple, and entered into the most holy place. Suidas also says (in *Damocrito* and in *Juda*) that Damocritus, or Democritus, the historian, averred, that the Jews adored the head of an as, made of gold, and sacrificed a man to it every three or every seven years, after having first cut him in pieces. Plutarch (Sympo. l. iv. c. 5.) and Tacitus (Hist. l. v.) seem to have been imposed upon by this slander. They believed that the Hebrews adored an as, from gratitude for the discovery of a fountain by one of these animals, at a time when they were exceedingly fatigued and parched with thirst in the wilderness. The same absurd idolatrous worship was imputed by the heathens to the Christians. The Cæcilius (apud Minut.) says, "Audio Christianos turpissimæ pecudis asini caput consecratum inepta nescio quam perfusione venerari." To the same purpose Tertullian tells us (Apolog. c. 16.), that some enemies to the Christians exposed to public view a picture, representing a person with a book in his hand, dressed in a long robe, with as's ears, and one foot like that of an as, upon which was inscribed, "The God of the Christians has an as's hoof." Learned Christians have attempted to investigate the origin of this calumny. The report of the Jews worshipping an as, might originally have been derived from Egypt; to this country it is traced by Tanaquil Faber, who deduces it from the temple in Egypt called Onion, derived, as it is supposed, from *Onos*, an as. To this purpose it may be added, that the Alexandrians hated the Jews, and were much addicted to raillery and defamation. And they might have been informed, that the temple Onion, at Heliopolis, was named from Onias, the high-priest of the Jews, who built it in the reign of Ptolemy Philometor and Cleopatra, A. M. 3854, ante Christ. 150. Joseph. l. xiii. c. 6. Bochart is of opinion (De Animal. Sacr. l. ii. c. 18.) that the error took its rise from a passage of scripture, "The mouth of the Lord hath spoken it," in the Hebrew פִּי-יְהוָה, *pi-Jehovah*, or *pi-Jeo*. Hence, as *pieo*, in the Egyptian language, signifies an as, the Alexandrian Egyptians, hearing the Jews often pronouncing the word *pieo*, might believe that they called on their god, and thence infer that they adored an as. Omitting other conjectures, we shall add, that M. Le Moine supposes, that the golden urn containing the manna, which was preserved in the sanctuary, was taken for the head of an as, and that the omer, or assarion, of manna, might have been confounded with the Hebrew *hamor*, which signifies an as. Calmet.

ASINUS Piscis, in *Ichthyology*, a name given by some old writers, to the common haddock. It was also called *onos*. Willughby, &c.

ASIO, in *Ornithology*, a species of *STRIX* or owl, described

by Linnæus, the body of which is brown above, and white beneath; and the wings marked with five white dots. This is *le petit duc de la caroline* of Brisson, *little owl* of Catesby, *red owl* of Pen. Arct. Zool. and *red-eared owl* of Latham. Its native place is North America.

Catesby says it is about the size of a jackdaw. The bill and iris are of a saffron colour; tail brown; edge of the bastard wing whitish; on the quills a few white spots; legs covered to the toes with light brown feathers; toes brown; claws black. Buffon seemed to imagine this bird might be only a variety of the long-eared and American owls, both of which he deemed the same species.

ASIO, is also a name given by Aldrovandus to the Italian eared-owl, and synonymous with *otus*: *asio* five otus. Aldr. Ray applied the same name to the long-eared owl or horn-owl of Willughby and Albin, and *strix otus* of Linnæus.

ASIONGABER. See *EZIONGABER*.

ASIOTÆ, in *Ancient Geography*, a people of Asia, in Scythia, on this side of Imaüs. Ptolemy.

ASIREF, in *Geography*, a town of Persia, on the south of the Caspian sea, in the province of Taberistan, eleven leagues east of Ferabad.

ASISARATH, in *Ancient Geography*, a town of Africa, in Mauritania Cæsariensis, between the rivers Gulus and Ampagus. Ptolemy.

ASISIA, a town of Liburnia, the *Assesia* or *Asseria* of Pliny, now in ruins. The traces of ancient magnificence discernible at Podgraje, the seat of Assia, are numerous. Among the Liburnian cities which attended the congress or diet of Scardona, Pliny mentions the free Asserians, who created their own magistrates, and were governed by their own municipal laws, and who were of course more opulent and powerful than their neighbours. The walls of this city appear to have measured in circumference 3600 Roman feet, and to have been constructed with Dalmatian marble, some pieces of which are of large dimensions, and brought from a considerable distance.

ASISIUM, or *ASSISIUM*, now *Affisi*, a town of Italy, in *UMBRIA*, was a Roman municipium, and situated to the east of Arna. Pliny mentions the *Assinates*. See *ASSISI*.

ASITCHOU ACHASHISH, in *Ornithology*, the name by which a species of grosbeak is known in Hudson's bay; and which Dr. Latham supposes to be the white-winged crossbill of his General Synopsis.

ASITIA, in *Medicine*, a loss of appetite, from *α*, privative, and *σιτος*, food. A symptom which occurs in numerous diseases.

ASIUS, in *Entomology*, a species of *PAPILIO* (*Eq. Tro.*) that inhabits South America. The wings are tailed, black, with a common white band; base and tip of the posterior pair beneath spotted with red. Fabricius.

ASKA, in *Geography*, a river of Japan.

ASKER, in *Zoology*, a name used in some parts of England for the water-newt or *esl*.

ASKER-MOKREM, in *Geography*, a town of Asia, on the eastern bank of the Tigris, in the Arabic Irak; called also *Sermearai*.

ASKERSUND, a town of Sweden, in the province of Nericia, on the Wetter sea, five miles from Orebro.

ASKEYTON, a market, and, till the union, borough town of the county of Limerick, in Ireland, seated on the small river Deel, near its junction with the Shannon; famous for its castle built by the earl of Desmond, and for one of the most beautiful and perfect abbeys in Ireland. Distance from Dublin 110½ miles. Long. 8° 54' W. Lat. 52° 34' 30" N.

ASKRIG,

ASKRIG, a town of England, in the north riding of Yorkshire, beautifully situated on the banks of the river Ure, at the upper extremity of Wensley dale. It has a weekly market on Thursday: distant 247 miles north from London.

ASLA, a river of Spain, on the northern coast, which falls into a bay in the bay of Biscay, where it forms a good harbour to the east of cape Pinas.

ASLANI, in *Comm rec*, a name given to the Dutch dollar, current in most parts of the Levant. The word is also written corruptly, *assilani*. It is originally Turkish, and signifies a lion, which is the figure stamped on it. The Arabs taking the figure of a lion for a dog, called it *abuf-keth*. The aslani is silver, but of a base alloy, and oftentimes counterfeited. It is current for 115 or 120 aspers. See **ASPER**.

ASLAPATH, in *Geography*, a town and district of Asia, in Armenia, near Nackhivan, on the banks of the Aras. It is inhabited by Armenians; and the women are said to be so beautiful, that the king of Persia supplies his seraglio from this place.

ASLING, or **JESSENIZE**, a town of Germany, in Carinola, sixteen miles S. S. W. of Clagenfurt. In this town, which is not far from the river Sau, is dug a fine marble; and near it are lead furnaces, and other works, in which considerable quantities of iron and steel are melted.

ASMER, a small town of Hindoostan, in the states of the Mogul, south-west of Agra, and in the extremity of the province of Bando, called also Asmer.

ASMEROEA, a mountain of Asia, in the country of the Seres, inhabited by a people called Asmiræans, who are dispersed through the province of Cataja, a part of Tartary.—Also, a town of Asia, in the same country, according to Ptolemy.

ASMODAI, in *Mythology*, the name given by the Jews to the prince of demons; and, according to R. Elias, the same with Samael.

ASMONEANS, in *Ancient History*, the name given to the **MACCABEES**, the descendants of Mattathias, who, according to Josephus, was the grandson of Asmonæus; though others derive the appellation from mount Asamar, placed by Josephus in the midst of Galilee, near Sephoris; and others again consider it merely as a title of honour given to Mattathias and his descendants, alleging that *chafchmanim* signifies in Hebrew, *princes*. However this be, the family of the Asmoneans became very illustrious in the latter period of the Hebrew commonwealth, and possessed the supreme authority and the high-priesthood from the commencement of the government of Judas Maccabeus to Herod the Great, during a period of 129 years, or 126 years, according to Josephus, who reckons from the time in which Judas was established in the government by his peace with Antiochus Eupator, three years after he first assumed it. It was the practice of the Asmonean princes to impose their religion upon all the countries which they conquered, leaving to the vanquished no other choice, but either to become Jews, or else to have their dwellings demolished, and to seek new habitations.

ASMURA, or **ASMURNA**, in *Ancient Geography*, a town of Asia, in the interior of Hyrcania. N. lat. 39° 30'. Ptolemy.

ASNAH, in *Geography*. See **ESNÉ**.

ASNAUS, in *Ancient Geography*, a mountain of Europe, in Macedonia, between which and Oeropus was a valley, in which flowed the river Oéas.

ASNEN, in *Geography*, a lake of Sweden, in the pro-

vince of Smoland, about North lat. 56° 36'. East longitude 14° 48'.

ASNID, a town of Asia, in the kingdom of Candahar, 23 leagues north of Salem.

ASNIERES, a town of France, in the department of the Upper Vienne, and chief place of a canton in the district of Bellac, 10 miles north-west of Bellac.

ASO, a town of Japan, in the province of Simood-fuke.

ASODES, in *Medicine*, a term applied to fevers accompanied with anxiety and oppression about the stomach and præcordia. It is derived from *ασω*, which, in its primary sense, means a loathing of food; but which is used by Hippocrates, and other ancient physicians, to denote great uneasiness and restlessness, whether with or without nausea. It is sometimes written *asfodes*.

ASOLA, in *Geography*, a town of Italy, in the territory of Brescia, on the river Chiese; which was formerly a fortified place, belonging to the republic of Venice.

ASOLO, a town of Italy, in the district of Treviso, situated on a mountain at the source of the river Musona; small, but well-peopled. N. lat. 45° 49'. E. long. 12° 2'.

ASONA, a river of Italy, in the marquissate of Ancona; which rises in the Apennines, on the frontiers of Umbria, and runs into the Adriatic sea, ten miles south-east of Fermo.

ASOPH. See **AZOF**.

ASOPIA, in *Ancient Geography*, a country of Peloponnesus, in Sicyonia. Strabo.

ASOPUS, a town of Laconia, in which was a temple of Minerva Cyparissensis, south-east of Cyparissa. At the distance of twelve stadia was a temple of Æsculapius, surnamed *Philolaus*, the friend of the people. The citadel is now standing, and called by the sailors *Castel Rampano*.—Also, a river of Bœotia, which had its source in mount Cithæron, north-west of Plataea; and passing east by north of this city, discharged itself into that part of the sea which separated the isle of Eubœa from the continent over against Eretria, now called *Alope*.—Also, a river of Sicyonia, which rose to the south-west, on the frontiers of Arcadia, near mount Cyllene, ran east of Sicyone, and discharged itself into the gulf of Corinth.—Also, a river of Greece, in Thessaly, which had two sources in that part of mount Octa that was contiguous to mount Pindus, and running eastward, emptied itself into the Maliac gulf, north of Thermopylae.—Also, a river of Asia Minor, which watered the town of Laodicea upon the Lycus. Pliny.

ASOTUS, in *Ichthyology*, a species of **SILURUS** found in Asia. It has a single dorsal fin, and four cirri at the mouth, two on the upper and two on the lower jaw. The teeth of this kind are numerous; the dorsal fin is destitute of spinous rays; first ray of the pectoral fin is serrated; and the anal fin is long, and connected with the tail.

ASOUPAS, in *Geography*, a town of Persia, in the province of Farissian, twenty-three leagues north of Schiras.

ASP, or **ASPIS**, in *Zoology*, a species of **COLUBER**, described by Linnæus, as having 146 plates on the belly, and 46 scales on the tail. Dr. Shaw has some doubt concerning the Linnæan asp, but concludes it is the serpent described under the name of aspic by the count de Cèpede, who informs us that it is a native of France, and particularly of the northern provinces of that country. The length is about three feet; the head rather large, and covered with small carinated scales; the scales of the body smaller, but of a similar structure. In the structure of its fangs it resembles the viper, and is said to be equally poisonous. M. Latreille

is not willing to allow this to be the real *Coluber aspis* of Linnæus.

In addition to the specific character of the coluber aspis (taken from the number of abdominal plates, and scales of the tail), Gmelin observes, that the nose is terminated by an erect wart; the body rufous, with figured streaks, which are alternately confluent, and the under side steel-blue dotted with yellow. Dr. Shaw calls his coluber aspis, the rufescent viper, with roundish, alternate, dusky, dorsal spots; subconfluent towards the tail; and states the number of abdominal scuta to be 155, subcaudal scales 37.

The true asp of the ancients seems to be entirely unknown. It is very frequently mentioned by ancient writers, but in such a careless and indefinite manner, that it is impossible to ascertain the species with precision. With the asp it is said the high-spirited princess Cleopatra effected her death, rather than submit herself as a captive to grace the triumphal entry of her conqueror Augustus into Rome. This trait of heroism in that distinguished character is contested. The indications of Cleopatra's having occasioned her death by means of an asp, were only two almost insensible punctures observed in her arm; and it is asserted by Plutarch, that it is unknown of what death she died.

Brown places the popular report of her death in this manner among his vulgar errors. Others are of a different opinion. Some have imagined it was the Egyptian viper, described by Hasselquist, which Cleopatra made use of on that occasion. Mr. Bruce is led to conclude, from various circumstances, that it might be the *cerastes*, *coluber cerastes* of Linnæus.

"I apprehend," says Mr. Bruce, in speaking of the *cerastes*, "this to be the asp which Cleopatra employed to procure her death. Alexandria, plentifully supplied by water, must then have had fruits of all kinds in its gardens: the basket of figs must have come from thence, and the asp or *cerastes* that was hid in them, from the adjoining desert, where they are plentiful to this day; for to the westward in Egypt, where the Nile overflows, there is no sort of serpents whatever that ever I saw, nor, as I have before said, is there any other of the mortal kind that I know in those parts of Africa adjoining to Egypt, except the *cerastes*. It should seem very natural for any one, who, from motives of distress, has resolved to put a period to his existence, especially women and weak persons, unaccustomed to handle arms, to seek the gentlest method to free themselves from the load of life, now become insupportable."—"It is not to be doubted," adds Mr. Bruce still further, "but that a woman, high-spirited like Cleopatra, was also above the momentary differences in feeling; and had the way in which she died not been ordinary and usual, she certainly would not have applied herself to the invention of a new one. We are therefore to look upon her dying by the bite of the *cerastes*, as only following the manner of death which she had seen adopted by those who intended to die without torment. Galen, speaking of the asp in the great city of Alexandria, says, I have seen how speedily they (the aspics) occasioned death. Whenever any person is condemned to die, whom they wish to end quickly and without torment, they put the viper to his breast, and suffering him there to creep a little, the man is presently killed."

Lord Bacon makes the asp the least painful of all the instruments of death; he supposes its poison to have an affinity to opium, but to be less disagreeable in its operation; which does not so well agree with the description of the symptoms given by Dioscorides and others. Immediately after the bite, the sight becomes dim, a sensible tumour arises, and a moderate pain is felt in the stomach. Matthi-

olus adds, that the bite is followed by a stupor of the whole body, paleness, coldness of the forehead, continual yawning, nictitation of the eyelids, inclination of the neck, heaviness of the head, sinking into a profound sleep, and lastly, convulsions. The bite of the asp is said by Aristotle to admit of no remedy. Pliny and Ægineta allow of no other cure, but to cut off the wounded part. Others recommend burning the part, with the internal use of hot alexipharmic medicines. The ancients had a plaster called *δ'ασπιδω*, made of this terrible animal, of great efficacy as a discutient of *strume* and other indurations, and used likewise against pains of the gout. The flesh and skin, or exuvia of the creature, had also their share in the ancient *Materia Medica*.

ASP, or *Aspen-Tree*, in Botany. See *POPULUS*.

ASPA, in *Ancient Geography*, a town of Asia, in Parthia, supposed to be *Ispahan*. Ptolemy.

ASPA BOTA, a town of the Scythians, on this side of Imaus. Ptolemy.

ASPARÆ, a people of Asia, in Serica. Ptolemy.

ASPAGORA, or ASPACORÆ, a county of Asia, in Serica.

ASPAH, in *Geography*, a town of Germany, in the archduchy of Austria, twelve miles east of Steyr.

ASPALATH, ASPALATHUM, in *Pharmacy*, the wood or root of a foreign tree, heavy, oleaginous, somewhat sharp, and bitter to the taste, and of a strong smell, and purple colour.

It is brought from the Canary islands, in long crooked pieces full of knots, externally of a whitish colour, internally of deep yellow, with a reddish cast. Digested in rectified spirit, it gives out pretty readily the whole of its active matter, and tinges the menstruum of a reddish colour; infused in water, it gives out likewise great part of its smell and taste, together with a bright yellow colour; and distilled with water, it gives over slowly and with difficulty, a highly odoriferous essential oil, at first of a reddish colour, becoming reddish with age, and amounting, if the rhodium be good, to about an ounce from 50: the distilled water is likewise impregnated agreeably with the fragrance of the rhodium, and resembles that of damask roses. This oil is used as a perfume for scenting pomatums, &c. in this light only it is now generally regarded. Dr. Lewis (*Mat. Med.*) observes that it promises to be applicable to more important purposes, and bids fair to prove a valuable cordial and corroborant.

The aspalath is otherwise called *lignum Rhodum*, or rosewood, and by some *Cyprus-wood*; the former on account of its sweet smell, or growth in the island of Rhodes; the latter from its being also found in the island of Cyprus. Though some will have aspalathum a different wood from the *lignum Rhodium*.

Aspalath was anciently in much repute as an astringent, strengthener, and drier; but it is now much disused in internal practice.

ASPALATHIS, in *Ancient Geography*, an island of Asia Minor, on the coast of Lycia. Steph. Byz.

ASPALATHUS, in Botany, the name of a thorny shrub in Dioscorides, (from *α* and *σπασω*, because the thorns were not easily drawn out of the wounds they made.) Lin. gen. 860. Reich. 931. Schreb. 1168. Gærtn. t. 144. Juss. 353. Class, *diadelphia decandria*. Nat. ord. *papilionaceæ*, or *leguminosæ*. Gen. Char. *Cal.* perianth one-leaved, five-cleft, divisions acuminate, equal, except that the upper is larger; *Cor.* papilionaceous, banner compressed, ascending, obovate, generally hirsute on the outside, obtuse, with a point; wings lunate, obtuse, spreading, shorter than the banner,

ner, keel bifid, conformable with the wings; *Stam.* filaments ten, united into a sheath, gaping longitudinally at the top, ascending, anthers oblong; *Pist.* germ ovate, style simple, ascending, stigma sharp; *Per.* legume ovate, awnless; *Seeds*, generally two, kidney-shaped.

Eff. Gen. Char. *Cal.* five-cleft, upper divisions largest; *Legume* ovate, awnless, with about two seeds.

Obf. This genus is singular in having several leaves from the same bud, in a shrubby plant.

Species, 1. *A. spinosa*, thorny aspalathus. *Genistella*, &c. *Breyn. Cent. t. 26. Pluk. Phyt. t. 297. f. 6.* "Leaves fascicled, linear, naked, surrounding a gummeous spine." Flowers lateral, scarcely longer than the leaves; legume small, ovate at the base, triangular, upwards drawn to a point, compressed like a lens, containing two seeds, one compressed kidney-shaped, the other globular. 2. *A. verrucosa*, warted A. "Leaves fascicled, filiform; buds warted, naked, tomentose." A shrub two feet high, with large buds or warts; leaves fleshy, smooth, sharpish, an inch long; flowers lateral, shorter than the leaves, subsessile; calyx pubescent; banner villose. 3. *A. capitata*, headed A. *Pluk. Phyt. 307. f. 6. Seba Mus. 1. t. 23. f. 6.* "Leaves fascicled, linear, sharp, flowers headed, bractes naked." Leaves pubescent; flowers covered with ferruginous down; segments of the calyx subulate; keel of the flower arched and the length of the banner. 4. *A. glomerata*, glomerate A. "Leaves fascicled, linear, sharp, villose bent inwards, flowers headed, divisions of the calyx ovate, corollas smooth." This differs from the third, in having its leaves bent inwards, the calyxes ovate, and the corollas smooth. 5. *A. asstroites*, hairy A. *Pluk. Mant. 88. t. 413. f. 3. Seba Mus. 1. t. 24. f. 6.* "Leaves fascicled, subulate, mucronate, smooth, stem villose, flowers scattered." This has the appearance of juniper; it branches very much, and the twigs are covered with hoary down, and loaded with a profusion of flowers. 6. *A. chenopodioides*, genista africana lutea, &c. *Hern. Afr. 11. Chamælarix. Breyn. Cent. 23. t. 11. Seba Mus. 1. t. 23. f. 4.* "Leaves fascicled, subulate, mucronate, rough with hairs, flowers headed, very hirsute." A shrub about three feet high, with slender branches terminated by the flowers, which are yellow, collected in woolly heads; the leaves are prickly like those of juniper. Cultivated in 1759, by Miller. 7. *A. albens*, white A. "Leaves fascicled, subulate, silky, spreading at top, bunches of flowers scattered." Shrubby, upright, and covered with brown bark, which is full of chinks; leaves in fives, sharp, spreading at the tip, of a silky whiteness; flowers terminating in bunches, tomentose, small, of a silky white; calyx pubescent. Introduced here in 1774, by Mr. Masson. It flowers in July. 8. *A. thymifolia*, thyme-leaved A. *Gen. minima, &c. Pluk. Mant. 88. t. 413. f. 1.* "Leaves fascicled, subulate, unarmed, smooth, very short, flowers alternate." This is a very small shrub; the leaves are crowded together and shining, resembling those of thyme. 9. *A. ericifolia*, heath-leaved A. *Gen. aeth. non spinosa, &c. Pluk. Mant. 88. t. 413. f. 6.* "Leaves fascicled, linear, unarmed, hirsute, flowers alternate, calyxes linear." A small shrub, very much branched, pubescent, or extremely hirsute; leaves minute; flowers lateral, scarcely longer than the leaves; banner villose. 10. *A. nigra*, black A. "Leaves fascicled, linear, rather obtuse, flowers head-spiked, pubescent." A branching shrub, three feet high; buds and twigs pubescent; leaves minute, and become black on drying; flowers terminating, pubescent, bractes in pairs, narrow. 11. *A. carnosia*, fleshy A. "Leaves fascicled, almost columnar obtuse, calyxes subpubescent, sharp, corollas smooth." About the height of the tenth species; branches naked, determinate; leaves subcylindric, fleshy,

bent in, smooth, four or seven together; flowers yellow, terminal, umbelled; calyx bell-shaped; bractes three, ovate, lanceolate. 12. *A. ciliaris*, "leaves fascicled, filiform, scabrous, flowers terminal sessile, banners pubescent." Stem shrubby, two feet high, branching determinately, somewhat hairy, with naked warts; leaves roundish, sharp, erect, rough beneath, and when young ciliate; flowers three or five, with a yellow corolla, and an ash-coloured banner. 13. *A. genistoides*, broom-like A. "Leaves fascicled, filiform, polished, calyxes subracemed, pendulous, which as well as the corollas are smooth." Shrubby, nine feet high, branching, with a reticulate bark, and white villose buds; leaves roundish, half an inch long; flowers three or four, terminal, pendulous; calyxes smooth, with short teeth; bractes two, minute; corollas yellow; style protruding. 14. *A. hyssrix*, porcupine A. "Leaves fascicled, filiform, rigid, spiny, silky, flowers lateral, sessile, solitary, corollas villose." This shrub differs much from the other species by its leaves resembling silky white spines. 15. *A. galioides*. "Leaves fascicled, linear, polished; peduncles two-flowered, elongate, leafy at the end." Stem two feet high, decumbent, branching, smooth; warts of the buds small, remote, tomentose; leaves like those of Asparagus acute; teeth of the calyx the length of the corolla, which is smooth, yellow; legume ovate, lanceolate, smoothish. 16. *A. retroflexa*. "Leaves fascicled, subulate, smooth, very small; branches filiform, very spreading; flowers solitary, terminal." 17. *A. uniflora*, one-flowered; A. *Gen. Æthiop. glabra, &c. Pluk. Mant. 88. t. 414. f. 7.* "Leaves fascicled, linear, unarmed, smooth; stipules sharp, permanent; flowers solitary, divisions of the calyxes boat-shaped." Branches alternate, crowded, tomentose; flowers one or two, terminal, pubescent, keel of the corolla tomentose. 18. *A. araneosa*, Gen. &c. *Pluk. Mant. 88. t. 414. f. 4. Seba Thef. 1. p. 8. t. 23. f. 6.* "Leaves fascicled, bristle-shaped, unarmed, hispid; flowers headed." Leaves hairy, beset with tubercles, and rough on both sides; banner hairy outwardly. 19. *A. asparagoides*. "Leaves fascicled, setaceous, rather hairy; calyxes leaf-shaped, the length of the corolla, solitary." A shrub much branched, with small pubescent warts where the leaves fall off; leaves pointed, thinly scattered with hairs; flowers solitary, sessile. 20. *A. sericea*, silky A. "Leaves fascicled, lanceolate, silky; peduncles two-flowered, terminal, banner almost naked." This resembles the preceding, but the leaves are flat, and none of them in heads; flowers large, smooth. 21. *A. canescens*, hoary A. "Leaves fascicled, subulate, tomentose, silky; flowers lateral; banners pubescent." An erect, stiff, hoary shrub, with alternate branches; leaves sharpish; flowers sessile, at the sides of the branches; calyx bell-shaped, with subulate teeth, shorter than the body of it; bractes two, short, setaceous; corolla yellow; banner hoary. 22. *A. heterophylla*, various-leaved A. "Leaves of the branches fascicled, of the branchlets ternate, linear, hairy, spikes terminal; calyx and corolla villose." Lower leaves in bunches, upper, ternate; spikes long, flowers yellow. This, and all the foregoing species, are natives of the Cape of Good Hope. 23. *A. indica*, small-flowered A. *Pluk. Alm. 225. t. 201. fig. 2. (called Lotus, &c.)* "Leaves quinate, sessile; peduncles one-flowered." A slender shrub with alternate branches; leaves alternate; leaflets oblong, obtuse, bluntish, smooth, broader towards the end; peduncles axillary, much longer than the leaves, but shorter than the legumes; flowers of a pale red colour, which appear in May. A native of the East Indies, and in 1759, cultivated by Miller. 24. *A. cretica*, evergreen A. "Leaves trine, wedge-shaped, smooth, lateral ones shorter; stipules obsolete, flowers headed." About four feet high, with very flexible branches;

leaves

leaves many, small, narrow, oblong, fleshy, evergreen, reflex at the edge, with a hard point, sometimes eared at the base; peduncles axillary; flowers of a pleasant smell, in two rows, yellow, very small; legume small, yellowish, containing a single round compressed shining seed. A native of the Cape. 25. *A. quinquefolia*, five-leaved *A.* Pluk. Alm. 128. t. 273, f. 4. "Leaves in fives, sessile; peduncles spiked." The leaflets are lanceolate, petioled; a little hairy, mucronate; peduncles many times longer than the leaves, raceme-spiked; corollas tomentose. A native of the Cape. 26. *A. tridentata*, three-toothed *A.* "Leaves trine lanceolate, smooth; stipules three-toothed, mucronate, flowers headed." A native of the Cape of Good Hope. 27. *A. pilosa*, hairy *A.* "Leaves in threes, linear villose; heads terminal, very hairy; corollas pubescent." Stems shrubby simple, a little hairy; leaves spreading, sessile, acute, subpubescent; head of flowers protected by bractes and calyxes, which have white hairs. A native of the Cape. 28. *A. anthylloides*. "Leaves trine lanceolate, equal subpubescent; stipules none, heads terminal." This shrub has a hirfute stem; the leaves are sessile, rather fleshy, the upper ones somewhat hairy; heads solitary, sessile, oblong; three bractes under each calyx. It has the appearance of a lotus or anthyllus. Cape. 29. *A. laxata*, loose leaved *A.* "Leaves tern linear, villose; flowers in bunches of five; calyxes woolly; stems prostrate round." Stem subherbaceous, decumbent, round, flexible, pubescent; branches alternate; leaves loose, on very short petioles; flowers terminal, sessile, no bractes; corolla smooth, yellow. Cape. 30. *A. argentea*, silvery *A.* cytifus, &c. Pluk. Mant. 63. t. 345. f. 2. "Leaves trine linear silky; stipules simple mucronate; flowers scattered tomentose;" shrubby, four feet high, flowers sometimes in spikes, purple, downy. Cultivated by Miller in 1759. A native of the Cape. 31. *A. callosa*, callous *A.* Pluk. Mant. 63. t. 345. f. 4. "Leaves trine subulate equal; stipules roundish, callous; flowers spiked, smooth." An under shrub, having the branches covered with round calluses, occasioned by the falling of leaves, which are sessile, with a callous base like those of juniper; spikes loose; bractes one-leaved; flowers yellow, smooth. Cape. 32. *A. orientalis*, Levant *A.* "Leaves ternate, lanceolate, pubescent; flowers in bunches of five; calyxes pubescent; stems erect, angular." Stems a foot high; leaves sessile, resembling those of flax; corollas yellow, the size of those of laburnum; stamens connate. Found in the Levant by Tournefort. 33. *A. mucronata*. "Leaves tern, polished, branches acuminate; flowers in racemes." Stem smooth; branches remote, tapering to a point; leaves lanceolate, on short petioles; racemes terminate, erect, on very short pedicels. Cape. 34. *A. pinnata*, pinnate-leaved *A.* "Leaves pinnate-quinate obcordate; peduncles headed;" leaflets five, close, a little hairy, tomentose underneath, on short petioles; peduncle longer than the leaves; corollas rather tomentose. It resembles *A. quinquefolia*, n. 25. Cape. 35. *A. pedunculata*, small-leaved *A.* L'Herit. Ang. t. 26. "Leaves fascicled, subulate, smooth; peduncles filiform, twice the length of the leaf." Found at the Cape by Masson, and introduced into the Kew garden in 1775. It flowers in June. 36. *A. candidans*, fair *A.* "Leaves trine and fascicled, filiform, silky; flowers subterminal, banners naked." This was also found at the Cape by Masson and introduced in 1774. 37. *A. arborea*, tree *A.* Lour. Cochinch. 431. "Leaves pinnate-quinate; racemes terminating." This is a middle-sized tree with a straight trunk, and weak reclining branches; leaves smooth, entire, sessile; flowers white, small, banner obcordate, broadish, ascending; wings oblong, equal to the banner; stamens all connate.

Propagation and Culture. Few of these shrubs have hitherto been cultivated in Europe. They are to be propagated by seeds, which must be obtained from the country where they grow spontaneously, and should be sown in pots filled with light earth as soon as they arrive: if this happen in the autumn, the pots should be plunged into an old tan-bed whose heat is spent, where they may remain till spring, when they should be removed into a temperate hot-bed, which will bring up the plants. But when the seeds arrive in the spring, the pots in which the seeds are sown should be then plunged into a moderate hot-bed; and in warm weather the glasses must be shaded during the middle of the day, and the plants frequently refreshed with water. Those seeds that are sown in the spring, seldom grow the same year; therefore, in the autumn, the pots should be put into an old tan-bed as above directed, and the following spring put into a hot-bed. When the plants become strong enough to remove, they should each be planted in a separate small pot filled with light earth and plunged into a moderate hot-bed to promote their rooting again, and as soon as they are established in the pots, they should gradually be enured to the open air, into which they are to be removed in the summer, and remain in a sheltered situation till autumn, when they must be placed in the green-house, allowing them very little water during the winter. See Martyn's Miller's Dict.

ASPALATHUS. See ROBINIA and SPARTIUM.

ASPALATHUS Ebenus. See AMERIMNUM.

ASPALAX, in Zoology, an animal mentioned by Aristotle, as being blind. The Romans and some moderns translating the term *aspalax*, mole, and knowing that this animal is not blind, have thought themselves warranted in denying the assertion of Aristotle. Olivier, however, has not long since brought from the Levant an animal actually blind, with its skin not so much as pierced in the place of the eyes. This animal lives under ground, and has all the characters ascribed by Aristotle to the *aspalax*. It is known to Zoologists under the name of *mus typhlus*, and *zemni*.

ASPALAX, a species of *MUS*, called by Pennant and later English naturalists the Daurian rat; Laxmann names it *Mus myospalax*; and Pallas, Schreber, Gmelin, &c. specifically describe it as having a short tail, cuneated or wedged fore-teeth, no ears, and claws of the fore-feet elongated. It is a native of the Altaic mountains, and of the country beyond the lake Baikal; like other subterranean or ground rats, it burrows with its snout and feet, raises numerous hillocks of earth in its progress, and feeds on bulbous roots. In respect of size, it varies considerably, being from five to eight inches and a half or more in length.

Dr Shaw observes that this species in form and manners of life agrees with the *mus typhlus*, or blind rat; but is in general of a smaller size and of a yellowish ash colour, and in some specimens a whitish line or longitudinal streak appears on the top of the head; the upper fore-teeth are naked, but the lower are covered with a moveable lip; there is no appearance of external ears, and the eyes are extremely small and deeply seated; the head is flat and blunt; the body short and somewhat depressed; the limbs very strong, especially the fore-legs, the feet of which are large, naked, and well adapted for burrowing into the ground, having five toes, the three middle of which are furnished with long and strong slightly curved claws; the hind feet are also naked, and have five toes with small claws; the tail is very short. Gen. Zool.

ASPALUCA, in *Ancient Geography*, a valley of the Pyrenées, now the valley of *Aspe*, in which was the Gabarus, or Gave.

ASPANEUS, a forest of Asia Minor, in the Troas, being a part of the forest of Ida. Strabo.

ASPANG, in *Geography*, a town of Germany, in the archduchy of Austria, seventeen miles south of Ebenfurth.

ASPARAGI, in *Entomology*, a species of *CHRYSOMELA* (Linn.), with a red thorax marked with two dots of black; wing-cases yellow, with a cruciform mark, and four spots of black. Geoffroy calls it le criocère porte croix de l'asperge; it is attelabus asparagi of Scopoli; lema asparagi of Fab. Ent. Syst. Supp.; cryptocephalus asparagi of Gmelin; and auchenia asparagi of Marsh. Ent. Brit. This mischievous intruder into the kitchen garden, is but too well known by its depredations in the larva state upon the beds of asparagus; it is a little grub of a blackish-brown colour, that feeds exclusively on these plants; and, if neglected, will in the course of a few days leave nothing but the naked stalks of the asparagus remaining in those beds where they can once take up their residence. Donovan. Brit. Inf. &c.

ASPARAGUS, in *Botany* (*Ἀσπαργός*, a young shoot, before its leaves unfold). Linn. g. 424. Schreb. 573. Gærtn. 16. Jusl. 41. Class, *hexandria monogynia*. Nat. Ord. *Sarmentaceæ*. Gen. Char. *Cal.* none. *Cor.* petals six, cohering by the claws, oblong, erected into a tube, three alternately interior, permanent. *Stam.* filaments six, filiform, inserted into the petals, erect, shorter than the corolla; anthers roundish. *Pist.* germ. turbinate, three cornered; style very short; stigma, a prominent point. *Per.* berry globular, umbilicated with a point, three-celled. *Seeds*, two, round, angular on the inside, smooth. *Obs.* According to Dr. Smith, there are three stigmata; the flower appears as if it were monopetalous.

Eff. Gen. Char. *Cor.* six-parted, erect, equal. *Cal.* none; style very short; stigmas three; berry superior, three-celled; seeds two, externally convex. Smith.

Species, 1. *A. officinalis*, common asparagus or sperage, Hudf. 145. With. 340. Smith Brit. 369. Eng. Bot. 339. Flor. Dan. 805. "Stem herbaceous, round, erect, leaves setaceous; stipules uniform, subsolitary." It grows wild in maritime places in the south of England, abundantly on the pebbly beach opposite the ferry going from Weymouth to Portland island. A variety β . viz. *A. maritimus crassifolius*, (Dill. in Ray's Synop.) has been found in Anglesea. Root perennial, creeping, with very long, thick, simple fibres; stem erect, occasionally procumbent, round, simple, and bearing alternate scales (or stipules without leaves blow) in the upper part, branching in a panicked alternate manner: leaves in tufts, very narrow, and bristly, but flexible; stipules solitary, membranous, triangular, acute, the upper ones ovate and jagged; flowers from the axillæ of the branches on capillary simple stalks, drooping, white, none of the segments inflexed, in some the stamens, in others the pistillum occasionally abortive; style deeply three-cleft; berry red. It flowers in August. The above is a description of the plant in its wild state, in which its stems are usually about the size of a goose's quill, yet this is now well known to be the origin of our luxuriant garden asparagus, for the cultivation of which ample instructions are subjoined. 2. *A. declinatus*, long-leaved A. "Stem unarmed, round; branches declined; leaves setaceous." This resembles the common sort, but it is higher, has more and much longer leaves; stipules solitary, lanceolate-subulate, with a membranaceous point at the base downwards; leaves seven or ten in a bunch, filiform, spreading. A native of the Cape. Introduced in 1787, by Mr. Maffon. 3. *A. falcatus*, sickle-leaved A. Burm. Flor. Zeyl. 36. t. 13. f. 2. "Prickles solitary, reversed; branches round; leaves ensi-

form, falcated." A native of Ceylon. 4. *A. retrofractus*, arch-leaved A. "Prickles solitary, branches round, reflected, and retrofracted; leaves setaceous, fascicled." Its branches are round dichotomous, warted at the divisions with a minute nodding prickles. The stalks are shrubby, crooked, irregular, eight or ten feet high; leaves long, narrow, in clusters like those of the larch. A native of the Cape. Cultivated by Miller in 1759. The leaves preserve their verdure all the year. 5. *A. ethiopicus*. "Prickles solitary, reversed; branches angulate; leaves lanceolate-linear." This is nearly allied to *A. falcatus*, but the leaves are smaller, and about seven in a bunch. The stipules put forth a reversed spine. A native of the Cape. 6. *A. asiaticus*, slender-stalked A. "Prickles solitary; stem erect; branches filiform; leaves fascicled, setaceous." It sends up many weak shoots in clusters, and armed with sharp spines at the sides and ends of the shoots; leaves in small clusters, and continuing green all the year. 7. *A. albus*, white A. "Prickles solitary; branches angular, flexuose; leaves fascicled, triquetrous, awnless, deciduous." Stems shrubby, covered with white bark, armed with thorns, three or four feet high, furnished with many branches, bearing short narrow leaves. These continue green all the winter, if screened from the frost. A native of Spain and Portugal; cultivated here in 1640. 8. *A. acutifolius*, acute-leaved A. "Stem unarmed, angular, shrubby; leaves needle-shaped; rather rigid, perennial, mucronate, equal." It has white, crooked, shrubby stalks, four or five feet high, without spines; leaves like those of larch, but short, and end in prickles. It resembles *A. aphyllus*, from which it differs, in usually having seven leaves together, which are much smaller. A native of Spain and the Levant. Cultivated by Miller in 1739. 9. *A. horridus*, thorny A. "Leaflets, shrubby, pentagonal; prickles four-cornered, compressed, striated." The spines are about the length of the finger. A native of Spain. 10. *A. aphyllus*, prickly A. "Stem unarmed, angular, shrubby; leaves subulate, striated, unequal, diverging. Stems weak, irregular, furnished with stiff, short spines, instead of leaves; flowers small, of an herbaceous colour; berries very large, and black when ripe. A native of the South of Europe. Cultivated here in 1640. 11. *A. capensis*, cape A. "Spines in fours; branches aggregate, round; leaves setaceous." Pluk. Alm. t. 78. f. 3. Root tuberous; stems fruticose, filiform, flexuose; branchlets from the axillæ of the spines, filiform, loose, unarmed, deciduous; leaflets setaceous, acute, short. A native of the Cape. Cultivated in the royal garden Hampton-court, in 1691. 12. *A. sarmentosus*, linear-leaved A. "Leaves solitary, linear-lanceolate; stem flexuose; prickles recurved." It rises five or six feet high; and its shoots are so closely beset with short crooked spines that it is difficult to touch the branches. The roots, which are long and fusiform, are eaten with broth or milk by the inhabitants of Ceylon, who are very fond of them. Cultivated in 1714, by the dukes of Beaufort. 13. *A. verticillaris*, whorl-leaved A. "Leaves verticillate." Found by Tournefort in the Levant.

ASPARAGUS, in *Gardening*, comprehends one of the most valuable esculent vegetables of the kitchen garden; it has erect, herbaceous stalks, three or four feet in height, and very fine bristly leaves; it is a perennial fibrous rooted vegetable, the roots being of many years duration, but the tops or stalks annual. The plants being raised from seed, after having acquired a period of three or four years growth, produce proper sized asparagus, of which the same roots furnish an annual supply for many years, continuing to rise in perfection for six or eight weeks in the summer season, the

the shoots afterwards run up to stalks and flowers, and perfect seeds in autumn.

But besides the crop raised in the summer season, it may also be obtained in perfection during the winter, and early in the spring, by the aid of hot-beds, in the manner explained below.

Propagation of the Plants. It is observed by the authors of the Universal Gardener, that the propagation of this plant is by seed only, which may be easily obtained from feed-shops. It should be sown in February, or any time in March, in a four feet wide bed of rich earth, either broad cast on the surface, and directly raked in, or in drills longways six inches asunder, the ground being afterwards raked. In six weeks or thereabouts, the plants will generally appear; they should be kept clean from weeds all the summer, and in winter a little short stable litter spread on the ground to defend the crowns of the roots from frosts; and in the spring following they will be fit for transplanting where they are finally to remain, and in two or three years afterwards, as has been just observed, they will produce asparagus fit to gather.

Asparagus is always three years at least from the time of sowing the seed before the plants obtain strength enough to produce shoots of due size for the table; that is, one year in the feed-bed, and two after being transplanted, though it is sometimes three or four years after planting before they produce good full-sized shoots. But the same bed or plantation will continue producing good asparagus ten or twelve years, and even endure fifteen or twenty years; however, at that age the shoots are generally small, and the whole annual produce inconsiderable; a new plantation should therefore be made every eight, ten, or twelve years, as may be judged necessary. When new plantations of asparagus are required to be raised in the quickest manner for use, it should be done by purchasing ready-raised year-old plants of the nurserymen or kitchen gardeners, as in this way a year may be gained.

The best season of the year to make a plantation of these plants is in March, in common light ground, or at the latest, the first or second week in April; but in cold moist soils, from about the twentieth of March to the fifteenth of April.

In regard to soil and situation, the plants succeed tolerably well in any that is light and mellow, and that is sufficiently rich; but it is eligible to allow them a spot that is rich and light in one of the open quarters of the garden, that is exposed to the free air and full sun, as this is of much importance. Dung must be added six or eight inches thick at least; the ground is then to be trenched one or two spits deep, as may be necessary, burying the dung regularly in each trench, observing that where the trench is but one spade depth, the dung be buried well in the bottom; but if two spades depth, betwixt the first and second pit, or about ten or twelve inches below the surface. Where the trenching is performed in winter, or any considerable time before the planting season, it is proper to throw the ground into ridges to meliorate and improve by the weather into better preparation for planting, as well as for the benefit of the young plants. When the time of planting arrives, it is to be levelled down, which will be a further improvement. See *TRENCHING and RIDGING of Ground.*

The space of ground necessary to plant for private use is generally from about four or five to twenty-rod, according to the extent of the family; and the proper quantity of plants to a rod, exclusive of the alleys, is about 260; one year old plants are to be preferred to such as are older; as those of that age will establish themselves sooner and more effectually than older roots. The plants at the time

of being put into the beds, consisting usually of only roots, are at the proper time to be taken up from the feed-bed with a dung-fork as entire as possible, and the strongest sorted out for use, but not trimmed, only such parts as are broken or bruised being cut off.

In planting, they are to be placed in rows a foot asunder, and formed into beds, each bed to consist of four rows ranging lengthways of them, and planted in drills, or in small narrow trenches, as explained below, allowing three feet and a half interval between every four rows, two feet of which to be afterwards allotted for an alley between the beds, and the rest to be annexed to the beds, which, as well as the alleys, must be regularly laid out in their proper dimensions, four feet and a half for the beds, and two feet for each alley between bed and bed. Or they may be at first marked out and formed into beds and alleys regularly and of their respective dimensions; the beds four feet and a half, and the alleys trodden out between the different beds two feet wide; then four spaces a foot asunder marked out for four rows lengthways of each bed, the two outside rows of each nine inches from the edge; stretch a line tight along the length of the bed in the first outside row, and with the spade held in an erect position, the back being towards the line, cut out a small neat trench along close to the line about six inches deep, forming the side next the line upright, turning out the earth evenly to lie close along the edge of the trench, ready to earth in the roots as planted; this being done, proceed to planting the row, placing the plants in the trench close against the upright side ten or twelve inches asunder, with the crowns upright about two inches below the surface, spreading the roots both ways, and drawing a little earth up to those of each plant as they are put in, just so as to fix them in their places till the whole of the row is planted; then directly rake the excavated earth into the trench over the roots and crowns of the plants evenly; which done move the line a foot further for the next row, and cut out another trench as above, and plant it in the same manner, directly earthing over the plants as in the first row; and thus proceeding regularly with the rest till the whole is completed. Having finished the planting in either of the above methods, the bed and alleys may either be lined out now regularly, or deferred until the winter and spring dressing, though where the beds, &c. are formed previous to the planting, it may be eligible to line them neatly in their proper dimensions as soon as planted, making the edges of the beds full and straight, and the alleys level and even. In the other method, either forming the beds and alleys now or afterwards, as hinted above; observing that of the wide intervals of three feet and an half between the beds, two feet only are to be allowed for alleys, the other eighteen inches must be added to the beds, which will make each bed four feet and a half wide, nine inches on each side wider than the outside rows; and noting that in either method, if the beds, &c. are formed as soon as planted, the alleys at this time are only to be trodden out gently the proper width, without casting out any of the earth upon the beds, so as to stand in the alleys, and lightly to rake the bed even, drawing off any large stones and lumpy clods, so as to leave a smooth surface.

In performing the above, if you have occasion to make the most of every part of the ground, a thin crop of onions may be sown the first year on the same plat as soon as the asparagus is planted; but in this case, sow the seed moderately thin, raking it in regularly with a light and even hand, so as not to displace any of the asparagus plants.

The asparagus being planted in this manner, it requires the following culture.—The shoots mostly appear above

ground the beginning of May, commonly not much bigger than straws; all such must be permitted to run wholly to stalk. During summer, they must be kept clean from weeds by small hoeing or hand weeding them three or four times in the course of that season; and if there be a crop of onions, thin them in the usual way, cutting out all such as grow immediately close about the asparagus plants. In October, when the asparagus stalks decay, cut them down, and clear off all weeds from the beds into the alleys, and then dig the alleys two feet wide, burying the weeds therein, and spread some of the earth over the beds. See *Winter Dressing*.

This is all that is necessary to be done until March, at which time the beds should be deeply hoed and raked smooth, permitting all the shoots to run as in the first summer; and in October, cut down the decayed haulm as before, and land up the beds: in the spring following, being the second after planting, slightly fork-dig the beds, and rake them level. See *Spring Dressing*. In this spring, as the shoots rise of some tolerable substance, begin the first gathering of the largest plants in the first fortnight, but do not practise any general gathering till the third year. See *Gathering Produce*.

Winter Dressing, or landing up the Beds.—From about the middle of October to the latter end of November, is the time to give the asparagus beds their winter dressing. This consists in cutting down the decayed stalks of the plants annually at the above time, and clearing the bed from weeds, digging the alleys, and spreading some of the earth upon the top of the beds, which is called landing up the beds. It is done in the following manner.—The decayed stalks, or haulm, are cut down with a knife close or within an inch or two of the ground; then with a sharp hoe cut up all weeds, drawing them off at the same time into the alleys to be buried; after this, proceed to line out the alleys, stretching the line along the edges of the beds about nine inches from each outward row of plants, the stakes that are to be placed at the corners of the beds, or otherwise the stumps of the stalks, will be a guide; then with a spade chop the ground along by the direction of the line, by which you will form each bed four feet wide, and the alleys two feet. The alleys are then to be dug one spade deep, and a good portion of the earth spread over each bed two or three inches thick. As you proceed in digging, let the weeds drawn off the beds be trimmed into the bottom, and buried a due depth, observing to land the beds all a regular thickness, so as to make them about six or eight inches higher than the level of the alleys, forming the edge of each bed full and straight. This work must be repeated every autumn. It may be supposed by some that in annual landing of the beds, they may in several years be considerably raised; but by the spring forking and raking, together with the repeated hoeings and clearing off weeds in summer, and at the time of preparing for landing up in autumn, a considerable part of the earth is annually drawn off again into the alleys.

After thus performing the winter dressing of the beds, a row or two of cabbage plants may be planted in each alley, as a place of shelter during winter, by which they will be forwarded for early spring coleworts; or a row of mazayan dwarf or other beans may be planted in November or December in the warmest side of each alley, for an early crop; or occasionally, where ground is scarce, some of the bed might be occupied during winter by planting a crop of cabbage lettuce on it for spring use, which being all gathered, or transplanted into other places, by the beginning of April, are supposed to do little harm. It must, however, be done with great care, and such crops not suf-

fered to remain long, otherwise they may injure the asparagus plants in a high degree.

Spring Dressing the Beds.—The spring dressing consists in fork digging the beds annually at that season to a moderate depth, to loosen the soil, that the buds may freely advance and swell to their due size. The season for performing this work is any time in March, but not later than the first or second week in April, because many of the buds will then be formed, and, in forward seasons, begin to advance in growth.

This work is mostly performed with a short flat three-pronged fork. In the first spring dressing after planting, it is proper to loosen the surface only with a hoe, two or three inches deep, and then rake the beds smooth. But the general spring dressing is to be annually performed by fork-digging all such beds as have been planted more than one year, three or four inches deep, with the asparagus fork; being careful to loosen all the earth as deep as the surface of the roots, having regard however not to wound the crowns of them; and afterwards all the beds should be neatly raked, to break clods, clear off stones, and form a level smooth surface, drawing off all rough earth, &c. into the alleys, which afterwards also rake up in a neat order.

Manuring the Beds.—These should be enriched with an addition of good rotten dung, once every two or three years at farthest, the benefit of which will be evident in the quantity, as well as the size and quality of the produce; the season of applying this manure is at the time of winter dressing or landing up the beds. The dung for this purpose should be perfectly well rotted, as the dung of old cucumber and melon beds, or any other of similar quality, which should be applied after the stalks and weeds are cleared off; spread two or three inches thick over the surface of each bed, and a double portion in the alleys; the beds being then slightly fork-dug to bury it; after this dig the alleys in the usual way, and spread a portion of the earth evenly over the beds. In this way the winter rains may wash the enriching quality of the manure into the beds and the roots, from the vegetation of the spring.

Gathering Produce.—As asparagus plants sometimes, in very rich ground, afford tolerably large buds the second year, here and there, one of the largest that happens to appear the first week or fortnight may be cut, afterwards permitting the whole to run to stalk; but in the third year, a more general gathering may be practised, and continue a month or six weeks; and in the fourth year the general produce will rise in its utmost perfection. Then, and every succeeding year, gather all the buds arising from every plant during the season of cutting. The proper size of the asparagus for use, is when the shoots are about two or three inches above the surface of the earth, while the heads remain compact and plump. The principal season of cutting them, is from the latter end of April, or beginning of May, according to the forwardness of the season, till the middle or latter end of June. They might, however, be obtained a month or two longer in the season, by continuing to cut all the buds, according as they attain proper size; but this would be a very wrong practice, as the roots would thereby continue sending up a fresh supply, till they in a manner exhaust their vegetable food, as would be apparent by the inconsiderableness of the future crop, and short duration of the plants. The principal gatherings should therefore be terminated generally towards the latter end of June, especially as by that time there will be plenty of young peas to be used as a substitute in its place at table.

In cutting the asparagus for use, it is necessary to be furnished with a straight narrow-pointed knife, the blade six or eight inches long, toothed on the edge like a saw, which is

to be slipped down close to each separate bud, in order to cut it off slanting, three or four inches within the ground; being careful not to injure any of the younger buds rising in succession, as there are generally several from the same root, advancing in different stages of growth.

Forcing Asparagus.—As asparagus is frequently required in winter, and early in spring, another method must be practised for obtaining it in these seasons. This is by means of planting the roots in substantial hot-beds, covered with frames and glasses. When it is intended to have a constant succession of asparagus during the winter and spring, a new hot-bed must be made, and planted with fresh plants every three or four weeks. As these roots when forced in hot-beds do not continue to yield any tolerable produce longer than that period of time, when they will in a manner be quite exhausted, and are not fit for that or any other purpose afterwards; therefore, for this purpose, a fresh quantity of plants must be in readiness for every new hot-bed. These are raised in the natural ground to a proper age: they must be three or four years old, the plants being raised from seed, as directed for the natural ground asparagus, and when they are one year old, transplanted into beds of rich earth, as directed also for the natural plantations, in rows a foot asunder; but they need not be more than nine inches distant in each row, forming them in beds of six rows in each, with only two feet alleys, just to go in to clean off weeds, &c. as the beds need not be landed up in winter, as in the natural asparagus; but when the plants have had two summers' growth, they will, in good ground, be fit for forcing, though they are in greater perfection if permitted to stand three years. During the time they remain in the natural ground, none, or very few, buds should be gathered, the whole being permitted to run to stalk each summer. It is also necessary, when intended to force asparagus annually, that some seed should be sown every spring, and a due quantity of plants transplanted as before directed, so as to have three different pieces of ground always employed at the same time with plants for the above purpose; that is, one piece with seedlings in the seed-beds, the other two with transplanted plants, one to be of a year's growth before the other; by which practice, after the three first years, an annual succession of plants fit for forcing may be procured. But where it is inconvenient to wait the raising of the plants in this manner, they may be furnished by most of the kitchen gardeners in the neighbourhood of great towns, where when raised to proper growth for this purpose, they commonly sell by measurement of the ground they grow upon, generally from six to ten shillings per rod, according to the age and size of the plants, and fulness of the crop.

Mr. Nicol, in his *Forcing Gardener*, observes, that plants for this use should not be older than seven or eight years, nor younger than four years, and that they should be covered with litter or straw, in order to have access to them during frosts. The necessary quantity of plants for hot-beds is (he says) considerable, since about as many as grow upon three rods of ground, are requisite for a bed intended for a common three-light garden frame. The common allowance of the London gardeners is about one rod to a light; for the plants are to be placed as close as they can possibly stand to one another, to the amount of five, six, or seven hundred, or more, according to their size, in a three-light frame, otherwise a bed would not supply a quantity adequate to the expense and trouble necessary in the culture of these plants in hot-beds; for, from a bed of the above dimensions, we commonly expect about three hundred large buds or ware, besides spew, weekly, and in the whole, about eight or nine hundred good asparagus, and near as many small ones, in three weeks, in which period of time, the roots will have

exhausted their strength, and produce very little more. Therefore, in raising or procuring plants for the above purposes, the quantity must be proportioned to the number of lights you intend working, and the succession of asparagus required. The season for beginning the above work, is according to the time the asparagus is required for use; as for instance, if you would have good asparagus at Christmas, it is proper to make the hot-bed in the first or second week in November, and so on in proportion to any other time in winter or spring it is desired to have it fit to gather. The rule is this: if a constant succession is required from about Christmas till the time when the natural asparagus come in, a new hot-bed should be made every three weeks or a month from the beginning of November until that of March: but some begin about the latter end of September, in order to obtain asparagus about the second week in November. The proper materials for this sort of hot-bed are, according to the authors of the *Dictionary of Gardening*, a sufficient quantity of horse stable dung, fresh and full of heat; for one or more three-light frames, two feet and an half or a yard high; also some to line the sides of the bed, when the heat declines, a quantity of good kitchen garden earth, and one or two three-light garden frames to place over the beds, and some large garden mats, to cover occasionally in nights and bad weather; the dung being previously prepared as directed under the article *HOT-BED*. The best situations for the hot-beds are some of the warmest and most sheltered compartments of the kitchen garden, or the melon or cucumber ground if there be room; though the London gardeners, when they make a considerable extent of asparagus hot-beds, often form them in or near some of the large quarters of the kitchen ground, where the soil is rich and light, for the convenience of having plenty of good proper earth at hand for earthing the beds, banking up the outside plants, and moulding at top, &c. The exposure should be open to the full southern sun, and well defended from the northerly winds. The beds may be made either wholly on level ground, or occasionally in a shallow trench, four or five feet wide and six or eight inches deep, or if intended to make them in any of the quarters of the kitchen ground, a trench might be formed as above, in which to make the beds for the sake of the earth being laid ready for earthing the beds and plants, and to save the trouble of bringing it from a distance, especially for beds of considerable length; but otherwise they may be made, as has been just seen, entirely on even ground in the most convenient situations. As to the general dimensions of the beds, they must be in proportion to the width and length of the intended frames, or rather a little wider and longer, to allow from three or four to five or six inches clear on each side and end, whereon to bank up some earth against the outside roots, &c. and they should be about a yard high, earthed at top about six inches thick for the reception of the plants, before the frames are put on, keeping them within the compass of them upright and as close as they can stand, as directed below. The clear space of a few inches on each outside end is, as suggested above, to receive a small bank of earth against the outside roots, both to defend them from the weather, and for the support of the frame; the latter of which, on account of the first violent heat, is not put on till some time after planting the roots: these, as soon as planted and banked up on the outsides, are earthed over the crowns of the plants an inch deep, which should be increased to five or six when the buds appear through the first earthing, at which time, as the heat of the bed will be moderate, the frame and glasses should be placed on. See *General Culture*.

The author of the *Scotch Forcing Gardener*, however, suggests that the forcing of asparagus in flued pits, is by far the most eligible method, as such pits may answer several other purposes; besides the grass is of a much better colour and higher flavour than that produced on a dung hot-bed. Such a pit as is represented at *fig. 1*, in *Plate I.* (*GARDENING*), will completely answer the intentions of the cultivator. As it frequently occurs in large families, where much company is kept, that this esculent is wanted in a hurry, the convenience of a pit will be found to be a great relief in this respect; as it is much easier (by aid of flues) to forward or protract the growth of the plants here, than in a common hot-bed; on the one hand, if the plants are advancing too rapidly, you are, it is observed, under the necessity of cooling the bed in a certain degree; and on the other, if they are not advancing so fast as you could wish, you are under the necessity of applying linings, which is attended with trouble and loss of time. The author says, that a pit twenty-five or thirty feet long, and six wide, and which one fire can perfectly command, is sufficient to force asparagus to serve a large family from November to May, in a constant and regular succession; after which it may be advantageously employed in raising a late crop of melons or cucumbers, or in striking young pine-apple plants, &c. The trifling consumption of fuel, even where it is most valuable, ought not, he thinks, to deter any who require asparagus, French beans, fallads, &c. at an early season, from building so useful a compartment in the forcing garden. If, continues he, a scrupulous attention is paid to the design in general, particularly to the construction of the fire-places and flues, it will give more satisfaction to the gardener than any other hot-bed whatever, and in the end be a saving to the proprietor. In the construction of this kind of pit, as is shewn by the plate, the first course of the flue runs along the front, the bottom of which is about the ground level, and as the outer wall of the flue is only a brick in bed, it is obvious that early cellery, carrots, lettuces, radishes, cauliflowers, &c. &c. sown on a well-prepared border about two feet broad, immediately adjoining the breast of the pit, would reap infinite advantage from the flue. At the time of any operation within the pit, a board or plank, supported by bricks, &c. would defend the border from injury. The pit is about four feet in the back and three in the front, deeper than the bottom of the flues; which great depth is made on the presumption that it may be frequently used for pine-apple plants; but where it is used for asparagus alone, half the depth would be sufficient. It is immaterial whether the pit is entirely filled with tan or not; the author frequently used three-fourths of stable dung, prepared in the same manner as for a hot-bed, with equal success; but has always found that dung is worse to manage than the tan, as it is more liable to heat violently; besides, from the nature of the building, there is not a possibility of drawing off the rank heat, as in a hot-bed; for which reason, if dung is to be used, it ought to be sweated in a more careful manner. It is added, that a very small degree of bottom heat is sufficient for the purpose; and that if the pit has been previously employed with young pines, it will require no preparation whatever for asparagus roots, excepting to level and put a few inches of very rotten tan upon the surface. But if melons were the last thing the pit produced, it will be necessary to stir up the bed about two feet deep, and add a little new tan or dung; then level the surface with old rotten tan, as before. In either case the surface should be levelled in a sloping manner to the sun, about six inches above the bottom of the flues, allowing so much for the tan settling; the roots are then to be placed in and covered, as directed for the common hot-bed. If the pits

are from twenty to thirty feet long, one half will be sufficient for a time; and, to keep a constant succession, the other half may be filled in about fifteen or twenty days, which will begin to come up before the first is all used; after which, once a month or six weeks, according to the size of the pit and consumption of the family, may be sufficient, till it be fit for cutting in the open ground. It is recommended that no fires be made if the thermometer stands as high as forty-eight to fifty degrees; but, if necessary, covered with mats at night; also to admit plenty of air through the day, if the weather will permit. When it is necessary to make fires, it should be done with caution; a small one made in the evening will serve the whole night, and it will be unnecessary to make any in the morning, unless it be a great storm. He has, however, sometimes found it convenient to make a small fire in the morning, that he might have it in his power to admit air, and at the same time keep up a proper degree of heat. It is added, that warmth will here be required in a more plentiful degree than recommended for hot-beds; but due observation of the state of the tan and the health of the buds should always determine the warmth that may be necessary. In filling the first end of the pit a second time with fresh roots, it will be unnecessary to stir up the tan, &c. and perhaps it may be so even at the third filling; but by keeping a thermometer plunged in the bed, or watch-sticks, you will be best enabled to judge: at all events, there will be no necessity for adding fresh materials, as he has always found that trenching the bed to the depth of two feet or so has answered the purpose for the whole season. If dung or oak leaves are used, the bed should be turfed; and at least a foot of very rotten tan or light mould laid on before the roots are placed in. This precaution is unnecessary, he says, when tan alone is used; in which case, however, not more than an eighth part of new tan ought to be trenched in.

Method of making the Beds, planting the Roots, and Culture. When the first method is followed in the situation and exposure above described, it is advised by the authors of the *Universal Gardener*, to mark out the place of the hot-bed, of the proper width and length proportionably to that of the intended frame or frames, whether one, two, or more; and if a trench is intended, to dig out the cavity, only one moderate spit deep, and the width as above; then wheel in the dung, and with it form the bed of the proper width and length, either on level ground or in a trench, as just directed, raising it regularly of the same dimensions, about a yard high, especially in winter; but for the final spring beds, two feet and a half depth of dung may be sufficient, working the whole upright and firm in the usual manner.

Mr. Nicol, however, recommends that a sufficient quantity of stable dung be shaken up to heat and sweeten, and that after it has lain six or eight days, it be turned over and shaken well up again, in which state it may lie four or five days more; by which time it will be ready for building the bed; this must be done in the common way, to the height of four feet in the back and three in front, and about a foot larger than the frame all round; it is then to be well levelled, the whole covered with squares of turf, cut so as to join again exactly, which are to be laid the green side down, and smoothed well with the back of the spade; then place the frame thereon, which should be thirty inches deep in the back, and twenty in front, in which dry well-reduced old tan should be laid to the thickness of six or eight inches; which also level, and gently smooth with the spade. Where old tan cannot be procured, he advises a light sandy earth, with a fourth part of good vegetable mould. The bed will begin to heat in twenty-four hours, and must then have air admitted to pass off any steam that may arise, which will

will however in general be inconsiderable; the only reason of turning the surface is to prevent the steam, which, if carefully done, will have the desired effect. Yet, it sometimes happens, that there will be a little, especially if the dung did not undergo a proper fermentation; but until the grafts begin to appear, it is of no great consequence if there is a little steam in the frame, nor, provided there is not much steam, whether it has any air admitted or not. But, from the moment the buds begin to peep through, the greatest attention must be paid to prevent steam, which is sure to give the grafts a disagreeable flavour and bad colour. In order to prevent the grafts from drawing up weak, a large portion of air must be admitted every day, if the weather be not stormy; and a little air should be let in at night: while the bed has a rank heat in it, Fahrenheit's thermometer should not stand above 50° at any time, unless in sunshine, and then not above 60°. By the above rule, it will easily be seen, whether matting at night is necessary, and to what extent, but it must be attended to, till it entirely disappears.

When the beds are formed in the first method, they are advised in the Dictionary of Gardening to be directly earthed at top for the reception of the plants, with finely broken earth six inches thick, to the full width and length of the beds, the surface being raked level and smooth. Then immediately proceed to place the roots, for no time must be lost in asparagus hot-beds, in waiting for the temperature of the heat; previously to planting the roots, mark out on the surface of the beds the exact width and length of the frames, so as to have a clear space on each outside of a few inches width, to receive the banking of earth against the outside roots, &c. as before mentioned; then begin at one end, and raise a small ridge of earth cross-ways upon the surface, five or six inches high, against which lay the first row of roots, then having the roots which are not to be trimmed, place the first course close against the above ridge, and entirely upon the surface of the bed, with the crowns upright, and as close to one another as you can possibly place them, either wholly upon the top of the earth, or only draw a little to the lower ends of the roots, or insert the ends a little into the earth, though they are often planted without either drawing any earth about the fibres, or inserting them therein; and when one course or row is thus placed, lay another against these in the same manner; and so proceed, laying them one against another, every way as you can possibly crowd them, from one end of the bed to another, being careful to place all the crowns of such an equal height, that the whole may form as it were a level surface, keeping the whole rather within the measure of the frame, for they will unavoidably swell out a little on each side. If more frames than one are intended for the same bed, then, at the termination of the length of each frame, raise a cross ridge of earth, as at first, about six inches in height; so proceed laying the roots as before; and when all the roots are thus placed the whole length of the bed, directly bank up some earth on each side and end as above hinted, against the outside roots, raising it an inch higher than the crowns; then cover the crowns all over evenly with finely broken light earth an inch deep, which finishes the work until the buds appear; for the roots must not till then be earthed deeper, nor the frame and glasses placed upon the beds till the violent heat has subsided, because they would confine the burning steam, and occasion the bed to heat too vehemently to the destruction of the plants.

In forming the above beds, they sometimes, where necessary to the saving of dung, are only made the exact

width of the frame, so as to secure the outside roots; but for the support of the frame, raise a bank of earth quite from the ground, six inches broad at bottom, drawing it in gradually to the top, banking it close against the sides of the beds; and that of the outside roots, raising it an inch higher than the crowns at bottom of them, so earthing them all over the top an inch deep as before observed; which method of banking quite from the ground may also prove effectual in preserving the temperature of the bed, by defending the dung from driving rains, snow, and piercing winds. As soon as the beds are made and planted in either of the above methods, in order to judge of the temperature of the heat, it is proper to thrust some sharp-pointed sticks, two feet long, down betwixt the roots into the dung of the bed, and by drawing these up daily, and feeling the lower part, you will be able to judge of the degree of heat, whether too violent or weak, which is to be regulated accordingly.

The beds being made and planted, the roots will soon after send forth fresh fibres into the earth, and even in time into the very dung, and the buds of the asparagus begin to appear in a fortnight or three weeks; but till that period, as the heat will probably be very strong, the bed is to remain unframed and uncovered, except being occasionally defended at top; or at least, if the frames are placed on the beds, the glasses not fully put on, only using them occasionally, if very inclement weather should happen at that time, just to protect the bed and crowns of the plants from excessive wet or rigorous frost; or the bed may be occasionally defended with long litter or garden mats from violent rains, snow, and severe frosty weather; observing, however, to use only occasional covering just to preserve the heat of the bed and the crowns of the plants till the buds begin to appear, and the heat becomes quite moderate, as at this period too much covering would increase the heat to a violent degree, and scorch or steam-scald the roots, which, in strong beds, must be particularly guarded against. The temperature of heat must therefore be every day examined by the trying-stick; and if it is found so vehement that you judge the roots are in danger of scorching, the remedy is to bore with a large rake-handle, &c. the sides of the bed quite through in several places, both in the dung, and betwixt the top of the dung and the earth, that the rank steam and burning quality may evaporate at the holes; at the same time the free air may have access, and in two or three days the bed will be reduced to a moderate temperature. On the other hand, it should likewise be observed, that if the bed in a week or two after being made does not heat kindly, or seems rather to decline, it may be proper to lay dry or warm stable-litter round the sides and over the top, which will forward and revive the heat more effectually. When the asparagus begin to appear, they are then to have their final earthing of four or five inches depth of additional mould all over the crowns of the roots, and the frame and glasses put on. At this period prepare some light, rich, finely-broken earth, sufficient to mould them the above depth; at the same time, in order to secure the outsides of the said final earthing, it is proper to form a sort of wreathing or empalement round the top of the edges of the bed four or five inches high, which is done either with a thick straw-band, or by raising the outside banking an additional four or five inches; either of which, as just observed, is necessary, not only to secure the sides and ends of the said final top covering of earth, but also to support the frames when finally placed on the beds.

The beds being now finally earthed and framed, and the heat

heat become moderate, the glasses or lights are to be kept constantly upon the frames, which in the night should be covered with mats, or dry long litter, but must be uncovered every day, except in uncommonly severe weather; for it is of importance, when the asparagus shoots begin to advance, to admit as much light and sun as possible, to promote a green colour in the tops of the buds; and as to the admission of fresh air, if the heat is moderate, the glasses need only be shoved a little open in fine days, especially if you require the plants to be drawn up quick; but by admitting a large portion of air, the buds rise slower, and will acquire a larger size and greener colour; on which consideration you may sometimes, in the spring-made beds, take the glasses entirely off a few hours in fine mild dry days, particularly when the heat of the bed is considerable at the first appearance of the buds after the bed is framed.

This is also the proper period to examine the temperature of heat in the beds. When they have been made about three weeks, if but small beds, the heat will probably begin to decline considerably, which should be renewed by a lining of hot dung applied to the sides; this is not to be omitted, particularly when the buds begin to appear through the last covering of earth, if there seem occasion for it; though beds of more considerable length seldom require lining till after the first breaking, or gathering of the buds, then adding good linings, they will maintain the beds in the due temperature from fifteen to eighteen days longer, which is generally as long as the roots continue yielding any tolerable produce. Mr. Nicol has however remarked, that he has seldom found it necessary to line asparagus beds; yet that sometimes in a storm it may be requisite. This, when necessary, should therefore be done with caution; and never more than one side of the beds at a time. Let the dung for this purpose, says he, be prepared in the same manner as for a bed at first; then cut, with a sharp spade or dung knife, the part you intend to line, perpendicularly by the side of the frame; reject the tan and turf, and use the rest along with the new dung, unless very much wasted; from twenty-four to thirty inches will be a sufficient breadth for the lining; raising it to about six inches above the bottom of the frame, and observing to tread it well towards the old dung, giving it a considerable slope on the outside, which naturally makes it lean that way. If the lining should raise too great a heat in the bed, or cause a steam, draw it off as directed above; and when it has done subsiding, let it be turfed in the same way as the bed was. In respect to water, he says, he has frequently produced a whole crop of asparagus without either earth or water. This, however, is not always the case, nor is it desirable; as if a little water is not required, the dung must be in too moist a state, and consequently too much noxious vapour must have attended the whole process. It will be advisable, however, he says, from the little sun there is, to be sparing in the use of that element at this season of the year.

The asparagus is mostly in a situation to be cut about five or six weeks after the planting of the beds, or when the plants are advanced five or six inches above the surface of the earth with which the beds are covered. In gathering the shoots in hot-beds, it is the best method to break them off as close to the bottom as possible, by thrusting the fingers and thumbs down into the beds.

ASPARAGUS Draco. See *DRACENA*.

ASPARAGUS Scandens. See *MEDDEOLA*.

ASPARAGUS was also used, by the ancient Greeks, to express not only the young shoots of the plant of that name, but any other young sprouts of an eatable plant. The sprouts of the several kinds of cabbage were particularly expressed by this word, or sometimes by the compound term *cramb-asparagus*.

ASPARN, in *Geography*, a town of Germany, in the arch-duchy of Austria, ten miles south-east of Laab.

ASPASIA, in *Biography*, a native of Miletus, and daughter of one Axiochus, was one of the most celebrated ladies of antiquity, for her beauty, talents, and dissolute life. Heraclides says, that she kept an house of ill fame at Megara, and after her removal to Athens, she pursued the profession of a courtesan, and of a procuress. She was as much distinguished, however, by her mental accomplishments, as by the attractions of her person and the infamy of her conduct. In eloquence she surpassed her contemporaries; and her conversation was so pleasing and instructive, that persons of the first distinction, male and female, resorted to her house, as to a school of rhetoric and science; and she numbered even Socrates among her hearers and admirers. Such were her attainments in philosophy and politics, as well as the graces of her person, that she captivated Pericles, the great Athenian statesman; so that after an illegitimate connection with her, he divorced his own wife, and married Aspasia. By her extensive knowledge, irresistible elocution, and intriguing genius, she for some time directed and influenced the administration of Athens. Accordingly, to her have been imputed the war against Samos, and also that with Megara. At length Aspasia was criminally prosecuted by Hermippus the comedian, on the two charges of impiety, and of enticing women to her house for the gratification of Pericles; and it required all the tears and entreaties of Pericles to save her. After his death, she formed a connection with a person of low condition; and by her interest and influence advanced him to the first offices of the state. Plut. in Vit. Pericl. Athen. lib. xiii. p. 560. Cicer. in Brut. Bayle, art. Pericles.

ASPASIA was also the name given by Cyrus to a young woman of exquisite beauty, whose original name was *Milto*, and who was the daughter of Hermotimus of Phocæa, a person of mean circumstances. Having been taken captive by the commander of Cyrus, brother of Artaxerxes Mnemon, he sent her to his master, whom she so much captivated by her modesty and reserve, as well as by her personal charms, that he treated her more like a wife than a concubine. Cyrus made her the partner of his counsels, and the companion of his expeditions; and such was her moderation, that she used her influence merely in making the fortune of her father, without aiming at any wealth and splendour on her own account. Her respectful attention to Parysatis secured her favour; and her magnificence was only displayed in her offerings to Venus, whom she considered as the patroness of her fortunes. When Cyrus lost his life in an engagement with his brother, she was equally favoured by him, into whose hands she fell, as by her former master. Plutarch and Justin relate, that when Darius, son of Artaxerxes, was declared his successor, and according to the customary privilege allowed him, asked of his father this Aspasia; the fair female, being permitted to make her election, preferred the son. Upon which Artaxerxes took her out of his son's possession, and made her priestess of Diana, thus obliging her to perpetual continence; but the artifice occasioned the rebellion of Darius. The story, however, is attended with some circumstances which weaken its credibility. Bayle, art. Cyrus.

ASPASIA. *Ætius* has preserved some fragments of the works of this female physician, and commends some of her compositions. She pretended to be acquainted with the use of certain drugs that were efficacious in procuring abortion, and even in preventing women from conceiving. These, however, were only to be administered, she said, to women who were incapable of from distortion, or some natural defect,

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we suppose) of bearing living children, or of undergoing the pains of labour, without manifest danger of their lives. There have never been wanting persons professing to be able to procure abortion, with perfect safety to the women; but either these have been the vain boasts of impudent pretenders, or the art has been long lost, no drug or composition now known possessing such powers. See the article ABORTION in this work. It is not known who this Aspasia was, or in what age she lived. Le Clerc Hist. de Med.

ASPASIA, in *Entomology*, a species of PAPILIO, in the family *Heliconius*. It inhabits Tranquebar: the wings are black, with transparent streaks and spots; and the posterior ones yellow at the base. Fabricius, &c.

ASPASIA, among *Ancient Physicians*, a constrictive medicine for the *pudenda muliebra*. It consisted only of wool, moistened with an infusion of unripe galls. Castell. Lex. Med.

ASPASIE, in *Ancient Geography*, a people of Asia, placed by Polybius between the Oxus and the Tanais; probably the same with the *Aspasiatæ* of Strabo, and the *Aspasi* of Ptolemy.

ASPASTICUM, in *Ecclesiastical Writers*, a place or apartment adjoining to the ancient churches, wherein the bishop and presbyters sat, to receive the salutations of the persons who came to visit them, desire their blessing, or consult them on business.

This is also called *aspaticum*, *diaconicum*, *receptorium*, *metatorium*, or *mesatorium*, and *salutatorium*; in English, *greeting-house*.

ASPATHIS, in *Ancient Geography*, a town of India, on this side of the Ganges. Ptolemy.

ASPE, in *Geography*, a town of Spain, in Valencia, situate on the Eida, four leagues west of Alicant.

ASPE, a valley of Berne, in Swisserland, between the Pyrenees and the town of Oleron. The river of Oleron passes through this valley, and is called the *Gave of Aspe*.

ASPE Viejo, a town of Spain, in Valencia, three leagues and a half west of Alicant.

ASPECT, in *Astronomy*, is used for the situation of the stars, or planets, in respect of each other; or, in *Astrology*, it denotes a certain configuration, and mutual relation between the planets, arising from their situations in the zodiac, whereby their powers are supposed to be mutually either increased or diminished, as they happen to agree or disagree in their active or passive qualities. Though such configurations may be varied and combined a thousand ways, yet only a few of them are considered. Hence Wolfius more accurately defines aspect to be the meeting of luminous rays emitted from two planets to the earth, either situate in the same right line, or including an angle which is one or more aliquot parts of four right angles.

The doctrine of aspects was introduced by the astrologers as the foundation of their predictions. Hence, Kepler defines aspect an angle formed by the rays of two planets meeting on the earth, able to excite some natural power or influence.

The ancients reckoned five aspects, viz. *conjunction*, when the planets are in the same sign and degree, or have the same longitude, denoted by the character \odot ; *opposition*, where they are in opposite points of the circle, or at the distance from one another of 180 degrees, expressed by 8; *trine*, when they are distant one-third of the circle, or 120 degrees, denoted by Δ ; *quadrate*, or *quartile*, when they are distant one-fourth of the circle, or 90 degrees, marked by \square ; and *sextile*, when their distance is the sixth part of a circle, or 60 degrees, denoted by *.

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Conjunction, and opposition, are the two extremes of the aspects; the first being the beginning, and the second the highest or ultimate term.

The aspects are divided, with regard to, their supposed influences, into *benign*, *malign*, and *indifferent*.

The quadrate aspect and opposition are reputed malign, or unfriendly; trine and sextile, benign or friendly; and conjunction, an indifferent aspect.

To the five ancient aspects, the modern writers have added several more; as *decile*, containing the tenth part of a circle; *tridecile*, three-tenths; *quintile*, a fifth part of the circle; and *biquintile*, four-tenths, or two-fifths.—Kepler adds others, as he tells us, from meteorological observations; as the *semi-sextile*, containing the twelfth part of the circle; and *quincunx*, containing five-twelfths.—Lastly, to the astrological physicians we owe, *octile*, containing one-eighth; and *trioctile*, containing three-eighths.

The angle intercepted between two planets in the aspect of conjunction is 0; in the semi-sextile aspect, 30°; in decile, 36°; in octile, 45°; in sextile, 60°; in quintile, 72°; in quartile, 90°; in tridecile, 108°; in trine, 120°; in trioctile, 135°; in biquintile, 144°; in quincunx, 150°; in opposition, 180°.

These angles, or intervals, are reckoned on the secondary circles, or according to the longitudes of the planets; so that the aspects are the same, whether a planet be in the ecliptic, or out of it.

The aspects are also divided into *partile* and *platic*.

ASPECTS, *Partile*, are when the planets are just so many degrees distant, as is above expressed. These alone are the proper aspects.

ASPECTS, *Platic*, are when the planets do not regard each other from these very degrees; but the one exceeds as much as the other falls short.—So that the one does not cast its rays immediately on the body of the other, but only on its orb or sphere of light.

ASPECT, *Double*, is used in painting, where a single figure is so contrived, as to represent two or more different objects, either by changing the position of the eye, or by means of angular glasses.—Instances hereof, see under the articles ANAMORPHOSIS, CATOPTRIC, CISTULA, and MIRROR.

ASPECT, in *Gardening*, is used for what we otherwise call *exposure*.

ASPECT, in *Military Language*, is applied to a country and to an army thus; a country is said to have a *military aspect*, when its general situation presents appropriate obstacles or facilities for an army's acting on the offensive or defensive. An army is said to hold a *menacing aspect*, when by advanced movements or positions it gives the opposing army reason for apprehending offensive operations. An army is said to have an *imposing aspect*, when it appears stronger than it really is; and this aspect is assumed for the purpose of deceiving an enemy, and serves as a kind of feint in war.

ASPEN-TREE, in *Planting*, a species of the poplar, having small roundish leaves with an angular indenture, and smooth surfaces on both sides. According to Marshall the leaves of this tree stand upon long, flat, slender footstalks, which render them liable to be shaken by the least wind; whence it has been called the trembling poplar or aspen-tree. This tree will grow on most kinds of soil, but may be cultivated to the greatest advantage on such as are inclined to be moist, without having much stagnant surface water. In such situations, they will sometimes grow to a considerable size. They may be raised in the same way and with equal facility as the common poplar. The wood of the aspen-tree is light, porous, and open; consequently of little value as timber.

timber. From its lightness, it might however probably be used to advantage for the purpose of common field-gates, hurdles, and other similar uses. In Mr. Marshall's Treatise on Planting, it is represented as wholly unfit for being set in such grounds as are intended to be kept for pleasure, on account of the great number of succours that are annually thrown up by it. See *POPULUS*.

ASPENDII, in *Ancient Geography*, a people of Pamphylia, who inhabited the town of Aspendus. They fortified their town in order to dispute the payment of the tribute which they had promised to Alexander; but he marched against them, and compelled them to submit; and afterwards doubled the tribute which he had at first demanded.

ASPENDUS, a town of Pamphylia, situate upon the Eurymedon, at the distance of 60 stadia from the sea, according to Strabo, who says that it was well-peopled, and that it had been founded by a colony from Argos. In M. D'Anville's map, it is placed between Perga and Sida.

ASPER, or *SPIRITUS ASPER*, in *Grammar*, denotes a character, or accent, in form of a *c*; placed over certain letters, in the Greek tongue, to shew they are to be strongly aspirated, and that the breath is here to supply the place of an *h*: as ἄσπερ, *water*. The spiritus asper, or that mark which corresponds to the letter *H*, was undoubtedly in use among the ancient Greeks. Their *H* was at first a spiritus asper, and was taken from the Hebrew ה, and was retained in the same figure *H* in Latin. The Greek *H* was used in ancient monuments, instead of a spiritus asper, and the same letter stands for 100, because they wrote the word ἑκατόν, thus, *HEKATON*. Nevertheless, the ancient Greeks did not judge it necessary always to express this aspiration upon their monuments. Thus upon a medal of the Tyrians we find *IEPAC*. Hence it is very doubtful, whether this aspiration was in common use in the time of the apostles; and it becomes much more doubtful, when we consider, that the most ancient versions so frequently confound ἄσπερ with ἄνθερ, that both words seem to have been written without an aspiration. Marsh's *Michaëlis*, vol. ii. p. 522. See *ASPIRATE*.

ASPER, or *ASPRE*, in *Commerce*, signifies a small Turkish silver coin, wherein most of the grand signior's revenues are paid.

The asper may be estimated at 6 deniers (one farthing).—The only impression it bears is that of the prince's name under whom it was struck.—The pay of the janizaries is only distributed every three months, and has a progressive increase from 3 aspers to 99; and 99 aspers are equivalent to 49½ sous, or about two-shillings and three-farthings. But from an estimate made of the respective currency, the course of exchange reduces it to 39 sous 6 deniers (1s. 7d. $\frac{3}{4}$); though this calculation is much above the intrinsic value of this coin.

ASPER, in *Conchology*, a species of *MUREX* described by Martin, (*Conch.* 4. t. 150.) The shell is plaited longitudinally, and ribbed transversely; spire rather prominent; aperture ovate; and the lip crenulated. This kind is reddish; whorls about five or six, and the ribs acute. Gmelin. In the Gmelinian *Systema Naturæ*, there is also another species of *MUREX* under the same name, which is a native of Guinea; the whorls of the spire are fulcated transversely, striated; and muricated; and the tail (or beak) ascending. The colour is milky white, with rows of brown dots; solid, with from twelve to fourteen furrows; aperture rather oval; and a single plait on the pillar lip. Gmelin.

The first species belongs to the section *Caudigeri*, cauda subulata clausa recta elongata, testa inermi (or murices, with subulate, straight, elongated, and closed beak, and

shell unarmed); and the second to *turriti subulati*, cauda brevissima (murices tapering, subulate, and furnished with a very short beak).

ASPER, a species of *TROCHUS*, figured by Chemnitz, the native place of which is unknown. The shell is obtuse; whorls round, with many rows of tubercles, fulcated and striated transversely; pillar-lip-dentated; aperture lunated. This kind is of the middle size, cinereous, or testaceous; lip plaited and rugose within.

ASPER, in *Entomology*, a species of *CERAMBYX* (*Stenocorus* Fab.), a native of Italy, and figured by Sulzer. It is black, rough, thorax armed with two spines; wing-cases tuberculated in the middle. Sulzer, &c.

ASPER, a species of *SCARABÆUS* found in Europe; the head and thorax are grooved transversely; wing-cases striated. Fabricius, &c.

ASPER, a species of *CANCER* found on the British coasts. The thorax is heart-shaped, spinous; two spines on the proboscis; legs and arms spinous.

ASPER, in *Ichthyology*, a species of *PERCA*. It is fasciated with yellowish, and has thirteen rays in the second dorsal fin. Johnston, Ray, and others, call this asper pisciculus; and asper pisciculus, gobionis similis.

ASPERA ARTERIA, in *Anatomy*. See *ARTERIA Aspera*.

ASPERA, in *Conchology*, a species of *TELLINA*, about an inch and three quarters in length, and three inches in breadth. This shell is pointed at one end, yellowish within, and externally radiated, and rough, with transverse striae. Gmelin. Country unknown.

ASPERANA, in *Entomology*, a species of *PHALÆNA* (*Tortrix*), found in the vicinity of Hamburg, and other parts of Europe. The anterior wings are white at the base, brown at the tip, and rough. This insect belongs to the *Tortrix* section in the Linnean and Gmelinian arrangements; in that of Fabricius to the section *Pyralis*.

ASPERELLA, an European species of *PHALÆNA*, of the *Tinea* tribe. The anterior wings are whitish, emarginate at the tip, with two common black spots. This is *phalæna tinea alis albidis*; macula communi fusca, apicibus nigro punctatus retusis of Linn. Fn. Sv.

ASPEREN, in *Geography*, a small town of Holland in the country of Gorkum or Arkel, seated on the Linge, two leagues north-east from Gorkum, and five south from Utrecht.

ASPERGELLOUS, in *Botany*, the name given by Micheli to that genus of mosses called by Dillenius and others, *byssus*.

ASPERGILLUM, in *Antiquity*, a long brush made of horse-hair, fixed to a handle, wherewith the lustral water was sprinkled on the people, in lustrations and purifications. Horsley Brit. Rom. lib. ii. cap. 1.

This is also denominated *aspergile*, and *asperforium*. The ancients, instead of a brush, made use of branches of laurel and olive. It is also used in *Ecclesiastical Writers*, to denote the instrument, in Romish churches, wherewith holy water is sprinkled.

ASPERIFOLIOUS, in *Botany*, one of the divisions or classes of plants in the *Fragmenta Methodi Naturalis* of Linnaeus; so denominated, because they are usually rough-leaved. According to Mr. Ray, these plants make a distinct genus, the characters of which are, that the leaves stand alternately, or without any certain order, on the stalks: the flowers are monopetalous, but they have the margin cut into five divisions, sometimes deep, sometimes shallow; and the upper spike or top of the plant is often curved back, something like a scorpion's tail.

In

In the place of each flower, there usually succeed four seeds; Mr. Ray supposes the cerinthe the only plant of this genus that hath less than four seeds at the base of each flower: this indeed hath but two.

To the class of herbæ asperifoliæ, referred in the Linnæan system to the monopetalous tetraspermous distinction, under the class of pentandria and order of monogynia, belong the pulmonaria, cynoglossum, borago, anchusa, echium, heliotropium, lithospermum, cerinthe, heliotropium, myosotis, symphytum, onofina, asperugo, lycopsis, porana, tournefortia, and messerschmidia.

They all possess the same general virtues, and are accounted glutinous and vulnerary.

ASPERITY, implies the inequality or roughness of the surface of any body; by which some parts of it are so much more prominent than the rest, as to hinder the hand, &c. from passing over it with ease and freedom.

Asperity, or roughness, stands opposed to smoothness, evenness, politure, &c.—From the asperity of the surfaces of contiguous bodies arises friction.

According to the relations of Vermaufen, the blind man so famous for distinguishing colours by the touch, it should appear, that every colour has its particular degree and kind of asperity. He makes black the roughest, as it is the darkest of colours: but the others are not smoother in proportion as they are lighter; i. e. the roughest do not always reflect the least light: for, according to him, yellow is two degrees rougher than blue, and as much smoother than green. See COLOURS.

ASPERNATA, in *Entomology*, a species of PHALÆNA, of the *geometra* family, described by Linnæus. The wings are whitish; anterior margin subferruginous. Inhabits Europe. Muf. Lesk. Gmel. &c.

ASPEROSA, in *Geography*, a town of European Turkey, which is a bishop's see, seated on the north-east of the Archipelago, and not far from the island of Tasso, opposite to the northern point of which is a cape of this name. N. lat. 40° 58'. E. long. 24° 20'.

ASPERRIMUS, in *Conchology*, a species of MUREX. The shell is brown, varied with yellow and white, and ribbed; whorls oblique, with a tuberculated margin; a brown band in the middle, and another of white; tail short, dilated, and ascending; length about two inches. Gmelin, &c.

ASPERSA, is a species of HELIX that inhabits Italy. The shell is subimperfurate, rather globose, pale yellow, with four rufous bands interrupted with white spots; lip white. Müll. Gmel. This kind is from an inch to an inch and a half in diameter; subrugose, with minute impressed dots; rarely white; whorls four, and the aperture elongated. The synonyms, quoted by Gmelin, are very doubtful, if not incorrect.

ASPERSA, in *Natural History*, a species of ASCIDIA, described by Müller, Zool. Dan. as a native of the Norway sea. This is rather compressed, and somewhat rough, white, bag spotted with red. Adheres to sea-weeds; is heart-shaped; skin pellucid, and smooth within; bag yellowish.

ASPERSED, in *Heraldry*, a term sometimes used instead of powdered or frowed.

ASPERSION, formed of the Latin *aspergere*, to sprinkle; of *ad*, to, and *spargo*, I scatter, the act of sprinkling with water, or some other fluid.

Some contend for baptism by *asperfion*, others by *immersio*.

ASPERSKIRCH, in *Geography*, a town of Germany, in the archduchy of Austria, five miles to the south-east of Peyrbach.

ASPERSTORFF, a town of Germany, in the archduchy of Austria, two miles north-east of Sonneberg.

ASPERUGO, in *Botany* (ab asperitate), a rough-leaved plant. Lin. g. 189. Schreb. 249. Juss. 131. Class, *pentandria monogynia*. Nat. Ord. *asperifolia*. *Borraginæ* Juss. Gen. Char. *Cal.* perianth one-leafed, five-cleft, erect, with unequal toothlets, permanent. *Cor.* one-petalled, funnel-shaped; tube cylindrical, very short; border semiquinquefid, obtuse, small; throat closed with five convex, prominent, converging, little scales. *Stam.* filaments five, in the throat, very short; anthers oblongish, covered. *Pist.* germs four, compressed; style filiform, short; stigma obtuse. *Per.* none. *Calyx* very large, erect, compressed; lamellas flat-parallel, sinuate. *Seeds* four, oblong, compressed, distant, by pairs.

Ess. Gen. Char. *Calyx* of the fruit compressed; lamellas flat-parallel, sinuate.

Species, 1. *A. procumbens*, procumbent asperugo, or German madwort. Hudf. 82. With. 231. Smith Brit. 220. Flor. Dan. 552. Eng. Bot. 661. "Calyx of the fruit flat." Root annual, small, attenuated; stems procumbent, angular, rough, leafy; leaves opposite, ascending, oblong, rough; flowers axillary, solitary, pedunculated, small, blue; calyx of the fruit large, compressed, close, reticulated, with a setaceous margin, concealing the seeds. It grows among rubbish in roads, &c. flowering in April and May. Small wild bugloss, or borrag, great goose-grass, are also names under which it has been known. 2. *A. egyptiaca*, Egyptian asperugo. Jacq. Hort. v. 3. t. 21. "Calyx of the fruit swelling." Root annual; stem eight inches high, with divaricating hispid branches; leaves broad-lanceolate, alternate, beset with rough hairs; flowers yellow, all directed the same way, on thick stalks. A native of Egypt, flowering from June till August.

Propagation and Culture. The second, or Egyptian species, may be raised from seeds sown in a temperate hot-bed. The plants will flower in the open air in summer, but they must be housed in winter.

ASPERULA, (a diminutive of *asper*, the seeds of the plant being roughish). Lin. g. 121. Schreb. 157. Juss. 196. Class, *tetrandria monogynia*. Nat. Order, *stellata*. *Rubiaceæ* Juss. Gen. Char. *Cal.* perianth superior, small, four-toothed. *Cor.* one-petalled, funnel-shaped; tube cylindric, long; border four-parted; divisions oblong, obtuse, reflex. *Stam.* filaments four, at the top of the tube; anthers simple. *Pist.* germ twin, roundish, inferior; style filiform, bifid; stigmas headed. *Per.* two dry globular united berries. *Seeds*, solitary, roundish, large.

Ess. Gen. Char. *Cor.* one-petalled, funnel-shaped. *Seeds*, two, globular.

Species, 1. *A. odorata*, sweet woodruff or woodroof. Hudf. 66. With. 185. Smith Brit. 172. Curt. Lond. f. 4. t. 15. Flor. Dan. 562. Eng. Bot. 755. "Leaves eight in a whorl, lanceolate; flowers fascicled, peduncled; fruit hispid." Root perennial, creeping; stems erect, simple, smooth; leaves seven, nine, but most commonly eight in every whorl, elliptic-lanceolate, rough at the edge; panicles terminal, trifid, or dichotomous; flowers white, sometimes sweet-scented, about four; fruit rough, with setaceous hairs. When recent, the plant is inodorous; but on being dried, it is very fragrant like vernal grass. It grows in woods, flowering in May. 2. *A. arvensis*, blue woodroof; "leaves six in a whorl; flowers sessile, terminal, aggregate." Root annual, slender; stem a foot high, roughish, jointed, dichotomous; leaves linear-lanceolate, beneath whitish with hairs; a close umbel of sessile flowers terminates the stem and branches; flowers blue. A native of the south of Europe, flowering in July. It was introduced here, in 1772, by M.

Richard. 3. *A. taurina*, broad-leaved woodroof; "leaves four in a whorl, ovate-lanceolate; flowers in terminal bunches." Root perennial, woody; stems a foot high, branched; leaves hairy, nerved; peduncles one or two; bractes ciliate. A native of the mountains of Switzerland and Italy, flowering in June. It was cultivated by Miller in 1739. 4. *A. crassifolia*, thick-leaved woodroof; "leaves four in a whorl, oblong-lateral, revolute, bluntish, pubescent." Stem alternately branching; leaves the length of the internodes; the whorls on the branches more remote, and leaves narrower, unequal; flowers few, in upright terminal branches, pubescent on the outside. A native of Crete and the Levant, flowering in June. Introduced here by Monf. Thouin, in 1775. 5. *A. calabrica*, Calabrian woodroof, L'Herit. stirp. nov. 4. 65. t. 32. "Leaves four in a whorl, oblong, obtuse, smooth, and even." An undershrub, a cubit high, decumbent, foetid. Leaves linear-lanceolate, one-nerved; there is a short sharp upright stipule between the leaves, half embracing the stem; flowers three or four, in terminating corymbs; bractes two-leaved, acute, spreading a little below the germs. A native of Syria. The foetid smell of this sufficiently distinguishes it from the other species. 6. *A. tinctoria*, narrow-leaved woodroof; "leaves linear, the lower six, the middle four, in a whorl; stem flaccid; flowers generally trifid." Stem branching, procumbent, three feet in length; leaves resembling those of wild thyme; peduncles from the axillæ of the leaves, forming little umbels; flowers white; seeds smooth. The roots are used in Gothland for dying wool of a red colour. A native of Sweden, Germany, Switzerland, &c. Cultivated by Mr. James Gordon in 1764. 7. *A. pyrenaica*, Pyrenean woodroof; "leaves four in a whorl, lanceolate-linear; stem erect; flowers generally trifid." Root perennial; stems six or seven inches high; leaves keeled, acute, smooth; lower ones shorter, more obtuse, lanceolate; upper and floral leaves opposite, broader; flowers red. A native of the Pyrenees, and about Basle. 8. *A. cynanchica*, squinancy-wort, or small woodroof. Hudf. 66. With. 186. Smith Brit. 173. Eng. Bot. 33. Rubicola vulg. &c. Ray Syn. 225. "Leaves four in a whorl, linear; the upper ones very unequal; flowers all quadrifid; fruit smooth." Root perennial, fibrous; lower leaves in fours, on the branches obovate; upper leaves linear, and those near the top very unequal, so that the intermediate pair seems diminished into stipules; umbels terminal; corollas of a fresh colour, marked with red lines, fragrant; fruit smooth. It grows in England on warm banks, affecting a calcareous soil. 9. *A. ariflata*, awn-flowered woodroof; "leaves linear, rather fleshy; lower ones four in a whorl, flowers subtern awned." Stem upright; flowers pale, yellowish, placed parallel, divisions bluntly awned. A native of the south of Europe. 10. *A. levigata*, shining woodroof; galium rotundifolium, Jacq. Aust. 1. 58. t. 94. "Leaves four in a whorl, elliptic, nerveless, smoothish; peduncles divaricate, trichotomous; seeds roughish." Stems simple, smooth, spreading; leaves subpetioled, obtuse; flowering branches horizontal, bifid; bractes two, small, lanceolate; flowers white, usually in threes. 11. *A. hexaphylla*, six-leaved woodroof, Allion Ped. t. 77. "Leaves six in a whorl, linear; flowers umbelled, terminal, subsessile." Root perennial; stems generally simple; leaves acuminate, flat, erect; umbels accompanied with ten or twelve leaves; corollas purple, white within; segments a little revolute; seeds oblong, compressed. It grows in the fissures of rocks near Tende.

Propagation and Culture. All these plants being perennial, except the second, may be increased by the roots as well as by the seeds. The first sort will prosper under the

shade of shrubs in wildernefs quarters. The fifth must have the protection of a green-house, and does not continue many years; but may be increased both by seeds and cuttings. The eighth growing naturally in chalk, and most of the others being natives of rocks, must have a dry open situation. Martyn's Miller's Dict.

ASPERUM, in *Conchology*, a species of BUCCINUM, about an inch and an half in length. It is figured by Lister, but its *habitat* is unknown. The whorls of the spire are ribbed, and striated transversely; the first is gibbous, and the tail (or beak) rather prominent. Gmelin, &c.

ASPET, in *Geography*, a town of France, in the department of the Upper Garonne, and chief place of a canton in the district of St. Gaudens; two leagues south-east of St. Gaudens. The place contains 3223, and the canton 12,106 inhabitants: the territory includes 250 kilometres and 18 communes.

ASPEYTIÀ, a town of Spain, in the province of Guipuscoa, seven leagues from St. Sebastian.

ASPHALITES, in *Anatomy*, the fifth vertebra of the loins. It is thus called, because conceived as the support of the whole spine of the loins; from the privative α and $\sigma\phi\alpha\lambda\lambda\iota$, I supplant.

ASPHALTITE LAKE, in *Geography*, a lake of Palestine, so called from the great quantity of bitumen, called *asphaltum*, which it produces. It has also been called the *Dead Sea*, from a supposition that no fishes will live in it, and that birds, which have attempted to fly over it, have been suffocated. From its situation, it has been denominated the *East Sea*; and distinguished by other appellations, as the *Salt Sea*, the *Sea of Sodom*, the *Sea of the Desert*, and the *Sea of the Plain*, by the sacred writings. Its origin has been ascribed to the submerion of the vale of Siddim, where once stood, according to common report, the three cities which perished, in the miraculous conflagration, with those of Sodom and Gomorrah. These cities have, on account of their number, been called Pentapolis. Strabo, however, on the authority of an ancient and received tradition, reckoned thirteen of these cities, of which Sodom was the capital; and he adds, that they were overthrown by a violent earthquake occasioned by subterraneous fire, that threw up this great and sulphureous lake, in which all those cities were swallowed up. Josephus likewise assures us, that in the overthrow of Sodom, this vale became the lake Asphaltites. It has been said, that the ruins of these cities are still to be seen in clear weather; and we likewise read of apples that grew about it, fair without, but bitter to the taste and filled with ashes; which added to the deadly nature of its water and smoke, afforded another evidence of the divine indignation. Some of the circumstances that have been recited concerning this lake, and which have long obtained credit, have been contradicted by the testimony of more modern travellers. Although it was long thought that nothing would sink in the waters of this lake, and that no animal could live in it, yet Dr. Pococke assures us, that much as their specific gravity is augmented by the salt with which they are impregnated, several persons, and among others this writer himself, swam and dived in this lake, and birds have flown over it with safety. It is possible, indeed, that the specific gravity of the water of this lake may have been diminished since the experiments made by Vespasian, and recited by Pliny (N. H. l. v. c. 15), because great quantities of the bitumen have been collected and removed, and this lake has been supplied with copious streams of fresh water. Mr. Kirwan says (Analysis of Mineral Waters, p. 144.), that the heaviest water of which he has met with any account is that of this lake. Lavoisier found

found it 1.2403, and that it contained 44.4 per cent. of saline matter, of which 6.25 parts were common salt, and 38.15 were muriated lime and muriated magnesia. See *Mem. Paris*, 1778, p. 63. From these salts the water derives its bitter taste; and the bitumen which floats upon the surface of this lake, and which arises from its borders or its bottom, does not communicate to it any quality. As to the salt which it produces, the Arabs furnish themselves with large quantities by digging pits about the shore of the lake, filling them with water, and leaving them to be crystallized by the sun. As to the bitumen, which gave name to this lake, it is said to have thrown up great quantities of it, and that it is much used by the Egyptians and the inhabitants of other countries for the purpose of embalming dead bodies. Indeed Josephus assures us, that it ascended in masses as big as an ox without its head, and even of a larger size. Mr. Maundrell says (*Journey*, p. 84.), that there was no bitumen in the place where he happened to be; but that it is gathered near the mountains on both sides in great plenty. Pococke, however (*Travels*, p. 56), observed it to float on the surface of the water, and after windy weather to be found on the shore, where the Arabs gather it for the purpose of applying it to the same use with common pitch; and Dr. Shaw (*Travels*, p. 347.) informs us, that he was assured that the bitumen is raised at certain times from the bottom of the lake in large hemispheres, which, as soon as they touch the surface, and are acted upon by the external air, burst at once with great smoke and noise, like the pulvis fulminans of the chemists, and disperse themselves into a thousand pieces. This, he adds, only happens near the shore; for in greater depths, the eruptions are supposed to discover themselves in such columns of smoke as are now and then observed to arise from the lake. This bitumen is described as resembling our black pitch, and not to be distinguished from it except by its sulphureous and fetid smell, occasioned either by friction or by setting it on fire. Some persons have confounded it with a blackish combustible stone thrown on the shore, and sometimes called "Moses's stone," which held in the flame of a candle, will soon burn, and emit a smoke and intolerable stench. Whilst its weight is much diminished, it retains its bulk, and becomes of a whitish colour. Dr. Pococke observes, that these stones are found about two or three leagues from the shore; and he supposes, that a stratum of this kind of stone under the lake is probably one part of the matter that feeds the subterraneous fire, and causes the ebullition of the bitumen.

Mr. Maundrell informs us, that he saw several birds flying about and over this sea without any visible harm; and he suspects that the tradition which reports, that no animals can live in these waters is false, as he observed among the pebbles on the shore two or three shells of fish resembling oyster shells, which were cast up by the waves. He surveyed the waters with attention, in order, if possible, to discern the ruins of the absorbed cities, but he failed in his attempts to discover them; he was told, however, by two aged persons, not destitute of understanding or probity, that they had once actually seen one of these ruins near the shore, and the waters being shallow, they went to it, and found there several pillars and other fragments of buildings. As for the apples of Sodom, Mr. Maundrell neither saw nor heard of any; nor was any tree to be seen near the lake from which such kind of fruit might be expected. A late traveller, Mr. Volney (*Travels in Egypt and Syria*, vol. i. p. 310.) says, that this lake contains neither animal nor vegetable life. No verdure is perceived on its banks, nor are fish to be found in its waters; but it is not true, adds this writer, that its exhalations are pestiferous so as to destroy birds

flying over it. It is very common to see swallows skimming its surface, and dipping for the water necessary to build their nests. The real cause which deprives it of vegetables and animals, is the extreme saltness of the water, which very much exceeds that of the sea; the soil around it, impregnated with this salt, produces no plants, and the air itself, loaded with it by evaporation, and receiving the sulphureous and bituminous vapours, cannot be favourable to vegetation; and hence proceeds the deadly aspect which reigns around this lake. The origin of this mineral (says Mr. Volney) may be easily discovered: for on the south-west shore are mines of fossil salt, which are situated in the sides of the mountains extending along that border, and which have, for time immemorial, supplied the neighbouring Arabs, and even the city of Jerusalem. On this shore are also found fragments of sulphur and bitumen, which the Arabs convert into a trifling article of commerce. There is also found a sort of stone, which, with friction, emits a noxious smell, burns like bitumen, receives a polish like white alabaster, and is used for the paving of court yards. At intervals there may be also seen unshapen blocks, which prejudice has mistaken for mutilated statues, and which pass with ignorant and superstitious pilgrims for monuments of the adventure of Lot's wife. Mr. Maundrell was informed that on the west side of the sea is a small promontory, near which stood the monument of Lot's metamorphosed wife, part of which, as he was told, is visible at this day. But he had neither faith enough in the report of his informers, nor sufficient leisure for examining the truth of this fabulous relation. One remarkable property of this lake remains to be mentioned; and this is, that though it receives the Jordan, the brooks of Jabok, Kishon, Arnon, and other springs, which rush down from the adjacent mountains, yet it never overflows; this circumstance has led some naturalists to imagine that there is a subterraneous communication between this lake and the Mediterranean, or the Red Sea. But no gulf of this kind has been discovered; nor, indeed, is it necessary to recur to any hypothesis of this kind; since it has been demonstrated by accurate calculations, that evaporation is more than sufficient to carry off the waters with which the lake is supplied. This evaporation is, in fact, very considerable, and frequently becomes sensible to the eye by the fogs with which the lake is covered at the rising of the sun, and which are afterwards dispersed by the heat. This lake is inclosed on the east and west by very high mountains; on the north it is bounded by the plain of Jericho, on which side it receives the waters of Jordan; on the south it is open and extends beyond the reach of the eye. Josephus (*Antiq. l. viii. c. 2. De Bell. l. iv. c. 14.*) assigns this lake the length of 580 furlongs, from the mouth of Jordan, to the town of Segor or Zohar on the opposite shore, or about twenty-two leagues; and a breadth of about 150 furlongs, or five leagues: but Mr. Maundrell (*ubi supra*, p. 84.) says, that it is twenty-four leagues long, and six or seven broad.

ASPHALTUM, in *Mineralogy*, denotes a kind of bituminous stone, found near the ancient Babylon, and lately in the province of Neuchâtel; which, mixed with other matters, makes an excellent cement, incorruptible by air, and impenetrable by water; this was supposed to be the mortar so much celebrated among the ancients, wherewith the walls of Babylon, and the temple of Jerusalem were cemented.

It yields an oil which defends ships from water, worms, &c. much better than the ordinary composition; and which is also of good service for the cleansing and healing of ulcers, &c. See *Mineral Pitch*.

ASPHAX, in *Ancient Geography*, a nation of the isle of Cyprus. Steph. Byz.

ASPHODELUS, in *Botany*, *asphodel* or *king's-spear*. Linn.

Lin. Gen. 421. Schreb. 569. Gært. 17. Juss. 52. Class. *hexandria monogynia*. Nat. Ord. *coronariae*. *Asphodeli* Juss. Gen. Char. *Cal.* none; *corolla* one-petalled, six-parted; divisions lanceolate, flat, spreading; nectary, six very small valves, converging into a globe, inserted into the base of the corolla. *Stam.* filaments six, subulate, inserted into the valves of the nectary, bowed; alternately shorter; anthers oblong, incumbent, rising. *Pist.* germ roundish within the nectary; style subulate, in the same situation with the stamens; stigma truncate. *Per.* capsule globular, fleshy, three-lobed, three-celled. *Seeds*, several, triangular, gibbous on one side.

Eff. Gen. Char. *Cor.* six-parted; nectary six valves covering the germ.

Species, 1. *A. luteus*; yellow asphodel, or king's-spear, Jacq. Hort. 1. 32. t. 77. "Stem leafy, leaves three-sided, striated." Root composed of fleshy long thick tubers; stalks round, simple, about three feet high, and wholly covered with long triangular boat-shaped leaves. The upper part of the stalk is crowned with yellow star-shaped flowers, which open in succession, about the beginning of June. Peduncles one-flowered, arising from the axillæ of the bractes, which are membranaceous, small, whitish. The corolla has a sweet smell, and is so deeply divided as not to seem monopetalous, and the divisions or petals are alternately narrower. It is a native of Sicily. 2. *A. ramosus*; branched asphodel. Villar's Dauph. 2. 265. Murray in Com. Gott. 1776. 37. t. 7. *β.* *A. albus*. Mill. Dict. n. 3. "Stem naked, leaves ensiform, keeled, smooth." Root composed of many tubers and fibres; leaves long, flexible, sharp at the edges, growing in irregular clusters from the crown of the root; stalks three feet high, sending off naked branches, from the upper part of which arise many star-shaped flowers, which are white, with a longitudinal purple line along the outside of each segment. A native of the south of Europe. 3. *A. fistulosus*; onion-leaved asphodel. Gært. Fruct. 1. 68. Gouan. Hort. 174. "Stem naked, leaves stiff, subulate, striated, subsistulose;" annual; roots consist of many fleshy yellow fibres; leaves in a large cluster from the crown of the root, convex on their under side, flat above and hollow. Flower stalks rise immediately from the root, and grow to the height of two feet, dividing towards the top into three or four branches, which are adorned with white starry flowers, having purple lines on the outside; these come out in July and August, and their seeds ripen in October. A native of the south of France, Spain, and the island of Crete. Scopoli has described and figured another species, which he named *asphodelus libernicus*; it has yellow pendulous flowers, streaked with five brownish lines, and has saffron-coloured filaments. It was found in Istria by Mygind. See Flor. Carn. n. 411. t. 12. The three former species were cultivated by Gerard in 1596.

Propagation and Culture. The first species multiplies very fast by roots, and will soon overspread a large border, if suffered to remain undisturbed. The second does not increase very rapidly by roots, nor should it be often transplanted, for that will weaken it; therefore the best way is to propagate it by seeds. These asphodels are pretty ornaments in a garden, and requiring very little trouble to cultivate, are rendered more acceptable. They may be propagated by seeds which should be sown soon after they are ripe, on a warm border of light fresh earth: in the spring the plants will appear, when they are to be carefully cleared from weeds, and in dry weather frequently watered, by which means the plants will be in a proper state to be transplanted the Michaelmas following. A bed must then be prepared in the flower nursery of fresh earth, into which you should plant the roots, at about six inches distance, and so deep that the top of the roots may be three or four inches un-

der the surface of the bed; and some old tan or dung spread over the bed to keep out the frost. In this bed they are to remain one year, by which time the roots having acquired strength enough to produce flowers the following year, they should in autumn, when their leaves are decayed, be carefully taken up and transplanted into the flower garden, observing to place them in the middle of the borders among other hardy kinds of flowers, where being properly intermixed, they will make an agreeable variety, and continue a long time in flower. The third sort is an annual, and can only be propagated by seeds which should be sown in autumn, and not removed till they have put out four or five leaves, when they are to be transplanted into the places where they are to remain. If the seeds of this plant are permitted to scatter, they will come up without care, and those which are not removed will be the strongest, and produce a greater number of flowers. See Martyn's Miller's Dict.

ASPHYXIA, in *Medicine*, a term which, in its literal sense, signifies a want of pulsation, being derived from *α* privative, and *σπυξ*, *pulsus*. It is used to denote apparent death. Such suspensions of the vital actions are referred by Cullen to apoplexy and syncope; but in the system of Sauvages they constitute a distinct genus, under the above name. The last-mentioned nosologist has been too minute in his subdivision of this, as well as of many other diseases. The following appear to us to be the only legitimate species; viz. *A. submersorum*, apparent death from DROWNING; which see. *A. suspensorum*, apparent death from HANGING; which see. *A. congelatorum*, apparent death from exposure to extreme cold. This we shall notice here, as the most convenient place. In the northern latitudes, frequent instances occur, during the winter season, of persons being frozen to death. Before this event takes place, they are seized with a general numbness, and an irresistible propensity to sleep, followed by stupor, and insensibility. In this apparently lifeless state they lie for several hours, more or less, according to the intensity of the cold, and the previous condition of the body. They are, however, yet recoverable by proper treatment; which consists in taking off the person's clothes, and rubbing the body all over with snow, or dashing cold water upon it. The friction should be continued for many hours, until signs of life appear; when the patient should be wiped dry, and put into a cold bed, in a room without fire: he should have but few clothes upon him at first. When the power of swallowing is restored, a small quantity of white wine and water (two parts of water to one of wine) should be given in a tepid state; but on no account any spirituous liquors, such as brandy, rum, &c. Afterwards he may have tea, with a large proportion of milk, increasing the quantity of nourishment gradually. He should avoid a heated room for a day or two, as well as all strong drinks and seasoned food; otherwise a fever, or dangerous local inflammations, will be excited. Travellers or others who are about to be exposed to extreme degrees of cold, should be cautioned against the use of spirituous liquors, and every effort should be exerted by their companions to prevent them from falling asleep. For the treatment of partial injuries from cold, see the article FROST-BITTEN. *A. a carbone* (*A. carbonica*, as we would term it), suffocation from the fumes of charcoal, from the gas thrown out by fermenting liquors, &c. (*i. e.* suffocation from the carbonic acid gas.) See SUFFOCATION. *A. a mephidite* (*A. azotica*), suffocation from foul air or azotic gas. See SUFFOCATION. *A. neophytorum*, apparent death of new-born infants. See MIDWIFERY.

ASPIA, in *Ancient Geography* a river of Italy, in Picenum, north-east of Auxinum.

ASPIC,

ASPIC, Fr. in *Artillery*, a piece of ordnance, weighing 4250 lb, and carrying a 12 lb shot.

Aspic, in *Botany*, a plant which grows in plenty in Languedoc, in Provence, and especially on the mountain of St. Baume, in France. It is a kind of lavender, nearly like what grows in our gardens; both with regard to the figure and colour of its leaves and flowers. The botanists call it *male lavender*, *lavendula mas*, or *spica nardi*, *pseudo nardus*, &c.

Aspic, *Oil of*. See *Oil of SPIKE*.

ASPIDO, in *Geography*, a river of Italy, in the marquise of Ancona: it rises near Polverigo, and runs into the Musona, a little above its mouth in the Adriatic Sea.

ASPIDOPHORE, in *Ichthyology*, the name of a new genus of fishes in Lacépède's arrangement. This genus is composed of the two species of *Cottus*, in the Linnæan system called *cataphraetus* and *japonicus*, the former of which M. Lacépède names *Paspidophore armé*, and the latter *Paspidophore lisiza*. See *Cottus*.

ASPII, in *Ancient Geography*, a powerful people of India, whom Alexander defeated in a pitched battle near the river Euaspla. He had previously crossed this river, as well as the Choe; and after the battle he passed through the territory of the Guræi, and crossed the river Guræus, supposed by major Rennell to be the Kameh or Cabul river. This ingenious geographer conjectures, that the nations of the Aspii, Thyrei, and Arasaci were inferior divisions of the modern Cabul, and situated between the rivers of Ghizni and Cabul, at the height of Irjab and Dukkah. Mem. p. 172.

ASPING, in *Zoology*, a name given by the inhabitants of Smoland to a venomous small snake, not more than six inches long, found in Osieries and Willow-holts, the bite of which is frequently fatal, and which is much dreaded by the Smolanders. It is the *COLUBER CHERSEA* of Linnæus, with 150 abdominal scuta, and 34 subcaudal scales.

ASPIRAN, in *Geography*, a town of France, in the department of Herault, and chief place of a canton in the district of Lodeve, two leagues north of Pezenas.

ASPIRATE, ASPIRATIO, in *Grammar*, a character used to denote an aspiration.

The aspirate, by the Greeks called *spiritus asper*, and marked over their vowels, seems to be of a very different nature from the letters, but is nevertheless a true letter, as well as the rest, and a real consonant.—By letters we do not mean the characters of the alphabet, which are changeable according to the languages and the people, and among the same people, according to time and custom; and even according to the fancy of particular persons. Thus, some for instance, write the aspirates, or letters aspirated; which by others are omitted; though both the one and the other pronounce alike; as in *buomo*, *buomini*, an Italian word frequently written *uomo*, *uomini*. But by letters we mean articulate sounds, marked by them, and formed by the organs of speech, viz. the throat, mouth, tongue, palate, teeth, &c.

These sounds are of two kinds, the one *simple*, and the other *compound*, or modified. *Simple* sounds are those pronounced by a single motion of the organ, such are the vowels. *Compound* sounds are those same simple sounds modified by a motion of the organ, superadded to the motion necessary to pronounce the simple sound; of which kind are the consonants.

Now an aspirate is an effect or consequence of a motion made by some of the organs of speech; and therefore it must either be a vowel or a consonant. The former it cannot be, as not being a simple sound, or a sound that may be pronounced by itself. It must therefore be a modificative, or consonant; and in effect it has all the properties of one.

For, 1st, It results from a motion of the organ, which of itself produces no sound. Thus the *spiritus* of the Greeks, our *b* aspirate, as well as that of the French, and other people, has no more sound of itself than *b*, *c*, *d*, &c. and the same thing may be observed of the *aleph*, *beth*, and *capb*, of the Eastern languages.

2dly, On the contrary, our *b*, the *spiritus* of the Greeks, and the other aspirates just mentioned, are pronounced with all the vowels, in the same manner as consonants are. They modify those vowels, and are effects of a motion of the organ superadded to the motion necessary to form the vowel. Thus, to pronounce *ba*, two motions of the organ are required as well as for *ba*, or *ca*, &c. one for *a*, which itself is a sound; the other for *b*, which yields no sound, no more than *b*; but adds something to *a* which modifies it, and makes that *ba* is not mere *a*, nor *ba*, nor *ca*, &c. And this must hold still more sensibly in the stronger aspirates, as those of the oriental tongues א, ב, ג, ד, ה, ו, ז, ח, ט, י, כ, ל, מ, נ, ס, ע, פ, צ, ק, ר, ש, ת, &c. in all

which there are evidently two motions, the one to express the vowel, and the other to modify it: now this being the nature and essence of a consonant, it follows, that let them be denoted in what manner they will, whether as our *b*, as the orientals do, i. e. by proper characters in the course of the words themselves; or, as the Greeks do some of theirs, by a sign of aspiration placed over the vowel, it matters not. The aspirate is no less a consonant in *αἰρω*, than in *χαίρω*; in *ἔω*, than in *χεω*; in *ἔλκω*, than in *χολκω*; and so of others.

The third and last reason urged by some, is, that the Eastern languages, which, according to them, do not express the vowels, do yet express the aspirates. This kind of argument seems, however, to be grounded on a mistake; since it is more than probable, that the א, ב, ג, ד, &c. of those languages, should be ranked among the vowels, and were so used.

Add, that the aspirate is frequently changed into a consonant, and expressed by a consonant. Thus of *ἕξ* is made *ἕξ*; of *ἑπτά*, *septem*; of *ἑσπερος*, *vesperus*, &c. of the Hebrew ויין, *vinum*, &c. Nay even in the same language, Hesiod, speaking of Hercules's buckler, uses ἑρσυν for *Θηρσυν*; making no difference between a Θ and an aspirate.

Hence it follows, that aspirates are real consonants; and that we ought not to exclude the *b* in our language, out of the number of letters.

Other grammarians contend, that the *b* is founded only by a strong emission of the breath, without any conformation of the organs of speech, and consequently is no letter. See H.

ASPIRATION, the act of aspirating, i. e. of pronouncing any syllable, or word, strongly; with a good deal of breath, and vehemence.

This we do, for instance, in those words which have the letter *b* before them; as *barangue*, *book*, *Holland*, *hero*, &c. whereas the like syllables are sounded much softer and easier without the *b*; as in *car*, *cat*, &c. See H.

ASPIIS, in *Ancient Geography*, a town of Spain, north-west of Illici and very near it on the same river.—Also, a town of Africa Propria, in 33° 20' N. lat. according to Ptolemy.—Another town of the same country, about 30° 20' N. lat. according to Ptolemy. Strabo places it in the Greater Syrtis, and says it is the best port of that coast.—Also, a hill or territory of Africa, in the promontory of Taplitis, according to Strabo.—Also, a town of the Carthaginians, called *Clypea*. M. d'Anville thinks this to be the same with the former; but Ptolemy distinguishes them.—Also, an island of Asia, upon the coast of Asia Minor, between Tenedos and Teos. It was called, according to Strabo, Arconnefus.—Also, a promontory of Ethiopia, near Egypt.—An island in the vicinity

vicinity of the Cyclades.—Alfo, a town of Asia, in Macedonia, founded by Philip, the father of Perfeus. Steph. Byz.

ASPITHRA, a town of Asia, in the country of the Sines. Ptolemy.—Alfo, a river of Asia, in the same country.

ASPIUS, in *Ichthyology*, a species of CYPRINUS, that inhabits the fresh water streams in most of the northern parts of Europe. Linnæus, in his *Fauna Suecica*, describes it specifically as having sixteen rays in the anal fin, and the lower jaw longer than the upper one, and recurved. It grows to the weight of twelve pounds; is blackish above, and bluish-white on the sides; feeds on vegetables, worms, and little fish; spawns in March; flesh white, soft, fat, and well tasted. This is Cyprinus rapax ovatus subcompressus cerulefcens, &c. of Lesc.; leuciscus argenteus, &c. of Klein; and rappe of Gesner.

ASPLEDON, in *Ancient Geography*, a town of Bœotia, north-east of Orchomene, from which it was separated by the small river Melas.

ASPLENIUM, in *Botany*, spleenwort (said to be derived from α and $\sigma\pi\lambda\eta$, because it was supposed to dry upon the spleen). Lin. g. 1178. Schreb. 1631. *Lingua cervina*, trichomanes Tournef. Class, *cryptogamia filices*. Generic Char. Fructifications disposed in right lines along the under disk of the frond.

* *Frond simple.*

Species, 1. *A. rhizophyllum*, root-leaved spleenwort, Phyllitis Pluk. Alm. 154. t. 105. f. 3. Morr. Hist. 3. 557. 14. f. 14. t. 1. f. 14. "Fronds cordate-ensiform undivided, top filiform, rooting." Root fibrous; fronds triangular acuminate, point long linear; at the base hollowed, eared, on long footstalks; fructifications irregularly dispersed over the whole disk of the leaf in oblong spots; the ends of the fronds bent down to the ground, and there striking root. A native of North America. Introduced here by Mr. Bartram in 1764. 2. *A. hemionitis*, mule's-tongue spleenwort. Lour. Coch. 677. "Fronds simple, cordate-hastate, five-lobed, entire: stipes smooth and even." It rises about six inches in height, and nearly resembles N° 3. (hart's-tongue), but the longitudinal diameter of the frond scarcely exceeds the transverse one; the stipes are slender and in tufts; the lobes of the fronds are sublinear, unequal; fructifications in oblique lines. A native of the south of Europe. Introduced here in 1779. 3. *A. scolopendrium*, hart's-tongue spleenwort. Hudf. 452. With. 3. 51. Lightf. 660. Curt. Lond. 1. 67. Bolton Fil. 18. t. 11. Woodv. Med. Bot. f. 272. The varieties are β . *phyllitis crispa*. Bauh. Hist. y. P. f. *Lingua cervina maxima*, undulato folio auriculato per basim. Pluk. phyt. δ . *Lingua cervina*, multifido folio. Bauh. pin. ϵ . P. f. *Lingua cervina*, minor crispa, fol. multifido, ramosa, Pluk. phyt. "Fronds simple, cordate-lanceolate, quite entire; stipes hirsute." Root black, hard, scaly, furnished with numerous fibres; stipe and lower part of the mid-rib covered with chaffy scales; fronds from five inches to a foot long, and from an inch to two inches broad, lanceolate, rounded, and hollowed at the base, of a firm tough texture, and of a shining green on the upper side, and more or less waved at the edges; fructifications in parallel lines; these are at first covered with a pellucid involucre, which bursts when the capsules swell; they then appear globular and brown, and each is surrounded with a jointed elastic ring, by which the seeds when ripe are forced out of the capsule and dispersed to a considerable distance. It grows commonly on old walls, rocks, and in shady lanes. This plant, like some others of the same genus, was formerly used to strengthen the viscera, restrain hemorrhages, and alvine fluxes, expel gravel, and

open obstructions of the liver and spleen; but its medicinal qualities are now little valued. It is one of those termed the five capillary herbs. 4. *A. nidus*, bird's-nest spleenwort; "fronds simple, lanceolate, quite entire, smooth." Leaves two feet long, broad, firm, thick, smooth, streaked; fructifications in parallel lines, extending one-third of the breadth of the leaf. It roots into the top of trees; the leaves come out in a circle, and form a kind of umbel, in the middle of which birds make their nests. A native of Java and the Society Isles. 5. *A. ferratum*, ferrate-leaved spleenwort. Phyllitis, &c. Sloan. Jam. f. 72. n. 5. "Fronds simple, lanceolate, ferrate, subseffile." Root composed of brown fibres, which send forth eight or nine fronds about three inches long, gradually broader near the end, which is formed into a blunt point. A native of woods in the inland parts of Jamaica: 6. *A. plantagineum*, plaitain-leaved spleenwort, Brown Jam. 92. "Fronds simple, ovate-lanceolate, subternate, stipe quadrangular." The fronds rise from a thick fibrous root to the height of ten or twelve inches, with an even margin and a smooth stipe. A native of Jamaica. 7. *A. lanceum*, lance-leaved spleenwort. Thumb. Japon. 333. "Frond simple, elliptic, entire, smooth; stipe round, scaly." Stipe sexuose, decumbent; lines of fructifications near the edge of the leaf, which is lanceolate. A native of Jamaica. 8. *A. bifolium*, double-leaved spleenwort, lingua, cerv. &c. Plum. fil. 116. t. 133. "Fronds pinnate; leaflets lanceolate, subinnuate, connate." Fronds all double, or composed of two equal similar leaflets, united at the base by a common membrane; the common peduncle forks a very little above the base, and forms the mid-rib. A native of South America.

** *Frond pinnatifid.*

9. *A. ceterach*, common spleenwort, Hudf. 452. Lightf. 661. Bolton Fil. 20. t. 12. "Fronds pinnatifid; lobes alternate, confluent, obtuse." Fronds many, from three to six inches long; lobes of the frond short, broad, roundish, entire, about twenty pairs in a frond. This grows in similar situations to those mentioned of *A. scolopendrium*. 10. *A. obtusifolium*, blunt-leaved spleenwort, adiantum alis latioribus, Pet. Fil. 117. t. 2. f. 4. "Fronds subpinnate; pinnae obtuse, sinuate, decurrent, alternate." A native of South America.

*** *Frond pinnate.*

11. *A. nodosum*, knotted-stalked spleenwort. Brown Jam. 93. Lour. Cochinch. 678. Sloane Jam. 1. 85. t. 41. f. 1. "Fronds pinnate; pinnae opposite, lanceolate, entire." Above a foot and a half high, upright, smooth; pinnae long, striated; fructifications in oblique, straight, parallel lines. A native of the West Indies and Cochinchina. 12. *A. salicifolium*, willow-leaved spleenwort. Lonchitis, &c. Plum. Amer. 4. t. 6. Pet. Fil. 110. t. 3. f. 3. Sloane Jam. 1. 78. 24. "Fronds pinnate; pinnae sickle-lanceolate, crenate from the base upwards, angular." A foot high or more; pinnae alternate; middle pinnae largest, serrate at the edges. A native of Jamaica and the Antilles. 13. *A. trichomanes*, common maiden hair. Hudf. 452. With. 3. 52. Bolton 22. t. 13. Woodv. Med. Bot. 204. Eng. Bot. 576. "Fronds pinnate; pinnae roundish, crenate." Fronds about five or six inches long, lanceolate; stipe and rachis smooth, glossy, blackish, purple; pinnae fifteen or twenty pairs, the lowest most remote, of an irregular oval figure, largest below; feminal lines oblique to the mid-rib, three, four, or five in number. It grows in the crevices of rocks and walls, and in shady places among stones. The leaves have been used in disorders of the breast proceeding from an acrimony of the fluids, and also to promote the expectoration

expectoration of tough phlegm, and to open obstructions of the viscera. They are usually directed in infusion or decoction, with the addition of a little liquorice. A syrup prepared from them is common in our shops, both as made here and imported from abroad; this latter has an admixture of orange-flower water. A little of these syrups, mixed with water, makes a very pleasant draught. 14. *A. viride*, green spleenwort. Hudf. 453. With. 3. 52. Lightf. 663. Bolton Fil. 24. t. 14. Trich. costa viridi, &c. Raii Syn. 119. 15. *A. viride*, fol. eleganter incis. Tournef. Inst. 539. t. 350. f. 1. e. "Fronds pinnate; pinnae roundish, crenate, truncate at the base." Pinnae eighteen or twenty pairs; leaflets sometimes alternate, rhomboidal, or trapezium-shaped. It is found on rocks in mountainous situations in the north of England. 16. *A. ebeneum*, ivory-stalked spleenwort. Ait. Hort. Kew. "Frond pinnate; pinnae lanceolate, subfalcate, ferrate, eared at the base; stipe very glossy, simple." A native of North America. Cultivated by Dr. Fothergill in 1779. 17. *A. dentatum*, tooth-leaved spleenwort. Brown Jam. 93. 5. Plum. Fil. t. 101. Pet. t. 2. f. 15. "Fronds pinnate; pinnae wedge-shaped, obtuse, crenate, emarginate." A native of South America and the West Indies. We learn from Swartz, that the *A. pygmaeum* L. is nothing more than the young plant of this species. 18. *A. marinum*, sea spleenwort, or dwarf sea fern. Hudf. With. Lightf. Bolton, 26. t. 15. Eng. Bot. 392. "Frond pinnate; pinnae obovate, ferrate, gibbous, above obtuse, wedged at the base." Fronds from three inches to a foot in length, but commonly five or six inches; stipes smooth, reddish-brown; pinnae usually about twelve pairs, nearly rhomboidal, sometimes lanceolate, sharply crenate; lines of fructification four or five on each side of the nerve in an oblique direction. It grows on rocks on the sea coast. 19. *A. cultrifolium*, sickle-leaved spleenwort. Plum. Fil. 45. t. 59. "Fronds pinnate; pinnae sickle-lanceolate, gash-ferrate, from the base downwards angular." A native of Martinico. 20. *A. rhizophorum*, Swartz. Obs. 399. Brown Jam. 92. Pluk. Alm. 9. t. 253-4. "Fronds pinnate, rooting at top; pinnae ovate, repand, somewhat eared; very small ones remote, entire." About ten or twelve inches in length, with the top bending to the ground; the old plant is bipinnate. A native of Jamaica. 21. *A. monanthemum*, one-flowered spleenwort. Smith ic. ined. 3. 73. "Fronds pinnate; pinnae trapeziumed, obtuse, ferrate, behind entire; one line of fructifications." Fronds numerous, linear-lanceolate, a foot high, often twisted; leaflets numerous, rather alternate, sessile; line of fructification single. The younger Linnæus has confounded this plant with *A. refectum*. A native of the Cape. 22. *A. ruta muraria*, wall-rue, tent-wort, white spleenwort. Hudf. 453. With. 3. 53. Bolt. Fil. 28. t. 16. Eng. Bot. 150. "Fronds alternately decompound; leaflets wedge-shaped crenulate." Fronds three or four inches high, furnished at the end with two, or more commonly three alternate pinnae; they are short, broad, and somewhat of a rhomboidal figure; fructifications appear in two or three white dots on each side of the nerve. It grows on fissures of walls and rocks. 23. *A. alternifolium*, alternate-leaved spleenwort. Jacq. Mife. 2. 51. t. 5. f. 2. "Fronds simply pinnate; leaflets alternate, wedge-shaped, gashed above." Linnæus regarded this as a variety of the preceding species, from which it differs in having the stems more simple, black at the base, with one or two short divisions only, having three leaves lobed and two-lobed; the other leaves are solitary; in the lower part of the leaf are two or three lines of a longish form. A native of Swisserland and Austria. 24. *A. adiantum nigrum*, black maidenhair. Hudf. 454. With. Bolt. 30. "Fronds subtripinnate, leaflets alternate, pinnae

lanceolate, gash-ferrate." Fronds eight or nine inches high, their outline triangular; stipes glossy, black, or very dark red; pinnae alternately pinnate. It grows on fissures of rocks and old walls, and among stones and shady places. 25. *A. lanceolatum*, lanceolate spleenwort. Eng. Bot. 240. Hudf. 454. With. 3. 54. *A. trichomanes ramosum*. Lin. Sp. Plant. "Fronds doubly pinnate, lanceolate; pinnae obovate, crenate; root crowned with tufts of long narrow dark scales." Fronds in size and habit somewhat like pol. fragile; pinnae lanceolate, lobed above; pinnulae and lobes obovate, veiny, sharply crenate or toothed. Found on the great rocks at Tunbridge, and in Fayal one of the Azores, by Forster. 26. *A. marginatum*, margined spleenwort. Pet. Fil. 108. t. 12. f. 2. Plum. 88. t. 106. "Fronds pinnate; pinnae opposite, cordate, lanceolate, submarginate, entire." A native of South America. 27. *A. squameosum*, ically-stiped spleenwort. Pet. Fil. 112. t. 5. f. 2. Plum. Fil. 86. t. 103. "Fronds pinnate; pinnae acuminate, gashed; stipe scaly." A native of South America. 28. *A. striatum*, striated spleenwort. Plum. Fil. 15. 16. t. 18, 19. "Fronds pinnate; pinnae pinnatifid, obtuse, crenate, the terminal one acuminate." A native of South America. 29. *A. erofum*, lacerated spleenwort. Brown Jam. 94. Sloane Jam. 1. 78. t. 33. f. 2. "Fronds pinnate; pinnae trapeze-oblong, striated, erose, eared at the base." From fourteen to eighteen inches high; stipe black, simple; leaves pointed, and appearing as if torn at the margin. A native of Jamaica. 30. *A. japonicum*, Japonese spleenwort. Thunb. Jap. 334. "Fronds pinnate; pinnae acute, gash-pinnatifid, ferrulate; stipe scaly." Stipe compressed, furrowed, scaly at bottom, two feet high; pinnae opposite, sessile, lanceolate. Lines of fructification approximating. A native of Japan. 31. *A. refectum*, half-leaved spleenwort. Smith ic. ined. 3. t. 72. "Fronds pinnate; pinnae trapezium-shaped, acuminate, gash-crenate." Frond-lanceolate, a foot high; leaflets numerous, alternate, subfleshy, an inch long, entire at the base, and along the hinder edge, and appearing as if cut off at the nerve in front, and at the tip, unequally gash-crenate, veined; lines of fructification two or three. Found by Commerçon in the isle of Bourbon. 32. *A. bulbosum*, bulbous-rooted spleenwort. Lour. Coeh. 678. "Fronds pinnate; pinnae lanceolate, slightly crenate; root bulbous." A foot high, diffused; stipes fleshy, thick, tubercled, reclining; leaflets smooth; fructification in oblique parallel lines. A native of the mountains of Cochinchina, where the roots are eaten.

The following eight species are from Swartz.

33. *A. proliferum*. Swartz Prodr. 129. Sloan. Jam. 1. 71. t. 26. f. 1. "Fronds subsessile, broad-lanceolate, the first leaves obovate, rooting at the end." Leaves two inches long, ending in a point, which bows down to the ground, takes root, and sends out other leaves; seeds in a round spot on each side of the midrib. A native of Jamaica. 34. *A. pumilum*. Swartz 129. *A. anthriscifolium*, Jacq. coll. "Frond ternate, leaflets three-parted, gashed." Fronds about four inches high; leaflets elongate, triangular, acute, divided into round, blunt lobes; fructification on the whole back of the frond. A native of Jamaica and Martinico. 35. *A. dimidiatum*. Swartz 129. "Fronds pinnate; pinnae trapeze-oblong, acuminate, angular upwards, entire, and flat downwards. A native of Jamaica. 36. *A. fragrans*. Swartz 130. "Fronds subtripinnate, leaflets alternate, pinnae lanceolate, broadish, ferrate at the tip." 37. *A. grandiflorum*. Swartz 130. "Fronds pinnate; pinnae alternate, lanceolate, subserrate, at the base rectangular, lower ones rounded. 38. *A. dissectum*. Swartz 130. "Fronds pinnate; pinnae lanceolate, gash-ferrate, tailed at the tip. 39. *A. praeorsum*. Swartz. 130. "Fronds tripinnatifid; pinnae somewhat

wedge-shaped, pinnulas erose, toothed at the tip. 39. *A. cicutarium*. Swartz 130. "Frond tripinnate, very smooth, the upper one pinnatifid, leaflets lanceolate, entire." The fix last species are natives of Jamaica.

The following Species are from Forster, and are all Natives of New Zealand.

40. *A. flaccidum*. Forst. Flor. Aust. n. 426. "Fronds pinnate; leaflets alternate, remote, pinnatifid, linear, stiff. 41. *A. lucidum*. Forst. n. 427. "Fronds pinnate; leaflets opposite, oblong-ovate, acuminate, ferrulate." 42. *A. polyodon*. Forst. n. 128. "Fronds pinnate; leaflets trapezoid, acuminate, acute, doubly-ferrate." 43. *A. obliquum*. Forst. n. 129. "Fronds pinnate; stipes scaly; leaflets oblong, opposite, acuminate, ferrate, the outer margin shorter." 44. *A. obtusatum*. Forst. n. 130. "Fronds pinnate; leaflets opposite, oblong, obtuse, ferrate." 45. *A. tenerum*. Forst. n. 131. "Fronds pinnate; leaflets rhomb-oblong, obtuse, gash-ferrate." 46. *A. caudatum*. Forst. n. 132. "Fronds pinnate; leaflets pinnatifid, linear, bristle-shaped at the tip, segments blunt, gash-ferrate at the tip, stipe rough with hairs." 47. *A. bulbiferum*. Forst. n. 133. "Fronds subbipinnate; leaflets decurrent, oblong, obtuse, pinnatifid; fructifications proliferous.

Propagation and Culture. Whoever is desirous of cultivating any of these ferns, must have walls or rocks or heaps of stones to set the hardy species in, or pots may be filled with loamy undunged earth, or sand gravel and lime rubbish for that purpose, placing them in the shade. Hart's-tongue has been raised from seed; but all the sorts may be increased by parting the roots. Some of the foreign species must be placed under a common frame in winter; and it is evident that such as are natives of the West Indies and other hot climates, require the protection of a stove.

ASPENIUM. See *ACROSTICHUM*, and *MENISCIUM*.

ASPOE, in *Geography*, a small island of Sweden, in the Baltic, two miles south-west of Carlscron.

ASPONA, in *Ancient Geography*, a municipal town of Asia Minor, in Galatia, in the road from Ancyra to Cæsarea, according to Antonine's Itinerary.

ASPORENUM, a district of Asia Minor, near Pergamus; which, according to Strabo, was barren and stony, and in which was a temple dedicated to the mother of the gods, called Asporène.

ASPOTAGOEN MOUNTAIN, in *Geography*, a high land of America, that lies on the promontory which separates Mahone from Margaret's bay, on the coast of Nova Scotia. This land, which is seen at a distance, is that which is generally made by the ships bound from Europe and the West Indies to Halifax. Its summit is about 500 feet above the level of the sea.

ASPRA, a town of Italy, in the territory of the church, upon the river Aja, between Tivoli and Terni. It was formerly in the district of the Sabines, and called *Casperia*, and *Casperula*.

ASPREDO, in *Ichthyology*, a species of *SILURUS* that inhabits the rivers in America. This kind has a single dorsal fin, with five rays, and has eight cirri. Gmel. The back is carinated, and the tail forked. Klein names it *batrachus*.

ASPRELLA, in *Botany*. See *LEERSIA*.

ASPREMONT, in *Geography*, a town of France, in the department of the Meuse, and chief place of a canton in the district of St. Michiel, four miles south-east of St. Michiel.—Also, a town of France, in the department of the Maritime Alps, and chief place of a canton in the district of Nice. The place contains 1291, and the canton 5236 inhabitants: the territory includes 82½ kilometres and eight communes.

ASPRES LES VAYNES, a town of France, in the de-

partment of the Higher Alps, and chief place of a canton in the district of Serres, fifteen miles west of Gap.

ASPRIERES, a town of France, in the department of Aveyron, and chief place of a canton in the district of Villefranche. The place contains 685, and the canton 9086 inhabitants: the territory includes 165 kilometres and 23 communes.

ASPRO, a river of European Turkey, which runs into the sea, twenty-eight miles west of Lepanto.

ASPRONISI, formerly *Automate*, a small island of the Archipelago, which, by some convulsion at a former period, was separated from Thera, now Santorin. This separation is said to have happened 237 years before the Christian æra. The coast of the gulf between these two islands, composed of these rocks, black, calcined, and towering upwards of 300 feet above the level of the sea, appears to be the edge of an enormous crater, the bottom of which has never been fathomed. Aspronisi is rent internally, and covered with pumice stone; whence it has obtained the name of the "White Island," which it now bears. Sonnini's Travels in Greece, &c. p. 188. Olivier's Travels in the Ottoman Empire, p. 161.

ASPROPITI, a small town of European Turkey, in Livadia, upon the gulf of Lepanto.

ASPROPOTAMO, a river of the southern part of Greece, has its source in mount Mezzovo, and discharges itself into the Ionian sea.

ASPROSPIZIA, a town of European Turkey, ten miles S.S.W. of Livadia.

ASPUCA, in *Ancient Geography*, a town of Africa Propria. Ptolemy.

ASPUNGITANI, a people of Asia, near the Palus Mæotis. Strabo.

ASPURGIANI, a barbarous nation about the Bosphorus. Strabo.

ASS, *Asinus*, in *Zoology*. See *ASINUS*.

Ass's Milk. See *MILK*.

Ass Bay, in *Geography*, lies on the south coast of the island of Newfoundland.

Ass, *Cucumber*. See *MOMORDICA*.

Ass, *Feast of the*, in *Ecclesiastical History*, a festival which was celebrated in several churches of France, during the dark ages, in commemoration of the Virgin Mary's flight into Egypt. On this occasion a young girl richly dressed, with a child in her arms, was set upon an ass richly caparisoned. The ass was led to the altar in solemn procession, and high mass was said with great pomp. The ass was taught to kneel at proper places: a hymn no less childish than impious was sung in his praise; and when the ceremony was ended, the priest, instead of the usual words with which he dismissed the people, brayed three times like an ass; and the people, instead of their usual response, "We bless the Lord," brayed three times in the same manner. This was an act of devotion performed by the ministers of religion, and by the authority of the church. However, as this practice did not prevail universally in the Catholic church, its absurdity contributed at last to abolish it. Du-Cange, Voc. Festum.

ASSA, in *Geography*, a town of European Turkey, in the island of Cephalonia, 16 miles N.N.W. of Cephalonia.

ASSABA, in *Botany*, the name given by the people of Guinea to a shrub which they are very fond of for its medicinal virtue; they boil it in water, and rub it on a *lubo*, and it proves a cure. Phil. Transf. N° 232.

ASSABENSIS, in *Ancient Geography*, an episcopal see of Africa, in Numidia.

ASSABET, in *Geography*, a river of America, which rises

rises in Grafton, Worcester county, Massachusetts, and runs north-east into Merrimack river.

ASSACANI, or ASSACENI, in *Ancient Geography*, a people of India, who inhabited a country situated between Bazira, now Bijore, and Peucelaotis, corresponding to the present Puckholi. The government of the country, when Alexander invaded it, was possessed by a woman, as Plutarch, Curtius, and Justin, agree: she was, as they say, the wife of Assacenus, and, according to the latter, her name was Cleophes. The Assaceni, when they were attacked by Alexander, had, according to Arrian, (l. iv. c. 24, 25.) 20,000 horse, 30,000 foot, and 30 elephants, ready to take the field. Their capital was Massaga, called by Curtius Mazaga, by Strabo Magofa, and by Diodorus Massaca, which Alexander took by assault, though he was wounded on the occasion, and repeatedly repulsed; and he then proceeded to summon Bazira, the capital of the next adjoining territory. After the capture of the rock Aornus, Alexander made a second expedition into the country of the Assaceni, in order to get possession of some elephants which were sent thither that they might not fall into his hands. These elephants were at last found in the pastures near the Indus, and sent off by land to the grand army. The country of the Assaceni, afterwards called *Ashenagur*, answers, says major Rennell, (Mem. p. 173.) to the present Sewad or Sowhad; or at least Sewad was one of the divisions of Ashenagur. See *ASHENAGUR*, and *SEWAD*.

ASSACH, or ASSATH, in *Antiquity*, a kind of purgation, anciently used in Wales, by the oaths of three hundred men. It was abrogated by 1 Hen. V. c. 6.

ASSAD, in *Zoology*, the name by which some Arabic writers call the lion.

ASSA-DULCIS. See *ASA-DULCIS*.

ASSAFA, ASSAFENSIS, in *Ancient Geography*, an episcopal see of Africa, in Mauritania Sitifensis.

ASSA-FÆTIDA, or ASA-FOETIDA, in *Pharmacy*, *Teuffel's Dreck*, Germ. (Devil's Dung.)

This curious and valuable article of the *Materia Medica* is a gum resin procured from the root of a large umbelliferous plant, growing in the mountains of several provinces in Persia, and on the borders of the Persian gulf, and called in the language of the country *hingifch*. For the botanical description of this plant, see *FERULA Asa-Fetida*.

The *assa-fetida* is brought over in masses of various size and form, of a yellow brown, or bluish colour, interspersed with roundish pieces, white in the inside, which are the *assa-fetida* in tears, and the purest.

The taste of this gum is bitterish, acrid or biting, and very permanent on the tongue; when chewed, it becomes plastic, and soon dissolves in the saliva into a white milky liquid. *Asa-fetida* is principally distinguished (as its name imports) by its excessively strong fœtid smell, somewhat resembling that of garlic; which is extremely diffusible and permanent. The odour, however, is not of a sickening or very oppressive quality, and so readily can the organs be accustomed to it, that this gum makes a favourite seasoning for food in many countries of the East.

By chemical analysis, *assa-fetida* is found to consist of an essential oil, a resin, and a gummy substance, so that it is with great propriety reckoned among the gum resins. Trommsdorf obtained about fifteen or sixteen grains of essential oil from an ounce of the gum, which in one experiment swam upon the water with which it was distilled, and in another partly sank to the bottom. The remaining gum yielded 108 grains of resin, and 292 grains of gum. The analyses of Neuman and Cartheuser exhibit the same ingredients, but in different proportions. Both spirit and water

distilled off this gum resin are strongly impregnated with its ungrateful odour. If *assa-fetida* be digested with warm water, the liquor presently whitens, and by long standing the whole is reduced into a soft pulpy mass of a dirty yellow, owing to the solution of the gummy part. By trituration with water, this gum is entirely dissolved into a milky liquor which remains uniformly turbid for a considerable time. It is partly soluble in expressed oil, but scarcely so in the essential oils.

The following curious and authentic account of the method of collecting the *assa-fetida* is given from ocular testimony by Kämpfer, who visited the country in the year 1637. The plant which yields this valuable gum resin (and called in Persia *hingifch*) is found abundantly on the mountains around Heraat, the capital town of the province of Chorasan, and in the province of Laar, which extends from the river Cuur to the town of Congo on the Persian gulph. Beyond this, on the Arabian side, the plant is said to lose much of its strong odour and acrid quality, so that goats browse upon it with great delight and advantage. The richer the soil, the more valuable is the gum. The principal harvest of this substance is made on the mountains around the small town of Disgum, in the province of Laar.

The root of the *hingifch* grows for many years increasing in size, till sooner or later it sends forth the flowering umbelliferous stem, after which, on the succeeding year, the whole plant perishes. The crop of gum therefore is procured from the root before the time of flowering. When the root is four years old, it is about the thickness of a man's arm, and of considerable length; it seldom yields any gum before this age, and the older it is, the greater is the quantity of product. The root is heavy, smooth externally, when growing in a rich soil; but scaly in a sandy soil. It is often found bifurcated or further divided at about a foot below the surface. The upper part, which rises above the soil, is thickly beset with short fibres standing up like hairs. The rind of the root is easily separable when fresh, the substance within is smooth and moist, consisting of a tough fibrous part, inclosing a pulpy cellular portion, full of an oily white juice, of a most intensely fœtid smell, which when exposed to the air becomes first clammy and yellow, and at last hardens into the gum *assa-fetida*. The intensity of the smell is the test of the goodness of the gum, and the odour of the fresh juice or recent gum is beyond all comparison more fœtid than that of the gum as it is received by us. Hence in the gathering season, the whole town of Disgum smells of it; a single ship is exclusively devoted to transporting the bulk of this commodity to the ports in the Persian gulf; and in carrying smaller parcels they are tied to the top of the mast to prevent their infecting every thing on board. In a short time, however, this intensity of smell goes off.

The whole gathering of the *assa-fetida* is performed by the inhabitants of Disgum in four different journeys to the mountains. The demand for the article in foreign countries being first ascertained to be sufficient to indemnify the trouble of collecting, the gatherers divide into companies of four or five each, and proceed to the mountains about the middle of April, when the leaves of the plant are turned yellow and decaying, a sign that the root is in a proper state to yield the juice. The first operation is to remove the soil for a hand's breadth from the plant, and to strip off the leaves and the hair-like fibres, leaving the root perfectly bare and smooth, which is again earthed round and covered with a bundle of its own or any other leaves at hand, to screen it from the sun. These bundles of leaves are confined by a large stone, lest the wind should blow them off; for without this precaution, the heat of the sun

would destroy the roots in a day's time, and the juice would be spoiled. Each party of four or five men take to themselves about two thousand plants, and when several myriads of roots are thus prepared, the whole company return home.

In about forty days, or towards the end of May, the parties return to the mountain, arriving there at day break. The implements which they employ are a sharp knife for cutting the root, a broad and flat iron scoop for scraping off the dried juice, a small pan fastened to the thigh for receiving the contents of the scoop, and a double basket suspended at each end of a pole which is slung across the shoulders in order to carry the whole crop when they return home. They now uncover the root, remove the earth to a little depth from the top, and with the knife they cut off a small transverse slice. The root, in which the juice that has been collecting for forty days, has been made to stagnate by the previous operation of stripping off the boughs, now bleeds copiously; and it is immediately again covered with the umbrella of leaves as before, taking care that these do not actually touch the surface of the root and rub off the juice. On the ensuing day it is sufficiently concreted to be scraped off, after which another very thin slice is cut off from the surface of the root, which bleeds afresh, and is allowed time to concreate as before. This process is performed on half the roots on alternate days, that the employment of the gatherers may be more uniformly divided. After this collection has been twice made from each root, a third slice is cut off, the root is covered with its umbrella, and the whole company leave the mountain bringing home their first harvest, which to each party of five or six men is about fifty pounds weight of *assa-fœtida*. This first gum is reckoned of rather inferior strength to the subsequent crop, and is called *Sjiir*.

In about ten days the company again return to the mountain, making their third excursion, and they find on the top of each cut root a quantity of very fine and pure *assa-fœtida*, which having had time to concreate very slowly, is esteemed the best and most powerful, and is called *Pispaas*, and sells at a much higher price than the *Sjiir*. This latter, however, appears chiefly to owe its inferiority to a quantity of earth with which the gatherers adulterate it while yet in a very soft and semifluid state, whereas the *Pispaas* being concreted into a hard gum is not liable to this abuse. After this latter is collected, two more successive incisions are made, the juice is scraped off as before, the root is again cut and covered over, and the company return home.

The fourth and last excursion is made after an interval only of three days, for the root, which is exhausted by so many repeated bleedings, is now on the point of perishing. The *Pispaas*, or first scraping, is again collected, and the root will bear about two or three more incisions, after which it is quite exhausted, and is left to die by the heat of the sun, which happens in a single day.

Each root of the four-year-old plants will bear ten or eleven successive cuttings, but the large roots of twenty years standing or upwards, such as are sometimes found in the less accessible parts of the mountains, will yield the gum much oftener, though not with such ease, so that the harvest from these is not finished till about the end of December.

It is not quite ascertained whether the ancients were acquainted with this gum resin. Some authors have supposed it to be the *Σιλφιον*, or *Όπος σιλφίω*, of Dioscorides and Hippocrates, and the *Laferpitium* of Pliny, but of this there is considerable doubt. It may be mentioned that the root of a plant abounding in a milky juice exactly similar to the *assa-fœtida* was sent by professor Pallas to Dr. Guthrie, and

transmitted by the latter to Dr. Hope, who succeeded in cultivating it in the botanical garden of Edinburgh some years ago. The botanical character of this plant, however, was so different from that given by Kœmpfer (whose accuracy is much to be depended on), as to make it probable that there may be more than one species of plants which yield this foetid gum.

The uses and virtues of *assa-fœtida* are very considerable. In many parts of Arabia and Persia it forms an important article of the *Materia Medica*, and is employed largely as a condiment for food. In its native country, the common people resort to it as a sovereign remedy for dropsy, flatulent and colicky pains in the bowels, and even as an external application to wounds. In the above disorders, its strongly stimulant and antispasmodic power renders it peculiarly valuable, but the factor which transpires from the bodies and evacuation of those that use it is so excessive, as to be almost intolerable even to the organs of the natives. The Banjan Indians (who, not using animal food, have always recourse to the strongest and most acrid condiments, employ *assa-fœtida* liberally in their cooking, and even rub their mouth with it before meals to stimulate their appetite. Another use common to this, as to all other stimulating and heating substances in the East, is to excite the venereal appetite.

With us, *assa-fœtida* is considered as a most powerful nerve, antispasmodic, carminative, and anthelmintic, though the potency of its odour, in which probably consists a large proportion of its medical virtue, prevents its use in a variety of cases in which it might prove highly beneficial. It is of the greatest service in hypochondriac affections, in which the state of the bowels is always torpid, and digestion liable to be deranged. For the true tympanites, a clyster of two drams of *assa-fœtida* dissolved in water, thrown up once or twice a day, is an excellent remedy. Dr. Millar has introduced the use of this gum with great effect against the spasmodic asthma, and the spasmodic state of whooping cough. The dose of the solution, even to children, should be large; and it is worthy of remark, that the disgust excited by so strongly foetid a remedy is much sooner surmounted than might at first be imagined, nor, when it is in the stomach, does it ever excite sickness. The flatulent colic attending hysterical affections is much relieved by this gum, exhibited either by the mouth or in glysters. On account of its heating quality, it should be avoided when general fever is present. The vermifuge property of this gum appears to be very considerable. Kœmpfer relates, that the leaves and stalk of the fresh plant in Persia, are laid in the channels through which the water runs for irrigating gardens, and that fruit-trees and plants are thus preserved from all kinds of vermin. Probably its penetrating odour much incommodes these animals; and it has long been known both in the East and in Europe as a very powerful anthelmintic, especially when combined with the stronger purgatives, or given in the form of glyster, and followed by them.

Hufeland has employed this gum internally as a very good remedy in venereal exostosis, and caries of the bone, after the constitution has received as much mercury as it will bear.

Assa-fœtida enters into some of the compound plasters for external application, and in this combination is reckoned to be stimulant and resolvent.

The pharmaceutical preparations of *assa-fœtida* in actual use, are the following:

Lac Assa-fœtida (P. Lond.); a milky solution of two drams of the gum in half a pint of water, formed by the assistance of trituration.

Tinctura Assa-fœtida (P. Lond.); made by adding two ounces of *assa-fœtida* to a pint of rectified spirit of wine.

The

The same in the Edinburgh Pharmacopœia, but a quarter of a pint more of the spirit is used.

Rectified spirit is employed, for the dilute or proof spirit, though it dissolves more of the gum, and makes a turbid solution; whereas the tincture with the former spirit is quite clear. It may be given in doses of from ten to sixty drops. The *tinctura Fuliginis* of the former Pharmacopœia, now dissolved, was made with wood foot, assa-fœtida, and proof spirit; but the foot is properly omitted, as it does not appear to add to the virtue of the medicine, and needlessly increases its nauseous odour.

Spiritus Ammonie fatidus (P. Lond. and Ed.), prepared by distilling the spirit of ammonia with assa-fœtida, whereby it is strongly impregnated with the peculiar odour.

Pilule Galbani composita (P. Lond.), composed of several heating and graveolent gums, viz. galbanum, opopanax, myrrh, sagapenum, and assa-fœtida. The proportion of the latter is one-ninth of the whole.

Pilule Assa-fœtide composita, formerly *Pilule gummosa* (P. Ed.), composed of assa-fœtida, myrrh, and galbanum, of each one ounce, and one drachm of oil of amber.

Emplastrum Assa-fœtide, formerly *Emplastrum-antibystericum* (P. Ed.), composed of litharge plaster and assa-fœtida of each two parts, and of yellow wax, and strained galbanum, of each one part.

The smell of assa-fœtida, and along with it its peculiar virtues, are liable to be lost and injured by long and careless keeping, but a considerable latitude may be allowed in the dosing, without much danger of risk or injury to the patient. Kœmpferi Amenit. Exoticæ.—Murray Appar. Med.—Bergii Mat. Med.—Ph. Transact. vol. 75, &c.

ASSAI, in *Geography*, a town of Japan, in the province of Oomi or Omi.

ASSAI, in *Italian*, is an adverb of augmentation generally in the superlative degree, which is added to another musical term to increase its force: as *Presto assai*, *Allegro assai*, very quick; *Largo assai*, very slow.

ASSAILANT, one that assaults or sets upon another. See ASSAULT.

ASSAM, in *Geography*. See ASAM.

ASSAN, a town of Asia, in the province of Diarbekir, forty miles from Diarbek.

ASSANCALE, a strongly fortified town of Armenia, on the river Aras, surrounded with walls, and guarded by towers and a garisoned citadel, in the road to Erzeron, and a short day's journey from it. It has hot-baths that are much frequented.

ASSANUS, in *Ancient Geography*, now *Iffer*, a river of Africa, in Mauritania Cæsariensis, which by its junction with other rivers formed the ancient *Siga*, or present *Tafna*.

ASSAPOORY, in *Natural History*, a name given by the people of the East Indies to a peculiar species of slate, which they used in medicine, reducing it to powder, and strewing this on burning coals, that the sick person may receive the fumes of it. It is principally used for children, when they are disordered by taking cold. The smell of it while burning is very offensive.

ASSAR, in *Geography*, a river of Abyssinia, which is the southern boundary of AROOSI, as Kelti is the northern. This is the largest river which Mr. Bruce saw, except the Nile; it was about 170 yards broad, and two feet deep, running over a bed of large stones, though generally through a flat country; its course is rapid, and after much rain it is scarcely passable, owing to the height of its source in the mountains of the Agows. Its course where Mr. B. forded it was from south to north; but it soon turned to the north-east, and, after flowing five or six miles, joined the Nile.

Below the ford is a cataract above twenty feet high, and eighty broad. The whole river falls in an undivided sheet of water with incredible violence and noise; but below this cataract it becomes much narrower, till it loses itself in the Nile. Bruce's Trav. vol. iii. p. 562.

ASSARA, in *Ancient Geography*, a river of Africa, in Mauritania Cæsariensis. Ptolemy.—Also, a place of Asia, in the department of Mesopotamia.—Also, a river of Asia, which discharged itself into the Mediterranean, in the gulf west of the great promontory. Ptolemy.

ASSARABACCA. See ASARABACCA.

ASSARACÆ, in *Ancient Geography*, a people of Africa, in the interior Libya, placed by Ptolemy east of mount Aranga.

ASSARIUM denotes a small copper coin, being a part or diminutive of the *as*.

The word is used by Suidas indifferently with *ὀβολος*, and *νομισμα*, to denote a small piece of money; in which he is followed by Cujacius, who defines *ασσαριον*, by *minimus æris nummus*.

The assarium, or imperial *as*, was worth one half-penny English. This division of the *as* began to be called assarium as soon as its size was reduced to half an ounce, and it was then always struck on copper. Its size regularly corresponded to that of the dupondius, and declined till at the close of the reign of Gallienus, it became what is called small brass, and weighed only about the eighth part of an ounce. In the time of Dioclesian, it was about the twentieth part of an ounce; and in that of Justinian, it was the same with *λεπτα*, *lepta*, or the smallest coin, excepting the *νομισμα*, *nomisma*. The Greek assarion kept pace with the Roman. Pinkerton's Ess. on Medals, vol. i. p. 121.

We find mention of the assarion in the gospel of St. Matthew, chap. x. ver. 29.

ASSARLI, in *Geography*, a town of European Turkey, in the province of Romania, 44 miles E.S.E. from Filippopoli.

ASSARON, an ancient Jewish measure of capacity, equal to the tenth part of the *ephah*. Exod. xvi. 16.

The assaron is the same with what is more frequently called *omer* or *gomer*.

Josephus calls it *εσσαρον*; in the Hebrew it is also written *assarith*. Calmet and Arbuthnot.

ASSART, ASSARTUM, (derived either from *assartir*, Fr. to make plain, or, as Spelman supposes, from *exertum*, pulled up by the roots, for it is sometimes written *essart*), in *Law*, an offence committed in the forest, by pulling up by the roots, woods which serve as thickets and covert for the deer, and making them plain as arable land. This is the greatest trespass that can be committed in the forest, being more than a waste. For whereas waste of the forest is but the felling and cutting of the coverts, which may grow again; assart is a total extirpation. What we call assartum, is elsewhere termed *disboscatio*.

ASSART was also used for a parcel of land assarted. See ESSART.

ASSART-rents were those formerly paid to the crown for forest-lands assarted. Stat. 22. Car. II. c. 6. See RENT.

ASSASI, in *Ichthyology*, a species of BALISTES that inhabits the Red Sea. The body is muricated with brown warts; and a triple row of black ones on the tail. Fork. Arab. Length about six inches, brown, belly white, vent black, surrounded by a fulvous ring. The flesh of this kind is eatable but insipid.

ASSASSINS, in *Ancient Geography and History*, the name of a people of Phœnicia, who inhabited the mountains of Libanus, to the north-east of the city of Tyre, and who pretended to derive their origin from the family of the

Arscidae,

Arfacidæ, the founders of the Parthian empire. To a corruption of Arfacidæ into Assassins some have ascribed the etymology of the appellation by which they were distinguished; whilst others suppose it to have been formed from *Hassins*, in reference to the poniard, which was their customary weapon. It is said that they were a sect of Mahometans, who arose in the year 891, when Carmat, or Karmat, a pretended prophet in Arabia, drew after him many followers. He fasted, and laboured with his hands, and prayed fifty times a day. He promised to re-establish the family of Ali, and to dethrone the caliphs. He released his disciples from the most troublesome observances of their religion, permitting them to drink wine and to eat any kind of food. By this indulgence, joined to the hopes of plunder, he collected a great army, and ravaged the dominions of the caliph. This Carmat had a series of successors, of whom the most famous was Abu-Thaheer or ABUDHAHER. These Carmatians, or KARMATHIANS, being enfeebled, kept their religion concealed, mixed themselves with the Mahometans, and were dispersed over various parts of the east. About the year 1090, they were settled in Persia; where Hacen, or Al-Hafan their chief, receiving a threatening message from the sultan, commanded one of his subjects, in the presence of the messenger, to sling himself from the top of a tower, and another to kill himself, which they instantly performed. Upon which Hacen said to the messenger, "Tell your master that I have 70,000 men ready to do as much." In Persia and Syria, they were denominated *Ismaelians*; and among the hills to the south of the Caspian, these odious sectaries maintained their power, for nearly two centuries. Their prince, or Imam, established his lieutenants to lead and govern the colony of mount Libanus, so famous and so formidable in the history of the crusades. They had acquired or founded ten castles in the hills above Tortosa, and possessed several cities about Tyre. As these enthusiasts had possessed themselves of the best part of Al Jebal, in the Persian Irak, under the conduct of Al Hafan Ebn Masbah, or Al Hafan Sabah, as he is sometimes called, the commencement of the dynasty of the Ismaelian princes is generally placed at this period, or the year of the Hegira 483, A. D. 1090. The style or title adopted by these princes was "Sheikh Al Jebal," that is, the prince of Al Jebal; or "the chief of the mountainous country;" the province of Al Jebal being such a country, and from this circumstance deriving its modern name, "Kuhistan or Chufistan;" the words "Sheikh Al Jebal," may likewise be properly rendered "the senior, or old man of the mountain," and hence the chief or prince of the Assassins has obtained the appellation of "the old man of the mountain," amongst the writers of the history of the Holy Wars. Al Hafan Ebn Masbah and his descendants reigned in Al Jebal 171 years, till the whole race of them was destroyed by the Tartar Hulaku, or Holagou Khan, the grandson of Zingis, or Jenghis Khan, who abolished the caliphate by the reduction of Bagdad, in the year of the Hegira 656, A. D. 1258. Gibbon says that the Ismaelians of Syria were extirpated by the Mamelukes about the year 1280. Not a vestige is left of these enemies of mankind, whose daggers have been felt both in the east and the west, except the term *assassin*, which, in the most odious sense, has been adopted in the languages of Europe. With the fanaticism of the Koran, the Ismaelians had blended the Indian transmigration, and the visions of their own prophets; and it was their first duty to devote their souls and bodies in blind obedience to the vicar of God. Such was the ascendant which their prince had acquired over his deluded and fanatical subjects, that they paid the most implicit deference to his commands; esteemed assassination meritorious, when

sanctified by his mandate; courted danger, and even certain death, in the execution of his orders; and fancied, that when they sacrificed their lives for his sake, the highest joys of paradise were the infallible reward of their devoted obedience. It was the custom of this prince, when he imagined himself injured, to dispatch secretly some of his subjects against the aggressor, to charge them with the execution of his revenge, to instruct them in every art of disguising their purpose; and no precaution was sufficient to guard any man, however powerful, against the attempts of these subtle and determined ruffians. The greatest monarchs stood in awe of this prince of the assassins; and in 1192, Conrad, marquis of Montserrat, a zealous crusader, fell a sacrifice to his resentment. The prince determined to avenge the death of some of his people who had been murdered by the inhabitants of Tyre, then under the government of this nobleman, employed two of his subjects for the execution of his purpose. Those men insinuated themselves in disguise among Conrad's guards, and openly, in the streets of Sidon, wounded him mortally; and when they were seized and put to the most cruel tortures, they triumphed amidst their agonies, and rejoiced that they had been destined by heaven to suffer in a cause so just and meritorious. The prince of the Assassins himself avowed the action in a formal narrative which he sent to Europe. In 1173, a prince of the Assassins in Phœnicia, sent a deputy to the king of Jerusalem, declaring himself and his people inclined to receive the Christian religion; but the knights templars assassinated the deputy on his return home, and the king was unable to chastise or restrain them. In 1213, Louis of Bavaria was murdered by the assassins. The favourers of these assassins were condemned by the council of Lyons, under Innocent IV. in 1231. Hume's Hist. vol. ii. p. 18. Gibbon's Hist. vol. xi. p. 417. Jortin's Rem. on Eccl. Hist. vol. v. p. 237. Mod. Un. Hist. vol. iii. p. 60.

ASSASSINS, a denomination which distinguished a faction that sprung from the followers of Judas of Gallilee, in the Jewish war that preceded and succeeded the destruction of Jerusalem. The head of this faction was Eleazar, the grandson of Judas the Gaulonite. For their fate at the siege of Massada, which terminated the Jewish war, see MASSADA. Of those who had previously escaped, some fled to Alexandria, where they were at first kindly received by their brethren; but as they excited sedition and tumult, they were delivered up to the Romans, and 600 of them put to death. An order was also issued for shutting up the Jewish temple at Alexandria, and the worship of it was discontinued. See GAULONITES and ZEALOTS.

ASSASSIN, in Law, a person who kills another with the advantage either of an inequality in the weapons, or by means of the situation of the place, or by attacking him at unawares. For the etymology of the term, see the preceding article.

There was a certain law of nations, an opinion received in all the republics of Greece and Italy, whereby he that assassinated an usurper of the supreme power, was declared a virtuous man. At Rome, especially after the expulsion of the kings, the law was formal and solemn, and instances of it admitted. The commonwealth armed the hand of any citizen, and created him magistrate for that moment. Confid. sur les Cauf. de la Grand. des Rom. chap. xi. p. 121.

ASSASSINS' Bay, in Geography, lies on the south-east coast of New Zealand, in the South Pacific Ocean.

ASSATION, formed of the Latin *assare*, to roast, the preparing or dressing of foods, or medicaments, in their own juices, by an external heat, without addition of any foreign moisture. Assation, in respect of culinary matters, is more frequently

frequently called roasting; and in pharmacy, uſtion, or torrefaction.

ASSAULT, in the *Art of War*, ſignifies a general attack made by a beſieging army, to become maſters of an intrenched camp, poſt, or fortrefs. In the latter caſe it is particularly underſtood to take place without the advantage of any works to ſcreen the aſſailants from the fire of the garrifon.

Anciently, when tactics were yet in their infancy, and the art of beſieging places bore comparatively no proportion to that of defence, we rarely meet with inſtances of walled towns entered by aſſault. A cloſe blockade was generally the meaſure reſorted to, and the garrifon were ſlowly diſtreſſed, and the patience of the beſiegers exhausted, by circumvallations ſupported for years. The ſieges of Azotus by the Egyptians, of Nineveh by the Medes and Babylonians, and of Babylon by Darius Hyſtaſpes, where treachery alone prevented a reſiſtance equally tedious with that of the two former places, are evidences of the almoſt inſuperable difficulties attending the reduction of ſtrong holds in earlier days.

The Greeks, previously to the æra of Alexander, had very imperfect notions of aſſaulting towns. The Carthaginians firſt demonſtrated the poſſibility of ſhortening ſieges by the ſummary expedient of reiterated and furious attacks. Thus they became maſters, in the fifth century B. C., of Himera and Selinoſ in Sicily; and, nearly two hundred years after, of Saguntum in Spain. The cruelties they executed againſt the unfortunate inhabitants were afterwards amply retaliated upon themſelves by the Romans.

That warlike nation was employed for ages in almoſt continual wars before they practiſed this method of attack. Surpriſe, not an open and vigorous aſſault, made them maſters of Veii. In the firſt Punic war, Lilybæum for years baffled their utmoſt efforts, though they had then united to their own ſyſtem of tactics, whatever was moſt new and valuable in that of the Greeks. The ſtorming of New Carthage by Scipio is one of the firſt and moſt memorable examples of a ſucceſſful aſſault in the Roman annals. To what perfection they afterwards carried this branch of military ſcience, the capture of Athens by Sylla, of Avaricum by Cæſar, and of Cremona and Rome itſelf by the armies of Veſpaſian, are melancholy witneſſes.

In the dark period of the decline of the empire, the barbarians who ſucceſſively invaded it only carried on their operations againſt fortified places by continued aſſaults, which were commonly ſucceſſful, nor were the ſuperior tactics of the Romans then capable of reſiſting their fury.

Alike impetuous and irreſiſtible, the Mogul deſtroyers, who, under Jengis Khan and his ſucceſſors, deſolated the faireſt regions of Aſia, mocked the ordinary rules of war. A place which had once reſuſed capitulation, never enjoyed a repetition of the offer. Aſſault ſucceeded to aſſault with aſtoniſhing rapidity, and no reſpite was allowed to the devoted garrifon, till weakened beyond the power of further reſiſtance, they were involved, with the innocent inhabitants, and the place itſelf, in one common deſtruction.

With the Europeans of the middle ages, the ſcience of attack loſt much of its former ſuperiority; and the caſtle of a petty baron frequently baffled the endeavours of the moſt powerful monarch.

The invention of gunpowder offered new advantages to the art of beſieging; but general aſſaults have become infinitely more dangerous againſt ramparts mounted with artillery. Even after the requiſite breach is made, it is abſolutely neceſſary to deſtroy the works whoſe fire, on either ſide, flank and protect the point of attack. Before therefore a ſtorm is attempted, the beſieging general ſhould

aſcertain that hiſ troops are expoſed to no other fire than the garrifon are able to maintain from the front of the breach itſelf.

Owing to the fancied advantages a regular garrifon were ſuppoſed to poſſeſs behind good fortifications, the rules of war formerly required a governor to ſuſtain three aſſaults before he ſurrendered. But ſuch rigid notions have been by degrees diſregarded. Few commanders chuſe, by maintaining a fortrefs to the laſt extremity, to expoſe their troops to an uſeleſs ſlaughter, or the inhabitants to the murder and pillage inevitably the attendants of a ſtorm. At Glogaw, carried by the Pruſſians in 1741, and Bergen op Zoom, by the French in 1747, ſucceſs was more the effect of a coup de main than a regular aſſault.

The Turks, however, materially differ from us on this head. It is with them a maxim of religion, never to ſurrender to Chriſtians a place where they have once poſſeſſed a moſque. They, therefore, hold out to the laſt. Severe puniſhment has, indeed, attended this obſtinacy. Bender, Oczakow, and Iſmael, are memorable for the undiſtinguiſhed ſlaughters exerciſed by Ruſſian ferocity, and have crowned with bloody laurels the names of Pamiſ, of Potemkin, and of Suwarſow.

The capture of Warſaw, in 1794, is a freſh inſtance of the ſummary methods obſerved by the latter general in attacking towns, and of the lamentable conſequences of ineffectual reſiſtance to a barbarous and unforgiving enemy.

During the late war, an inceſſant cannonade and bombardment have been chiefly ſubſtituted by beſiegers to the ſyſtem of aſſault. Pavia indeed, with ſome ſmaller places in Italy, ſuffered, in 1796, all the horrors of a ſtorm, from the French army, under general Buonaparté. The year 1799 alſo furniſhes four remarkable inſtances: 1. The attack of Naples (January 22), by general Championet, to which the raſhneſs of the Lazzaroni madly expoſed themſelves; but memorable for the daring and deſperate, though unſucceſſful reſiſtance, maintained by them againſt regular troops. 2. The ſtorming of Jaffa by Buonaparté (Feb.), the garrifon of which place, 3,500 ſtrong, was nearly extirpated, preſents a ſtriking and frightful picture of Turkiſh obſtinacy. 3. That of Acre (May 8,) where the French, after having penetrated within the town, were eventually repulſed with great loſs, is the more worthy of notice, from its having effectually checked the adventurous progreſs of Buonaparté on the ſide of Syria. 4. The aſſault of Zurich (Sept. 24) by the republican army of Helvetia, and which may with more propriety be denominated a battle, diſplays ſo much ingenuity in the complicated movements directed by general Maſſena, all of which were inſeparably connected with the main point of attack, ſuch preciſion, firmneſs, and bravery in the execution, and ſuch importance in the conſequences, as to demand a ſeparate relation elſewhere. It will here be ſufficient to obſerve, that the Ruſſian camp before Zurich was forced, the town itſelf carried ſword in hand, and that this event gave ſo decided a ſuperiority to Maſſena, as to be immediately followed by a precipitate retreat of the allied forces from Switzerland.

Aſſailants, as ſuch, acquire a very conſiderable ſuperiority over thoſe they attack. This ſuperiority, ſays an excellent writer on tactics, may be derived from two cauſes; the firſt a physical one, viz. that air of boldneſs, peculiar to aſſailants, cannot but aſtoniſh and intimidate an enemy who ſees that no difficulty can ſtop them; the ſecond is, that the aſſailants can command as much time as they pleaſe, to take their meaſures for overcoming all obſtacles that can be thrown

in their way. Mante's Translation of Maizeroy's Tactics, vol. i. p. 186, &c.

ASSAULT, *Assultus*, or *Insultus*, in Law, an offer or attempt to hurt the person of another.

Or, it is a violent injury offered to a man's person, of a larger extent than battery, because it may be committed by only offering to give a blow, without touching him, as if one lifts up his cane, or his fist, in a threatening manner, at another; or strikes at him, but misses him; this is an assault described by Finch (l. 202.) to be "an unlawful setting upon one's person." But no words whatsoever, be they ever so provoking, can amount to an assault, notwithstanding many eminent opinions to the contrary. 1 Hawk. P. C. 62. § 1. Assault does not always imply a blow; for, in trespasses for assault and battery, a man may be found guilty of the assault, and excused of the battery. 1 Hawk. P. C. 263. But every battery includes an assault.

For an assault, the offender is subject both to an action at the suit of the party, in which he shall render damages; and also to an indictment at the suit of the king, in which he shall be fined according to the heinousness of the offence. 1 Hawk. 263.

The assaulting of a person with offensive weapons, with a design to rob (though no robbery ensues), is punished with transportation for seven years. 7 Geo. II. c. 21. Assaulting in the street or highway, with intent to spoil people's cloaths, and so spoiling them, is felony and transportation, by 6 Geo. I. c. 23. sec. 11. And the assault of a privy counsellor in the execution of his office, is felony without benefit of clergy, by 9 Ann. c. 16. Assaulting or threatening a counsellor at law, or attorney employed in a cause against a man, or a juror giving verdict against him, or an adversary for suing him, &c. is punishable on an indictment, by fine and imprisonment, for the contempt. 1 Hawk. 58. There are other assaults to which peculiar punishments are annexed; thus, stat. 5 Hen. IV. c. 6, and 11 Hen. VI. c. 11. render assaults on members of parliament more than usually penal, upon non-surrender on proclamation. Stat. 9 Edw. U. st. 1. c. 3. gives a double criminal process against those who assault clergymen, indictment for the temporal offence, and process in the ecclesiastical court for the spiritual one. By stat. 5 Eliz. c. 4., servants assaulting their master, mistress, or overseer, may be imprisoned twelve months, on conviction before two justices. By stat. 9 Ann. c. 14. § 8. to assault, beat, or challenge another, on account of money won by gaming, incurs forfeiture of goods, and two years imprisonment. By stat. 9 Geo. I. c. 22. to assault another by wilfully shooting at him, is felony without clergy. By stat. 12. Geo. I. c. 34. assaulting a master woolcomber or weaver, &c. for not complying with the demands of workmen, is felony and transportation for seven years. In many cases a man may justify an assault: the defendant may justify "molliter manus inposuit," in defence of his person or goods; or of his wife, father, mother, or master, or for the maintenance of justice. Bract. 9. E. 4. 35 H. VI. c. 51. There are also other cases in which assault may be justified: as, of an officer resisted in arresting a man by warrant, of a parent reasonably chastising his child, or a master his servant, or a schoolmaster his scholar, or a gaoler his prisoner, or even a husband his wife for reasonable and proper cause, &c. Hawk. P. C. 258.

ASSAY, *Essay*, or *Say*, in Metallurgy, the proof or trial of the goodness, purity, value, &c. of metals, and metalline substances.

In ancient statutes, this is called *touch*; and those who had the care of it, *keepers of the touch*. Under Henry VI. divers cities were appointed to have *touch* for wrought silver

plate. 2 Hen. VI. c. 14. By this one might imagine they had no better method of assaying than the simple one, by the touch-stone; but the case is far otherwise. In the time of king Henry II. the bishop of Salisbury, then treasurer, considering that though the money paid into the king's exchequer for his crown-rents, did answer *numero & pondere*, it might nevertheless be mixed with copper or brass; wherefore a constitution was made, called the *trial by combustion*; which differs little or nothing from the present method of assaying silver. See a description of it in the Black Book in the Exchequer, written by Gervase of Tilbury, c. xxi. The trial is also there called *essatum*, and the officer who made it is named *fusor*. Vid. Lownd. Ess. Amend. Silv. Coin. p. 5. & 155.

The method still in use of *assaying* gold and silver, was first established by an act of the English parliament, in 1354. Anderson's Com. vol. i. p. 187.

ASSAY, or *Essay*, *Essayer* Fr. *Probiere* Germ. The term assay in its most extended signification, means a species of analysis applied to metallic ores or alloys, the object of which is to ascertain the quantity and proportion of only one of the ingredients of the mass. Hence it differs from analysis in general, as this takes notice of all the ingredients: thus, in the assay of copper ores, the sole object is to know the proportion of pure metallic copper which a given weight of the ore can be made to yield; disregarding all the other component parts, such as the sulphur, iron, silica, &c. or rather confounding them together under the general term impurities. The same mode of inquiry takes place in the assay of a mixture of gold, or gold and silver, with copper, lead, tin, or any other of the inferior metals, the whole attention being directed to the proportion of fine, or of gold and silver contained in the alloy. For the various methods of conducting the assays, the reader is referred to the several metals; in all which articles the second section is devoted to the assay and analysis of the metal treated of. Gold and silver, from their superior commercial value, from their being the universal mediums of exchange throughout the civilized world, and from their being the materials of the most costly and splendid utensils, ornaments, and articles of furniture, have demanded and obtained a greater accuracy in their assay than any of the other metallic bodies. The method of conducting it has been the subject of various legislative regulations, has from time immemorial been entrusted to a distinct craft or profession, and has more than any other process engaged the attention of some of the most able and accurate chemists of the present as well as of former ages. For these reasons, under the articles **GOLD** and **SILVER**, we shall enter at length into the consideration of this important subject. It was at first our intention to have introduced in this place all the matter relative to the art of the assayer, but by such an arrangement, much unnecessary repetition would have been required of information that properly belongs to the articles *Assay-Balance*, *Cupel*, *Cupellation*, *Coin*, *Assayer's Furnace*, &c.

ASSAY-MASTER, an officer, under certain corporations, entrusted with the care of making true *touch*, or *assay*, of the gold and silver brought to him; and giving a just report of the goodness or badness thereof.

Such is the assay-master of the mint in the Tower, called also *assayer of the king*.

The assay-master of the goldsmiths' company is a sort of assistant-warden, called also a *touch-warden*, appointed to survey, assay, and mark all the silver-work, &c. committed to him.—There are also assay-masters, appointed by statute, at York, Exeter, Bristol, Chester, Norwich, Newcastle, and

and Birmingham, for *assaying* wrought plate. The assayer is to retain eight grains of every pound troy of silver brought to him; four whereof are to be put in the *pix*, or box of deal, to be re-assayed the next year; and the other four to be allowed him for his waste and spillings. 12 and 13 W. III. c. 4. 1 Ann. c. 9.

Note. The number of penny-weights set down in the assayer's report, is to be accounted as *per pound*, or so much in every pound of twelve ounces troy. For every twenty penny-weight, or ounce troy, the silver is found by the assay to be worse than standard, or sterling, six-pence is to be deducted; because every ounce will cost so much to reduce it to standard goodness, or to change it for sterling.

In gold, for every carat it is set down to be worse than standard, you must account that in the ounce troy it is worse by so many times 3*s*. 8*d*. And for every grain it is set down worse, you must account it worse by so many times 11*d*. in the ounce troy. And for every half grain 5*d*. $\frac{1}{2}$; for so much it will cost to make it of standard goodness, &c. *Touchstone of Gold and Silver Ware*, &c. p. 41, &c.

Assay-Balance, a balance used in the operation of assaying. See *BALANCE*.

Assay of Weights and Measures, signifies the trial or examination of common-weights and measures, by the *CLERK of the market*.

ASSCHE, in *Geography*, a town of France, in the department of Dyle, and chief place of a canton, in the district of Brussels. The place contains 3768 and the canton 18,607 inhabitants; the territory includes 140 kilometres and 19 communes.

ASSE LE BERANGER, a town of France, in the department of the Mayenne, and chief place of a canton in the district of Evron, one league from Evron.

ASSE la Beisve, a town of France, in the department of the Sarthe, and chief place of a canton in the district of Freney le Viscomte, eight miles S.S.W. of Alençon.

ASSECOMA, in *Ancient Geography*, a place of Spain, between Pria and Brevis. Itin. Anton.

ASSECTOR, in *Entomology*, a species of *ICHNEUMON* that inhabits Europe. It is black; abdomen falcated, with three rufous spots on each side; posterior flanks clavate and black. Fabricius.

ASSED-ABAD, in *Geography*, a small town of Persia, towards Amadan.

ASSELEN, a town of Germany, in the circle of Westphalia, nine miles S.E. of Paderborn.

ASSELO, a town of Persia, in the province of Farsistan, on the north coast of the Persian gulf, 47 leagues south of Schiras.

ASSELYN, JOHN, in *Biography*, a painter, was born in Holland about the year 1610, and after receiving his education under Isaac Vanden-Velde, a battle-painter, at the Hague, travelled into France and Italy. He studied at Rome, and particularly imitated the manner of Bambocchio. His hands and fingers were crooked, and from this circumstance he was denominated by the Flemish students "Krabate." After improving his time during his residence at Rome, he passed through Lyons on his return, and there married the daughter of a merchant at Antwerp, whom he brought with him to Amsterdam in 1645. His countrymen received him with applause, and from him the Dutch painters first acquired the idea of imitating the natural manner of colouring landscape, for which Claude Lorrain has been so much admired; and abandoning the sombre style, with the prevalent blue and green tints of Paul Bril and Braugel. Asselyn was in great reputation at Amsterdam, and his paintings, consisting of history pieces, battles, and landscapes

exhibiting antiquities, and also men and animals, were purchased at a high price; they were distinguished by their correctness and admirable brilliance of colouring; and a set of 24 of his landscapes and ruins has been engraved by Perelle. Asselyn died at Amsterdam in 1650. *D'Argenville, Vies des Peintres. Gen. Biog.*

ASSEM, or *GREAT ARDRAH*, in *Geography*, a town of Africa, on the Slave coast, the capital of the kingdom of Ardrah. It was formerly the residence of the kings of Ardrah, and five or six leagues in circuit. The streets are very wide, and each house surrounded by its own rampart, as a security against fire. The walls are of mud, but high and thick, and also compact as if they were formed of stone and lime. The gates are defended by deep ditches in the inside, which are crossed by draw-bridges, and near each gate is a guard-room for the convenience of the officers and soldiers. The river Euphrates compasses one half of the city. The buildings are of clay, covered with straw, and the streets are kept in good order. The people are numerous, and the women are richly dressed. In the conquest of the kingdom of Ardrah by the king of Dahomay, in 1724, this city suffered very much. It is situated 16 leagues from the sea, and to the north-east of Little Ardrah.

ASSEMBLAGE, the joining, or uniting, of several things together; or, the things themselves so joined or united. The assemblage of two bones for motion, is called *ARTICULATION*. Carpenters and joiners have various kinds and forms of assemblage; as, with mortises and tenons, with dove-tails, &c. See *DOVE-TAIL*, *MORTISE*, &c. The Europeans admire the *CARPENTRY* of some Indians, where the assemblage is made without either nails or pins. Herrera.

ASSEMBLY is also used in a more general sense, for a collection of several things, so disposed together, as that the whole has an agreeable effect. It is with discourse as with bodies, which owe their chief excellency to the just *assemblage* and proportion of their members.

ASSEMBLY, formed of *adsimulate*; compounded of *ad*, to, and *simul*, together; a meeting of several persons in the same place, and with the same common design. Assemblies of the clergy are called convocations, synods, and councils of the clergy; though that annual one of the kirk of Scotland retains the name general assembly, &c. The assemblies of judges, &c. are called *courts*, &c.—The assemblies of the Roman people were called *comitia*.—The assembly of a preacher, &c. is his audience. The academies have their assemblies, or days of assembly.

Under the Gothic governments, the supreme legislative power was lodged in an assembly of the states of the kingdom, held annually for the like purposes as our parliament. See *PARLIAMENT*.

ASSEMBLY, General, in *Ecclesiastical History*, is an assembly possessing the highest authority in the church of Scotland, and consisting of a certain number of ministers and ruling elders delegated from each presbytery, and of commissioners from the universities and royal boroughs. A presbytery, composed of fewer than 12 parishes, sends two ministers and one ruling elder to this assembly; if it contain between 12 and 18 ministers, it sends three of these, and one ruling elder; if it contain between 18 and 24 ministers, it sends four ministers and two ruling elders; and of 24 ministers, when the presbytery consists of so many, it sends five with two ruling elders. Every royal borough deputed one ruling elder, and Edinburgh two; and their election must be attested by the kirk-session of their respective boroughs. Every university sends one commissioner from its own body. The commissioners are chosen annually six weeks before the meeting of the assembly; and the ruling elders are often men of

the first eminence in the kingdom for rank and talents. In this assembly, which meets once a year, the king presides by his commissioner, who is always a nobleman; but he has no voice in their deliberations. Appeals are brought from all the other ecclesiastical courts in Scotland to the general assembly; and in questions purely religious, no appeal lies from its determinations. The first general assembly of the church of Scotland was held in the year 1560; but it bore, says Dr. Robertson (Hist. Scotl. vol. i. p. 251.), all the marks of an infant and unformed society. The members were few, and of no considerable rank; and, of course, a convention so feeble and irregular could possess no great authority; and conscious of their own weakness, the members put an end to their debates, without venturing upon any decision of much importance. By degrees, however, it acquired dignity, authority, and permanence.

ASSEMBLY, *General*, of the Jewish Rabbis. See AGEDA.

ASSEMBLY of *Divines*, is the name given to an association of ministers and others, summoned by an ordinance of parliament, in the year 1643, to meet at Westminster, "for settling the government and liturgy of the church of England, and for vindicating and clearing the said church from false aspersions and interpretations." This assembly consisted of 121 divines, and 30 laymen, "celebrated in their party," says Mr. Hume, "for piety and learning." The several parties in this assembly were composed of Presbyterians, Erastians, and Independents. By their advice, alterations were made in the thirty-nine articles, the first fifteen of which employed their committee for ten weeks; and these alterations chiefly respected the doctrinal articles, and were designed to render their sense more express and determinate in favour of Calvinism. It was of still greater importance, that they utterly abolished the liturgy, and, in its stead, established a new directory for worship, by which, suitably to the spirit of the puritans, the utmost liberty, both in praying and preaching, was indulged to the public teachers. They also agreed in introducing and enforcing the solemn league and covenant, by which episcopacy was abjured; and a national engagement, attended with every circumstance that could render a promise sacred and obligatory, was entered into with the Scots, never to suffer its re-admission. All these measures, says Mr. Hume, shewed little spirit of accommodation in the parliament; and the king's commissioners were not surprised to find the establishment of presbyters, and the directory positively demanded, together with the subscription of the covenant, both by the king and kingdom. This assembly subsisted till Feb. 22, 1648, about three weeks after the king's death, having sat five years, six months, and twenty-two days, in which they had 1163 sessions. They were afterwards changed into a committee for the examination of such ministers as presented themselves for ordination or induction into livings, and met once a week, till March 25, 1652; when the long parliament being turned out of the house by Oliver Cromwell, they broke up without any formal dissolution. The works of the assembly, besides some letters to foreign churches, and occasional admonitions, were, 1. "Their humble advice to the parliament, for ordination of ministers, and settling the presbyterian government." 2. "A directory for public worship." 3. "A confession of faith." 4. "A larger and shorter catechism." 5. "A review of some of the thirty-nine articles." "When posterity," says Mr. Neal, "shall impartially review this assembly of divines, and consider the times in which they lived, they will have a just veneration for their memory; for though their sentiments in divinity were in many instances too narrow and contracted, yet, with all their faults, amongst which

their persecuting zeal for religion was not the least, they were certainly men of real piety and virtue, who meant well, and had the interest of religion at heart; and most of them possessed as much learning as any of their contemporaries: the names of Lightfoot, Selden, Gataker, Greenhill, Arrowsmith, Twisse, bishop Reynolds, Wallis, &c. will always meet with esteem from the learned world; and had they not grasped at coercive power or jurisdiction over the consciences of men, their characters would have been unblemished." Lord Clarendon (vol. i. p. 530.) allows, "that about twenty of them were reverend and worthy persons, and episcopal in their judgments; but as to the remainder, they were but pretenders to divinity; some were infamous in their lives and conversations; and most of them of very mean parts and learning, if not of scandalous ignorance, and of no other reputation than of malice to the church of England." Mr. Eachard confesses, that his lordship has, perhaps with too much severity, said, that some of these divines were infamous in their lives and characters; but Mr. Baxter, who knew most of them, says, "they were men of eminent learning, godliness, ministerial abilities, and fidelity; and being not worthy to be one of them myself," says he, "I may more fully speak the truth, which I know, even in the face of malice and envy, that as far as I am able to judge by the information of history, and by any other evidences, the Christian world, since the days of the apostles, had never a synod of more excellent divines than this synod, and the synod of Dort." "The *divine right*," says Mr. Neal, "of the presbyterian government, first threw them into heats, and then divided them; engaging them first with the parliament, and then with the Independents and Erastians. Their opposing a toleration, raised them a great many enemies, and caused a secession in their own body; for after they had carried the question of "divine right," the Independents and Erastians deserted them, after which they found it very difficult to muster as many as would make a house. Had the parliament dissolved them at this juncture, they had separated with honour; but they dwindled by degrees, and the business of the church was translated to the provincial assemblies. Hume's Hist. vol. vii. p. 32. Neal's Hist. Pur. vol. ii. p. 35, &c. p. 335. 4to.

ASSEMBLIES of the *campus Martii*, or *Maii*, of the field of *Mars*, or *May*; see FIELD of *Mars*, &c.—Rebellious assembly; see REBELLIOUS.—Unlawful assembly; see UNLAWFUL.

ASSEMBLY is particularly used in the *beau-monde*, for a stated and general meeting of the polite persons of both sexes, for the sake of conversation, dancing, and play.

ASSEMBLY is also used in the *Military Art*, for the second beat of the drum, being that before the march. On hearing this, the soldiers strike their tents, roll them up, and then stand to their arms.—The third beating is called the *march*, as the first is called the *general*.

ASSEMON, AZMON, or JESHIMON, in *Ancient Geography*, a city in the wilderness of Meon, south of the tribe of Judah, 1 Sam. xxiii. 25. Josh. xv. 4. Also, an encampment of Israel in the desert. Azmon was the nearest city to Egypt, south. Numb. xxxiii. 29. xxxiv. 4, 5.

ASSENA, in *Geography*. See ESNE'.

ASSENEDE, a town of Flanders, one mile south-west of Sas de Ghent. By the new arrangement, it is referred to the department of Escaut, and is the chief place of a canton in the district of L'Ecluse. The place contains 3120, and the canton 10,435 inhabitants; the territory includes 120 kilometres and 7 communes.

ASSENEPOWALS, a lake of America, westward of Christianaux

Christianaux lake, through which its waters run into Albany river, in New South Wales.

ASSENHEIM, a town of Germany, in the circle of the Upper Rhine, and county of Solms Rodelheim, at the conflux of the Wetter and Nidda, eleven miles north-east of Frankfort on the Mayne. N. lat. $50^{\circ} 11'$. E. long. $8^{\circ} 50'$.

ASSENS, a sea-port town of Denmark, situate on the west coast of the island of Funen, with a good harbour on the Little Belt, chiefly inhabited by fishermen. The passage from hence, across the Little Belt, to Arroe sound, in the duchy of Sleswick, is nine miles. N. lat. $55^{\circ} 21'$. E. long. $9^{\circ} 54'$.

ASSENSU, *sine, Capituli, in Lazō*. See SINE, &c.

ASSENSU *Regis*. See REGIO.

ASSENSU *Patris, Dower ex*. See DOWER.

ASSENT, ASSENSUS, an agreement or acquiescence of the mind to something proposed or affirmed.—Thus, to assent to any proposition, is to allow it to be true, or to perceive its truth.

Assent is distinguished, like faith, into *implicit*, or *blind*; and *explicit*, or *seeing*, &c. Others distinguish it into *actual* and *habitual*.

ASSENT, *actual*, is a determination of the mind, arising from the perception of the truth of any proposition.

ASSENT, *habitual*, consists in certain habits of believing or acquiescing, induced in the mind by repeated acts.

To this belongs faith, which is an assent arising from the authority of the person who speaks. Such also is opinion, which is defined an assent of the mind, *cum formidine oppositi*, &c.

Father Malebranche lays it down as an axiom, or principle of method, never to allow any thing for truth, from which we can forbear our assent without some secret reproach of our own reason.

Mr. Hume, in his Treatise of Human Nature (vol. i. p. 172, &c.), has given us a new theory of assent or belief in general; a theory which suits very well with his hypothesis of ideas, and seems to be a natural consequence of it, and which at the same time reconciles all the belief that we find in human nature to perfect scepticism. According to this writer, "an opinion or belief may be most accurately defined, a lively idea related to or associated with a present impression." Upon this notion of belief a great part of his theory is formed; and hence he deduces what he calls his hypothesis, "that belief is more properly an act of the sensitive than of the cogitative part of our natures." Dr. Reid has justly observed, in his examination of this theory (Ess. on the Intellectual Powers of Man, p. 353.), that the belief of a proposition is an operation of the mind, of which every man is conscious, and what it is he understands perfectly, though, on account of its simplicity, he cannot give a logical definition of it. If he compares it with the strength or vivacity of his ideas, or with any modification of ideas, they are so far from appearing to be one and the same, that they have not the least similitude. That a strong belief and a weak belief differ only in degree, we may easily comprehend; but that belief and no belief should differ only in degree, no man can admit who understands what he speaks; for this in reality is to say, that something and nothing differ only in degree, or that nothing is a degree of something. Every proposition that may be the object of belief, has a contrary proposition that may be the object of a contrary belief. The ideas of both, according to Mr. Hume, are the same, and differ only in degrees of vivacity: that is, contraries differ only in degree; and so pleasure may be a degree of pain, and hatred a degree of love. Such are the absurdities that follow from this doctrine; but it is needless to trace them, as none of them can be more

absurd than the doctrine itself. Mr. Hume, in the third volume of his "Treatise of Human Nature," sensible that his theory of belief is very objectionable, seems in some measure to retract it; but he still appears to be of opinion, that belief is only a modification of the idea, though vivacity is not a proper term by which to express that modification. He therefore adopts some analogical phrases to explain that modification; such as "apprehending the idea more strongly, or taking faster hold of it." But this is merely a change of terms which have no precise difference; and whatever modification of the idea he makes belief to be, whether in vivacity or in a stronger apprehension of it, the hypothesis, which makes perception, memory, and imagination to be different degrees of that modification, is chargeable with the same absurdities already mentioned. Dr. Hartley's theory on this subject, though not very intelligibly expressed, is not very different from that of Mr. Hume; and it is liable to similar objections. "Assent and dissent," says this writer (Observations on Man, p. 191. ed. 4th. 1791.), "whatever their precise and particular nature may be, must come under the notion of ideas, being only those very complex internal feelings, which adhere by association to such clusters of words as are called propositions in general, or affirmations and negations in particular." Accordingly, he distinguishes assent, and of course its opposite, dissent, into two kinds, *rational* and *practical*. *Rational assent* to any proposition may be defined a readiness to affirm it to be true, proceeding from a close association of the ideas suggested by the proposition with the idea, or internal feeling, belonging to the word truth; or of the terms of the proposition with the word truth. *Rational dissent* is the opposite to this. This assent, he adds, might be called *verbal*; but as every person supposes himself always to have sufficient reason for such readiness to affirm or deny, he prefers the term *rational*. *Practical assent* is a readiness to act in such manner as the frequent vivid recurrence of the rational assent disposes us to act; and *practical dissent* the contrary. *Practical assent* is therefore the natural and necessary consequence of rational, when sufficiently impressed. For his mode of investigating the causes of both kinds of assent, and of accounting for them on the principles of association, we must refer to his work *ubi supra*.

For a farther account of this subject, with regard to the reasons or principles upon which assent is founded, and the various measures and degrees of it, see DEMONSTRATION, EVIDENCE, FAITH, JUDGMENT, KNOWLEDGE, PROBABILITY, and TESTIMONY. See also AXIOMS, MAXIMS, and PRINCIPLES.

ASSENT *Royal*. See ROYAL.

ASSER, or ASSERIUS MENEVENSIS, in *Biography*, an English divine of the ninth century, was a native of St. David's in Wales, where he assumed the monastic habit among the Benedictines. According to Dr. Cave, he was a relation, and Hearne says, nephew, to Asferius, archbishop of St. David's. Having made a considerable progress in learning under John Scotus Erigena, he was invited to court by king Alfred, and amongst other preferments, obtained the bishopric of Sherburn. Dr. Cave informs us, that Alfred, by his advice, founded the university of Oxford; but the time of its establishment has been a subject of dispute. Asser wrote "The Life of Alfred," first published by archbishop Parker in the old Saxon character in his edition of Walsingham's History, printed at London, in folio, in 1574; and republished in a collection of English historians by Camden, at Frankfort, in folio, in 1602; and again by Mr. Wise, at Oxford, in 8vo., in 1722. Nicholson, in his "Historical Library," observes, that Al-

fred's Life, by Afferius, reaches no farther than the 45th year of his age, coinciding by his computation with the year of our Lord 893; and therefore the continuation to the king's death must have been supplied by later authors. This work has been ascribed by Hearn to the archbishop Afferius. Another work, under the title of "Afferius's Annals," has been ascribed to him, and was published by Dr. Gale in his "Decem Scriptores, &c." at Oxford, in 1691, folio; but it has been doubted whether the name of Affer has not been prefixed to an anonymous collection of unquestionable authenticity, though the real author was not certainly known. These "Annals," it has been alleged, extend to the year 914, whereas Affer died in 909, and there is no trace of any appendix to the work. Dr. Gale ascribes it to Affer, and his notion is favoured by its insisting chiefly upon the fortunes of king Alfred. Afferius has the reputation of a faithful historian. Some other works have been ascribed to him; and some have said that he was the translator of "Boethius de Consolatione," and not king Alfred, commonly reputed as such. Affer died, according to Godwin and Hearn, in 883; but according to Du-Pin, Cave, Olearius, and Oudin, in 909. Cave's H. L. vol. ii. p. 66. Gen. Dict.

ASSERA, in *Geography*, a town of European Turkey, in Macedonia, upon the river Vera, near Salonichii.

ASSERAC, among the *Turks*. See ASSIS.

ASSERADOES, in *Geography*, a small island near the west coast of North America, at the mouth of the bay Realajo, in the province of Nicaragua.

ASSERIDA, in *Batany*, a name given by the people of Guinea to a kind of shrub, the leaves of which being chewed are a cure for the colic, to which that people are very subject. Phil. Trans. N° 232.

ASSERIGO, in *Geography*, a town of Italy, in the kingdom of Naples and province of Abruzzo Ultra, seven miles north-east of Aquila.

ASSERTION, in the *Language of the Schools*, a proposition which a person advances, and which he avows to be true, and is ready to maintain in public.

ASSES, ORDER OF, *Asinorum Ordo*, in *Ecclesiastical History*, a denomination given to the Mathurins or Trinitarians, because they were anciently obliged, in travelling, to ride on asses, not horses. This obligation was set aside by a new rule given the order by pope Clement, in 1267. Du-Cange.

ASSES, in *Geography*, a people of Africa, in Guinea, on the Gold Coast, in the interior part of the country, to the west of Rio de Volta.

ASSESSMENTS, in *Law*, denote taxes levied on the inhabitants of a parish or district for some special purpose, or on those of the country for the support of government. The term *assess* is derived by Johnson from the Italian *assettare*, to make an equilibrium or balance, and signifying to charge with a certain sum. In the beginning of the civil wars between Charles I. and his parliament, the latter having no other sufficient revenue to support themselves and their measures, introduced the practice of laying weekly and monthly assessments of a specific sum upon the several counties of the kingdom, to be levied by a pound rate on lands and personal estates; which were occasionally continued during the whole usurpation, sometimes at the rate of 120,000*l.* a month, sometimes at inferior rates. After the restoration, the ancient method of granting subsidies, instead of such monthly assessments, was twice, and twice only, renewed; viz. in 1663, when four subsidies were granted by the temporality, and four by the clergy; and in 1670, when 800,000*l.* were raised by way of subsidy, which was the last time of raising supplies in that way. For, the monthly

assessments being now established by custom, being raised by commissioners named by parliament, and producing a more certain revenue; from that time forwards we hear no more of subsidies, but occasional assessments were granted as the national emergencies required. These periodical assessments, the subsidies which preceded them, and the more ancient scutage, hydrag, and tallage, were to all intents and purposes a land-tax; and the assessments were sometimes expressly so called. See LAND-TAX and SUBSIDY.

ASSESSMENT, in a *Military Sense*, signifies a certain rate which is paid by the county-treasurer to the receiver-general of the land-tax, to indemnify any place for not having raised the militia; which sum is to be paid by the receiver-general into the exchequer. The sum to be assessed is four pounds for each man, where no annual certificate of the state of the militia has been transmitted to the clerk of the peace: if not paid before June yearly, it may be levied on the parish officers. Such assessment, where there is no county rate, is to be raised in the same manner with the poor's rate.

ASSESSOR, formed of *ad*, to, and *sedeo*, I sit, an inferior or subordinate officer of justice, chiefly appointed to assist the ordinary judge with his opinion and advice. In this sense, the masters in chancery are assessors of the lord chancellor. There are two kinds of assessors in the Imperial chamber, *ordinary* and *extraordinary*.—The ordinary are now in number forty-one, whereof five are elected by the emperor, viz. three counts or barons, and two *jurisconsulti*, or civil lawyers. The electors appoint ten, the six circles eighteen, &c. They act in quality of counsellors of the chamber, and have salaries accordingly.

ASSESSOR is also used for a person who assesses or lays assessments of taxes and other public duties.

In this sense, assessors, among us, are inhabitants of a town or village elected by the community to assess or settle the taxes and other impositions of the year, to fix the proportion which each person is to bear, according to his estate, and to see the collection made. These are also called in our law *assifores*. By the stat. 16 & 17 Car. II. two inhabitants in every parish were made assessors for the royal aid.

ASSESUS, in *Ancient Geography*, a town of the Milesians, in which was a temple of Minerva Assiensis, which was burned by the flames which were driven thither by the wind. Herodot. l. i. c. 19.

ASSETS (Fr. *assez*, i. e. *satis*, enough), in *Law*, signify goods enough to discharge that burden which is cast upon the executor or heir, in satisfying the debts and legacies of the testator or ancestor. Bro. tit. *Assets*. Assets are *real* or *personal*; where a man hath lands in fee-simple, and dies seised thereof, the lands which come to his heir are assets *real*; and where he dies possessed of any personal estate, the goods which come to the executor are assets *personal*. Assets are also divided into assets *per descent*, and assets *inter maines*: assets *by descent* is where a person is bound in an obligation, and dies seised of lands which descend to the heir, the land shall be assets, and the heir shall be charged as far as the land to him descended will extend: assets *inter maines* is when a man indebted makes executors, and leaves them sufficient to pay his debts and legacies; or where some commodity or profit ariseth to them in right of the testator, which are called assets in their hands. Terms de Ley, 56, 57.

As to assets by descent, it is to be observed, that by the common law, if the heir had sold or aliened the lands which were assets before the obligation of his ancestor was put in suit, he was to be discharged, and the debt was lost; but by stat. 3 W. & M. c. 14. made perpetual by 6 Will. III. c. 14. the heir is made liable to the value of the land by him sold, in action of debt brought against him by the obligee, who shall

shall recover to the value of the said land, as if the debt was the proper debt of the heir; but the land which is sold or aliened *bonâ fide* before the action brought, shall not be liable to execution upon a judgment recovered against the heir in any such action. And by stat. 29 Car. II. c. 3. § 10. lands of *cessuy que trust* shall be assets by descent; and by the same stat. § 12. estates *pur autre vie* shall be assets in the hands of the heir, if they come to him by reason of a special occupancy; and where there is no special occupant, they shall go to the executors and administrators of the party that had them by virtue of the grant, and shall be assets in their hands. When a man binds himself and his heirs in a bond, and dies leaving issue two sons, if the eldest son enters on the lands by descent as heir to the father, and die without issue; and then the youngest son enters, he shall be charged with assets as heir to the father. Dyer, 368. Lands which come to the heir by purchase shall not be assets. 1 Danv. Abr. 577. A reversion in an estate for life or years shall be assets, and a reversion expectant upon the determination of an estate for life is assets, and ought to be pleaded specially by the heir. An advowson is assets, but not a presentation to a church actually void, which may not be sold. Co. Lit. 374. Lands by descent in ancient demesne will be assets in debt; but a copyhold estate descending to an heir is not assets; nor is any right to an estate assets, without possession. Danv. 577. An annuity is no assets, for it is only a *chose in action*. Equity of redemption of an estate mortgaged, and a term for years to attend the inheritance, are assets.

Executors are assets to pay debts, notwithstanding the assent of the executor to the devise of them. 1 Lill. Abr. 99. Assets in the hands of one executor, are assets in the hands of others; and if an executor hath goods of the testator in any part of the world, he shall be charged in respect of them. 6 Rep. 47. In actions against executors, the jury must find the value of the assets; for the plaintiff shall recover only according to the value of the assets found. 1 Rol. Rep. 58. A special judgment against assets only shall have relation to, and bind the lands from the time of filing the original writ or bill. Carth. Rep. 245.

ASSEVERATION, an earnest affirmation, or avouching.

ASSHETON, WILLIAM, in *Biography*, an English episcopalian divine, was born at Middleton in Lancashire, in 1641, and educated at Brazen-nose college in the university of Oxford. Distinguished by his application and proficiency in various parts of learning, he became a fellow of that college in 1663, and in 1673 was honoured with the degree of doctor in divinity. Besides other preferments to which he was advanced, he was presented to the rectory of Beckenham in Kent, in 1676. He was conscientiously and zealously attached to the church in which he officiated, and faithful and exemplary in the discharge of the duties of his profession. Whilst he was an upright and able advocate for the established religion, he was no less assiduous in inculcating, from the press as well as from the pulpit, the indispensable obligations of morality and practical religion. In the present age, however, his "Treatise against Toleration," and his "Possibility of Apparitions," written in defence of them, will not be regarded as evidences of the liberality of his spirit, and the soundness of his judgment. The former, under the title of "Toleration disapproved and condemned, &c." was published at Oxford, in 1670, 4to.; and his book intitled, "Cases of Scandal and Persecution, &c. to the same purpose, was published at London, in 1674; and his "Possibility of Apparitions" was occasioned by the story of Mrs. Veale, who died at Dover, and was said to have appeared to her friend Mrs. Bargrave at Canterbury, and published in 1706. This story has been since prefixed

to "Dreinecourt on Death." In 1685, Dr. Asheton, who was a strenuous advocate for monarchy, wrote "The Royal Apology," in defence of the doctrine of absolute submission to kings; and after the revolution, he wrote a piece in defence of king William and queen Mary, intitled, "A seasonable Vindication of their present Majesties," in which he declared to the public the reasons which induced him to swear allegiance to them. He also wrote several tracts against popery, and in vindication of the Trinity; and various pieces of a practical nature. Dr. Asheton claims peculiar commemoration and respect as the first projector of the scheme for providing a maintenance for clergymen's widows and others, by a jointure payable out of the mercers' company. To this scheme he devoted much attention, and after contending with many difficulties and discouragements, he had the pleasure of succeeding. An "Account of the Rise, Progress, and Advantages of the proposal, &c." was printed in 1713. The plan, however, was not founded on a sufficient acquaintance with the doctrine of annuities; and the society of course failed in making good its proposals. Asheton having employed his time and talents in promoting the interests of truth, according to his views of it, and the cause of virtue and humanity, died at Beckenham, in 1711, in the 70th year of his age. Gen. Dict. Biog. Brit.

ASSIDEANS, or rather HASIDEANS, in *Antiquity*, a sect among the Jews; thus called from the Hebrew חסידים, *hhasidim*, merciful, righteous. 1 Mac. ii. 42. vii. 16. Ecclesiasticus, xlv. 10.

Dr. Prideaux says (Conn. p. ii. book iii. vol. iii. p. 257.), that after the settling of the Jewish church in Judæa, on the return from the Babylonish captivity, there were two sorts of men among the members of it: the one contented themselves with the written law of Moses, and were called *Zadikim*, or *the righteous*; and the others superadded to the law the constitutions and traditions of the Elders, and other religious observances, which they voluntarily regarded by way of supererogation, and being considered as possessing a degree of holiness superior to that of the others, they were denominated *Chasideans*, or *the pious*. From the former were derived the sects of the Samaritans, Sadducees, and Karaites; and from the latter, the Pharisees, and Essenes. These Assideans, who were men of great valour as well as eminently zealous for the law, joined Mattathias and his company in the fastnesses of the mountains, as soon as Antiochus was returned to Antioch, and determined to fight with him for the law of their god and the liberties of their country.

ASSIDENT SIGN, *Signum Assidens*, in *Medicine*, a symptom which usually attends a disease, but not always. Thus a dry rough tongue, thirst, and watching, are *assident signs* in an ardent fever. In this sense, *assidents* differ from *pathognomonics*, which are inseparable from the disease.

ASSIDUUS, or ADIDUUS, among the Romans, denoted a rich or wealthy person.

The word in this sense is derived from *as*, *assis*, q. d. a moneyed man.

Hence we meet with *assiduus* furies, *assidui fidejussores*, answering to what the French now call city furies or securities, *cautions bourgeoises*.

When Servius Tullius divided the Roman people into five classes, according as they were assessed or taxed to the public, the richer sort, who contributed asses, were denominated *assidui*; and as these were the chief people of business, who attended all the public concerns: those who are diligent in attendances came to be denominated *assidui*.

ASSIDUI was also used for volunteers, or those who served in the army at their own expence.

ASSIENTO,

ASSIENTO, or ASSIENTA, in matters of *Commerce*, a contract or convention between the king of Spain and other powers for furnishing the Spanish dominions in America with negro slaves.

The term is originally Spanish, and signifies a bargain: accordingly the first assiento was a treaty or contract made with the French Guinea company, whereby they were put in possession of this privilege, in consideration of a certain duty which they were to pay to the king of Spain's farms, for every negro thus furnished.

The Spaniards, having almost destroyed the natural inhabitants of Spanish America, have been many years, and still are obliged to perform the work of their mines, and other laborious business, by negroes, of whom they could scarce ever obtain the number they have wanted: and it is certain, if they were fully supplied, they would get yearly above twice the silver perhaps they now do, or have done for many years past. It must be confessed, they have used variety of measures to obtain them. The Genoese undertook to supply them at a concerted price between them; for which end they formed a company called the assiento, who had their factors at Jamaica, Curacao, and Brasil; but by their ill management made nothing of this contract; nor did their successors the Portuguese. After them it fell into the hands of the French, who made so much of it, that they were enabled, by a computation made from the registers of Spain, to import into the French dominions no less than 204,000,000 of pieces of eight. Yet they at length overglutted the market, and became sufferers towards the conclusion.

By the treaty of Utrecht, Philip V. being declared king of Spain by the allies, it was one of the articles of the peace between England and France, that the assiento contract should be transferred to the English. Accordingly a new instrument was signed in May 1713, to last thirty years; and the furnishing of negroes to Spanish America was committed to the South-sea Company, just then erected; though the first convention for this purpose was made in or about the year 1689.

In virtue whereof they were yearly to furnish 4800 negroes; for which they were to pay at the same rate as the French, with this condition, that during the first twenty-five years, only half the duty shall be paid for such as they shall import beyond the stated number.

The last article gives them a farther privilege not enjoyed by the French; which is, that the English assientists shall be allowed, every year, to send to the Spanish America a ship of five hundred tons, laden with the same commodities as the Spaniards usually carry thither; with a licence to sell the same concurrently with them, at the fairs of Porto Bello, Carthagena, and Vera Cruz. This additional article was supposed as advantageous to the company, as the whole contract besides; being granted contrary to the usual Spanish policy, which has ever solicitously preserved the commerce of their America to themselves.

Some new articles were afterwards added to the ancient assiento; as, that the English should send their register-ship yearly, even though the Spanish flota and galleons did not go; and that, for the first ten years, the said ship might be of 650 tons.

Finally, as the South-sea company had on the whole been losers by their trade, and at the time of the treaty of Aix-la-Chapelle, in 1748, they had only four years more of their assiento term remaining (the war between Spain and England having commenced in 1739, and interrupted the continuance of it), which Spain was determined not to renew, at least not on any promising terms; for these and other reasons, it

was concluded by the British court to instruct her minister at Madrid, to obtain the best equivalent that could be procured for the remaining short time of the company's assiento contract.

By the treaty of Madrid, concluded on the 5th of October 1750, it was agreed that his Britannic majesty should yield to his Catholic majesty his right to the enjoyment of the assiento of negroes, and of the annual ship, during the four years stipulated by the treaty of Aix-la-Chapelle; and in consideration of a compensation of 100,000*l.* sterling to be paid by his Catholic majesty to the South-sea company within three months, his Britannic majesty agreed to surrender to him all that might be due to that company for balance of accounts, or in any manner arising from the said assiento: thus all claims, in consequence of this contract, were finally abolished, and a period was put to all the foreign commerce of the South-sea company.

In consequence of the assiento conveyed to Great Britain by Philip V., British factories were established at Carthagena, Panama, Vera Cruz, Buenos Ayres, and other Spanish settlements. The veil with which Spain had before this time covered the state and transactions of her colonies, was removed. The agents of a rival nation, residing in the towns of most extensive trade, and of chief resort, had the best opportunities of becoming acquainted with the interior condition of the American provinces, of observing their stated and occasional wants, and of knowing what commodities might be imported into them with the greatest advantage. In consequence of information so authentic and expeditious, the merchants of Jamaica, and other English colonies who traded to the Spanish main, were enabled to afford and proportion their cargoes so exactly to the demands of the merchants, that the contraband commerce was carried on with a facility, and to an extent, unknown in any former period. Besides, the agents of the British South-sea company, under cover of the importation which they were authorized to make by the ship annually sent to Porto Bello, poured in their commodities on the Spanish continent, without limitation or restraint. Instead of a ship of 500 tons as stipulated in the treaty, they usually employed one which exceeded 900 tons in burden. She was accompanied by two or three smaller vessels, which mooring in some neighbouring creek, supplied her clandestinely with fresh bales of goods, to replace such as were sold. The inspectors of the fair, and officers of the revenue, gained by exorbitant presents, connived at the fraud. The company itself, however, sustained a considerable loss by the assiento trade; whilst many of its servants acquired immense fortunes. Thus, partly by the operations of the company, and partly by the activity of private interlopers, almost the whole trade of Spanish America was ingrossed by foreigners. The immense commerce of the galleons, formerly the pride of Spain, and the envy of other nations, sunk to nothing; and the squadron itself reduced from 15000 to 2000 tons served hardly any purpose, about the year 1737, but to fetch home the royal revenue arising from the fifth, or silver. In order to prevent these encroachments, Spain stationed ships of force, under the appellation of "Guarda Costas," on the coasts of those provinces which were most frequented by interlopers. The captains of these guarda costas, by several unjustifiable acts of violence, precipitated Great Britain into a war with Spain; in consequence of which the latter obtained a final release from the assiento, as we have above related, and was left at liberty to regulate the commerce of her colonies, without being restrained by any engagement with a foreign power. *Ander-son's Commerce*, vol. iii. p. 378. *Robertson's Hist. Amer.* vol. iii. p. 378, &c.

ASSIENTO, in *Geography*, a country of Africa, on the Gold Coast, bordered on the north by the unknown regions, on the east by Achem, and on the south by Akanni or Little Achan. Assiento is imperfectly known, as its inhabitants maintain little or no correspondence with the maritime negroes. It is said, however, to be rich in gold, which the Achanese sometimes bring to the coast. Its situation, near the source of Rio Sacro de Costa, is very advantageous for trade, if the natives were more disposed for commerce, and better acquainted with their own interest.

ASSIGN, To, in *Common Law*, hath various significations: one general, viz. to set over a right to another, or appoint a deputy, &c.; another special, viz. to set forth or point out, as to assign error, assign false judgment, waste, &c. In assigning of error, it must be when the error is committed; in false judgment, wherein the judgment is unjust; in waste, wherein especially the waste is committed. Justices are also said to be assigned to take assises. Stat. 11 Hen. VI. c. 2.

ASSIGNABLE Magnitude, in *Geometry*, is used for any finite magnitude that can be expressed or denoted, and *Assignable Ratio*, for any expressible ratio.

ASSIGNEE, or **ASSIGN**, in *Law*, a person to whom a thing is appointed, or assigned by the act of the party, or the operation of law, to be occupied, paid, or done.

An assignee differs from a deputy in this, that the assignee possesses or enjoys a thing in his own right; and a deputy acts in right of another.

Assignee may be so either by deed or by law.

ASSIGNEE by Deed is when a lessee of a term, &c. sells and assigns the same to another: the other is his assignee by deed.

ASSIGNEE by Law, is he whom the law so makes, without any appointment of the person. Thus, an executor is assignee by law to the testator, who dies possessed of a lease made to him and his assigns.

ASSIGNEES under a commission of bankruptcy, are persons to whom the bankrupt's estate is assigned, for the benefit of the creditors: they are chosen at one of the three meetings appointed by the commissioners, and published in the Gazette, by the major part in value of the creditors who shall then have proved their debts; but they may be originally appointed by the commissioners, and afterwards approved or rejected by the creditors: and no creditor shall be admitted to vote in the choice of assignees, whose debt does not amount to ten pounds. By virtue of the statutes 1 Jac. I. c. 15. 21 Jac. I. c. 19. all the personal estate and effects of the bankrupt are considered as vested by the act of bankruptcy in the future assignees of his commissioners, whether they be goods in actual possession, or debts, contracts, and other choses in action; and when the assignees are chosen or approved by the creditors, the commissioners are to assign every thing over to them; and the property of every part of the estate is thereby as fully vested in them, as it was in the bankrupt himself, and they have the same remedies to recover it. 12 Mod. 324.

The assignees may pursue any legal method of recovering the property vested in them, by their own authority: but cannot commence a suit in equity, nor compound any debts owing to the bankrupt, nor refer any matters to arbitration, without the consent of the creditors, or a major part of them in value, obtained at a Gazette meeting.

The assignees must, after four, and within twelve months after the commission issued, give one and twenty days notice to the creditors of a meeting for a **DIVIDEND**; and within eighteen months, a second and final dividend shall be made, unless all the effects were exhausted by the first..

ASSIGNING. See **ASSIGN**.

ASSIGNMENT, the act of assigning or transferring the interest or property a man has in any thing; or of appointing or setting over a right to another. Assignments may be made of lands in fee, for life or years; of an annuity, rent-charge, judgment, statute, &c.: as to lands, they are usually of leases and estates for years: and an assignment differs from a lease only in this; that by a lease one grants an interest less than his own, reserving to himself a reversion: whereas in assignments he parts with the whole property, and the assignee stands to all intents and purposes in the place of the assignor.

No estate of freehold or term of years shall be assigned, but by deed in writing signed by the parties, except by operation of law. Stat. 29 Car. II. cap. 3. If lessee for years assign all his term in his lease to another, he cannot reserve the rent in the assignment; for he hath no interest in the thing by reason of which the rent reserved should be paid; and where there is no reversion, there can be no distress: but debt may lie on it as on a contract. 1 Lill. Abr. 99. If the executor of a lessee assigns the term, debt will not lie against him for rent incurred after the assignment; because there is neither privity of contract nor estate between the lessor and executor; but if the lessee himself assign his lease, the privity of contract remains between him and the lessor, although the privity of estate is gone by the assignment, and he shall be chargeable during his life; but after his death, the privity of contract is likewise determined. 3 Rep. 14. 24. Although a lessee make an assignment even of his term, yet debt is against him by the lessor or his heir (not having accepted rent from the assignee); but where a lessee assigns his term, and the lessor his reversion, the privity is determined, and debt doth not lie for the reversioner against the first lessee. Moor 472. If an assignment is made by an assignee, the first assignee is not suable for the rent; for if he be accepted by the lessor, the admission of one assignee is the admission of twenty. Comp. Attorn. 491. Where a tenant for years assigns his estate, no consideration is necessary; for the tenant being subject to payment of rent, &c. is sufficient to vest an estate in the assignees; in other cases, some consideration must be paid. 1 Mod. 263. The words required in assignments are, *grant*, *assign*, and *set over*, which may amount to a grant, feoffment, lease, release, confirmation, &c. 1 Inst. 301. In these deeds the assignee is to covenant to save harmless from former grants, &c. that he is owner of the land, and has power to assign; that the assignee shall quietly enjoy; and to make further assurance; and the assignee covenants to pay the rent, and perform the covenants, &c.

The stat. 32 Hen. VIII. c. 34. gives the assignee of a reversion (after notice of such assignment), the same remedies against the particular tenant, by entry or action, for waste or other forfeitures, non-payment of rent, and non-performance of conditions, covenants, and agreements, as the assignee himself might have had; and makes him equally liable on the other hand, for acts agreed to be performed by the assignee, except in the case of warranty. A bond, being a chose in action, cannot be assigned over so as to enable the assignee to sue in his own name; and therefore, the form of assigning a *chose* in action is in the nature of a declaration of trust, and an agreement to permit the assignee to make use of the name of the assignor, in order to recover the possession. Accordingly, when in common acceptance a debt or bond is said to be assigned over, it must still be sued in the name of the original creditor; the person, to whom it is transferred, being rather an attorney than an assignee. But the king is an exception to this general rule; for

for he might always either grant or receive a *chose* in action by assignment; and our courts of equity, considering that in a commercial country almost all personal property must necessarily lie in contract, will protect the assignment of a *chose* in action, as much as the law will that of a *chose* in possession. 3 P. Wms. 199. In equity, therefore, a bond is assignable for a valuable consideration paid, and the assignee alone becomes entitled to the money, so that if the obligor, after notice of the assignment, pays the money to the obligee, he will be compelled to pay it over again. 2 Vern. 295.

Several things are assignable by acts of parliament, which seem not to be assignable in their own nature; as promissory notes and bills of exchange, by stat. 3 & 4 Ann. c. 9.; bail-bonds by the sheriff, by 4 & 5 Ann. c. 16.; a judge's certificate for taking and prosecuting a felon to conviction, by 10 & 11 W. 3. c. 23.; and a bankrupt's effects, by the several statutes of bankruptcy.

The *assignment of dower* is the setting out of a woman's marriage-portion by the king. By the old law, grounded on the feudal exactions, a woman could not be endowed without a fine paid to the lord; neither could she marry again without his license; but she could contract herself, and so convey part of the feud to the lord's enemy. Mirr. c. 1. § 3. This license the lords took care to be well paid for; and as it seems, would sometimes force the dowager to a second marriage, in order to gain the fine. But, to remedy these oppressions, it was provided, first by the charter of Henry I. and afterwards by Magna Charta (cap. 7.), that the widow should pay nothing for her marriage, nor be distrained to marry again, if she chose to live without a husband; but should not, however, marry against the consent of the lord: and farther, that nothing should be taken for assignment of the widow's dower, but that she should remain in her husband's capital mansion-house for forty days after his death, during which time, called the widow's "quarantine," her dower should be assigned. The particular lands to be held in dower, must be assigned by the heir of the husband, or his guardian; Co. Litt. 34, 35. not only for the sake of notoriety, but also to entitle the lord of the fee to demand his services of the heir, in respect of the lands so holden. For the heir by this entry becomes tenant thereof to the lord, and the widow is immediate tenant to the heir, by a kind of subinfeudation or under-tenancy, completed by this investiture or assignment; which tenure may still be created, notwithstanding the statute of *quia emptores*, because the heir parts not with the fee simple, but only with an estate for life. If the heir or his guardian do not assign her dower within the time of quarantine, or do assign it unfairly, she has her remedy at law, and the sheriff is appointed to assign it. Co. Litt. 34, 35. Or, if the heir, being under age, or his guardian assign more than she ought to have, it may be afterwards remedied by writ of *ADMEASUREMENT of dower*. Bl. Com. vol. ii. 135, &c. The assignment of the lands is for the life of the woman; and if lands are assigned to a woman for years, in recompence of dower, this is no bar of dower. 2 Danv. Abr. 168. When other land is assigned, that is no part of the lands in which the woman claims dower, that assignment will not be good or binding; and there must be certainty in that which is assigned; otherwise, though it be by agreement, it may be void. 4 Rep. 2. 1 Inst. 34. If a wife accept and enter upon less land than the third of the whole, on the sheriff's assignment, she is barred to demand more. Moor. 679. But if a wife is entitled to dower of the lands of her first husband, and her second husband accepts of this dower less than her third part, she may, after his death,

refuse the same, and have her full third part. Fitz. Dower. 121. By provision of law, the wife may take a third part of the husband's lands, and hold them discharged. 2 Danv. 672. The sheriff may also assign a rent out of the land in lieu of dower; and her acceptance of it will bar dower out of the same land, but not of other lands. 2 And. 31. Dyer, 31. 1 Nelson Abr. 680. None can assign dower but those who have a freehold, or against whom a writ of dower lies; and therefore a tenant by statute-merchant, statute-staple, or elegit, or lessee for years, cannot assign dower; for none of these have an estate large enough to answer the plaintiff's demand. Park. 403, 404. Co. Litt. 35. Bro. 63. 94. 1 Rol. Abr. 681. 6 Co. 57. If the heir within age assign to the wife more land in dower than she ought to have, he himself shall have a writ of *admeasurement* of dower at full age by the common law. F. N. B. 148. 332. Co. Litt. 39 a. 2 Inst. 367. 7 H. II. c. 4. 13 Edw. I. c. 7 & 8. If the heir within age, before the guardian enters, assigns too much in dower, the guardian shall have a writ of *admeasurement*, by stat. W. II. c. 7. 2 Inst. 317. If a wife after assignment of dower improves the lands, so that they then become of greater value than the other two parts, no writ of *admeasurement* lies, &c. F. N. B. 149. 2 Inst. 368. 5 W. 12.

ASSIGNMENT, *Novel*. See NOVEL.

ASSIMILATION, compounded of *ad*, *to*, and *similis*, *like*, the act of *assimilating*; an act whereby a thing is rendered similar, and like to another.

ASSIMILATION, *ASSIMILATIO*, in *Physics*, is properly a motion whereby bodies convert other duly disposed bodies into a nature like, or homogeneous to their own. Instances of this assimilation we see in flame, which converts the oily or other particles of fuel into its own fiery and luminous nature. The like also appears in air, smoke, and spirits of all kinds.

The like we see in vegetables, where the watery juices imbibed from the earth, being farther prepared and digested in the vessels of the plant, become of a vegetable nature, and augment the wood, leaves, fruit, &c.

So also, in animal bodies, we see the food assimilated or changed into animal substance, by digestion, chylification, and the other operations necessary to nutrition.

ASSIMILATION, in *Rhetoric*. See SIMILE.

ASSIMILATOR, in *Entomology*, a species of *ICHNEUMON*, found in North America. The general colour is scarlet; anterior part of the thorax black; wings brown; base and band yellowish, with a sanguineous dot. Swederus Nov. Act. Stockh. &c.

ASSIMILIS, a species of *BRENTUS*, a native of New Zealand, and first described by Fabricius in his *Species Insectorum*, under the name of *Curculio assimilis*. It is of a cylindrical form, with the apex of the beak glabrous and black; and the wing-cases somewhat fasciated with ferruginous. Fab. Gmel. &c.—*Obs.* The snout is shorter than the body; antennæ black, brown at the tip; thorax black, and canaliculated; wing-cases pointed, and marked with four or five dots.

ASSIMILIS, a species of *GRYLLUS* (*Acheta* section). The wings are tailed, and longer than the wing-cases; abdomen with two styles, which are cleft at the end.

ASSIMILIS, a species of *SPHEX*, that inhabits Tranquebar. It is black; antennæ, tail, and legs rufous; wings blue, white at the base and tip. Fabr. Mant. Inf.

ASSIMILIS, a species of *ONISCUS*, found in the European seas. It is oval; the tail obtuse and unarmed; body cinereous. Fabricius. This is *afellus marinus vulgari bre-*
vior

vior et latior of Ray; and it is conjectured is the same kind as Pallas calls oniscus globator.

ASSIMILIS, a species of ONISCUS, called by Pallas oniscus globator; and by Ray affellus marinus vulgari brevior et latior. It inhabits the European seas; is oval, cinereous, with an obtuse, unarmed tail.

ASSINI, in *Geography*. See ISSINI.

ASSINIBOIN, or RED RIVER, sometimes called *Affinibois*, and *Affinipois*, a river in the north-west part of North America, which disembogues on the south-west side of the lake Winipic, in N. lat. $50^{\circ} 20'$. W. long. $96^{\circ} 30'$. It alternately receives the two denominations of Assiniboin and Red river, from its dividing at the distance of about thirty miles from the lake into two large branches. The eastern branch, called the Red river, runs in a southern direction to near the head waters of the Mississippi. On this river are two trading establishments. The country, on either side, is but partially supplied with wood, and consists of plains covered with herds of the buffalo and the elk, especially on the western side. On the eastern side are lakes and rivers, and the whole country is well wooded, level, and abounding with beavers, bears, moose-deer, fallow-deer, &c. &c. The inhabitants, who are of the Algonquin tribe, are not very numerous, and are considered as the natives of lake Superior. This country is also inhabited by the Nadowasis, who are the natural enemies of the former; and the head of the water being in the war-line, they are in a state of continual hostility. Although the Algonquins are equally brave, they are generally outnumbered by the others; and, therefore, if they venture out of the woods, which form their only protection, they will probably be soon extirpated. There is not, it is said, a finer country in the world, for the residence of uncivilised man, than that which occupies the space between this river and lake Superior. It abounds in every thing necessary to the wants and comfort of such people. Fish, venison, fowl, and wild rice, are very plentiful; and their subsistence demands that exercise which is essential to health and vigour. This country was formerly very populous; but the aggregate of its inhabitants does not now exceed 300 warriors; and the widows appear to be more numerous than the men. The racoon is a native of this country, but is seldom found to the northward of it.

The other branch of the river is called after the tribe of the Nadowasis, who are denominated Assiniboins, and who are the principal inhabitants of its environs. It runs from off the N.N.W., and in N. lat. $51^{\circ} 25'$, and W. long. $103^{\circ} 20'$, rises in the same mountains with the river DAUPHIN. The country between this and the Red river is almost a continual plain to the Mississippi. The soil is sand and gravel, with a slight mixture of earth, and produces a short grass. Trees are very rare, and insufficient, except in particular spots, for building houses, and supplying fire-wood for the trading establishments, of which there are four principal ones. Both these rivers are navigable for canoes to their sources, without a fall; though in some parts there are rapids, caused by occasional beds of limestone and gravel; but the bottom in general is sandy.

The *Affiniboins*, and some of the Fall, or big-bellied Indians, are the principal inhabitants of this country, and border on the river, occupying the central part of it; that next lake Winipic, and about its source, being the station of the Algonquins and Knisteneaux, who have made choice of it in preference to their own country. They do not exceed 500 families. They are not beaver-hunters, which accounts for their allowing the division just mentioned, as the lower and upper parts of this river have those animals, which are

not found in the intermediate district. They confine themselves to hunting the buffalo, and trapping wolves, which cover the country. What they do not want of the former, for raiment or food, they sometimes make into pemmican, or pounded meat, while they melt the fat, and prepare the skins in their hair, for winter use. The wolves they never eat; but produce a tallow from their fat, and prepare their skins; all which they exchange for arms or ammunition, gum, tobacco, knives, and various baubles, with those who go to traffic in their country. Those Nadowasis, or Assiniboins, called also *Stone Indians*, who inhabit the plains on and about the source and banks of the Saskatchewan and Assiniboin rivers, are supposed to have migrated from the southward, being detached tribes from the Nadowasis, who inhabit the western side of the Mississippi, and lower part of the Mississippi, and their progress is north-west. Mackenzie's Voyages from Montreal, &c. Introd. p. 62, &c. p. 407.

ASSINOIS, a nation of Indians, inhabiting the forests of Canada.

ASSIRATUM, in *Antiquity*, a bloody draught, where-with treaties were ratified. It was made of wine and blood, called by the ancient Romans, *assir*.

ASSIS, in *Physiology*, either denotes opium, or a powder made of hemp-seed, which being formed into boles about the bigness of chestnuts, is swallowed by the Egyptians, who are hereby intoxicated, and become ecstatic, and full of the most agreeable visions.

This is also called by the Turks *assirac*.

ASSISA, or ASSISA. See the articles ASSISE, and TALLIAGE.

ASSISA, *cadere, to fall from the assise*, in *Law*, is to be nonsuited. Fleta, l. iv. c. 15. Bracton, l. ii. c. 7.

ASSISA *cadit in juratam*, is where the thing in controversy is so doubtful, that it must necessarily be tried by a jury. Fleta, l. iv. c. 15.

ASSISA *capi in modum assise*, is when the defendant pleads directly to the assise, without taking any exception to the count, declaration, or WRIT.

ASSISA *continuanda*, is a WRIT directed to the justices, to take an assise for the continuance of the cause, where certain records alleged cannot in time be procured by the party. Reg. Orig. 217.

ASSISA *nocuenti*, is an *assise of NUSANCE*. See the article.

ASSISA *panis & cerevisie*, denotes the power or privilege of assigning and adjusting the weight and measure of bread and beer.

ASSISÆ *judicium*, in *Law*, signifies a judgment of the court given either against the plaintiff or defendant, for default.

ASSISA *proroganda*, is a WRIT directed to the justices of assise, for the stay of proceedings, on account of the king's business wherein the party is employed. Reg. Orig. 208.

ASSISE, or ASSIZE, *assisa*, in *Law*, a sitting of judges or justices, for the hearing or determining of causes. The word is French, *assise* or *assis*, *seated*; formed of the Latin *assideo, to sit together*, which is compounded of *ad, to*, and *sedeo, I sit*.

Such is the etymology of the word *assise*, given by sir Edward Coke; so that it signifies, originally, the jury who try the cause, and sit together for that purpose. By a figure, it is now made to signify the court or jurisdiction, which summons this jury together by a commission of assise, or "ad assisas capiendas;" whence the judicial assemblies held by the king's commission in every county, as well to take these writs of assise, as to try causes at "Nisi Prius," are termed in common speech, the *assises*.

Assise, Clerk of. See **CLERK.**

Assise, or **Assises**, was anciently used for certain extraordinary sittings of superior judges, in the inferior courts depending on their jurisdiction, to inquire whether the subaltern judges and officers did their duty; to receive the complaints preferred against them; and take cognizance of appeals from them. These are also called *mercatorial assises*.

Assise was also a court or assembly, composed of several great persons of the realm; held occasionally in the king's palace, for the final decision of all affairs of importance.

This is more usually called, among our writers, *placita malla publica*, or *curie generales*. Yet there is some difference between *assises* and *placita*.—The viscounts or sheriffs, who originally were only lieutenants of the *comites*, or counts, and rendered justice in their place, held two kinds of courts, the one ordinary, held every day, and called *placitum*; the other extraordinary, called *assise*, or *placitum generale*; at which the count himself assisted, for the dispatch of the more weighty affairs. Hence the term *assise* came to be extended to all grand days of judgment, at which the trials and pleadings were to be solemn and extraordinary.

The modern constitution of *assises* is different from that above-mentioned.—Our *assise* may be defined a court, place, or time, where and when writs and processes, either civil or criminal, or both, are considered, dispatched, decided, &c. by judges and jury.

In this sense we have two kinds of *assises*; *general* and *special*.

Assises, or **Assizes**, *general*, are those held by the judges twice a year, in their several circuits.

The nature of the *assises* is explained by lord Bacon, who observes that all the counties of the kingdom are divided into six circuits; to each of which two learned men, assigned by the king's commission, are sent twice a year, except London and Middlesex, where courts of *nisi prius* are holden in and after every term, before the chief or other judge of the several superior courts; and except the four northern counties, where the *assises* are holden only once a year. These are called **JUSTICES**, or *judges of assise*, and have several commissions by which they sit; viz.

1. *A commission of oyer and terminer*, directed to them, and many others of the best account in their respective circuits. In this commission, the judges of *assise*, or sergeants at law, are only of the *quorum*; so that without them there can be no proceeding. This commission which is the largest they have, gives them power to transact matters relating to treasons, murders, felonies, and other misdemeanors. See **OYER** and **Terminer**.

2. The second is of *gaol-delivery*, which is only to the judges themselves, and the clerk of the *assise* associate.—By this commission, they have concern with every prisoner in gaol, for every offence whatsoever. See **GAOL-Delivery**.

3. The third is of *assise*, directed to themselves and the clerk of the *assise*, to take writs of possession, called also *assises*, in the several counties; that is, to take the verdict of a peculiar species of jury, called an *assise*, and summoned for the trial of landed disputes. These writs were formerly frequent; but now men's possessions are sooner recovered by ejectments, &c.

4. The fourth is to take the *nisi prius*, directed to the justices, and the clerks of *assises*; whence they are also called *justices of nisi prius*. See **NISI PRIUS**.

5. The fifth is a *commission of peace*, in every county of their circuit; and all the justices of the peace, having no lawful impediment, are bound to be present at the *assises*, to attend the judges.

The sheriff of every shire is also to attend in person, or by a sufficient deputy allowed by the judges, who may fine him if he fail.

These commissions are constantly accompanied by writs, of association, in pursuance of the statutes 27 Edw. I. c. 4. 12 Edw. II. c. 3.; by which certain persons (usually the clerk of the *assise* and his subordinate officers) are directed to associate themselves with the justices and sergeants, and they are required to admit the said persons into their society, in order to take the *assises*, &c. that a sufficient supply of commissioners may never be wanting. But to prevent the delay of justice by the absence of any of them, there is also issued of course a writ of "*si non omnes*," directing, that if all cannot be present, any two of them (a justice or sergeant being one) may proceed to execute the commission.

There is a commission of the peace, oyer and terminer, and gaol-delivery of Newgate, held eight times in every year, for the city of London and county of Middlesex, at justice-hall in the Old Bailey, where the lord-mayor is chief judge. * In Wales there are but two circuits, North and South Wales; for each of which the king appoints two persons learned in the law to be judges. Stat. 18 Eliz. c. 8.

This excellent constitution of judges, circuits, and *assises*, was begun in the time of Henry II. though somewhat different from what it is now.

The *grand assise*, or trial by jury, instituted by Henry II. as an alternative instead of judicial combats, is particularly described by Glanvil, who was probably the adviser of the measure.

For this purpose a writ, *De magna assisa eligenda*, was directed to the sheriff, to return four knights, who were to elect twelve others to be joined with them; all these together formed the *grand assise*, ordained to try the matter of right.

The judges of *assise* came into use in the room of the ancient justices in eyre, *justitarii in itinere*; who were regularly established, if not first appointed, by the parliament of Northampton, A.D. 1176, 22 Hen. II. with a delegated power from the king's great court; and they afterwards made their circuit round the kingdom once in seven years, for the purpose of trying causes. They were afterwards directed by Magna Charta, c. 12. to be sent into every county once a year. Blackstone's Com. vol. iii. See **JUSTICES of Assise**.

Assise Special, is a particular commission granted to certain persons, to take cognizance of some one or two causes, as a disseisin, or the like. This was very frequently practised among our ancestors. Bracton, lib. iii. c. 12.

Assise is also used for a writ directed to the sheriff, for the recovery of possession of things immovable, whereof a man's self, or ancestors have been disseised.

Lyttleton, and others, suppose these writs of *assise*, in which the sheriff is ordered to summon a jury or *assise*, to have given the denomination to the *assises*, or courts so called; and they assign several reasons of the name of the writ: as,

1. Because such writs settle the possession and right, in him that obtains by them.
2. Because originally they were executed at a certain time and place appointed; for by the Norman law, the time and place must be known forty days before the judges sit; and by our law there must be fifteen days preparation, except they be tried in the standing courts at Westminster. But it is more natural to suppose the writs denominated from the courts; and that they were called *assises*, because anciently tried at special courts of *assises*, set and appointed for that purpose. Though of latter days, these

these are dispatched at the general assises, along with the commission of oyer and terminer, &c.

This writ of assise is said to have been invented by Glanvil, chief justice to Henry II; and if so, it seems to owe its introduction to the parliament held at Northampton, in the twenty-second year of that prince's reign; when justices in oyer were appointed to go round the kingdom, in order to take these assises; and the assises themselves (particularly those of *mort d'ancestor* and *novel disseisin*) were clearly pointed out and described. As a writ of entry is a real action, which *disproves* the title of the tenant, by shewing the unlawful commencement of his possession, so an assise is a real action, which *proves* the title of the demandant merely by shewing his or his ancestor's possession; and these two remedies are in all other respects so totally alike, that a judgment on recovery in one is a bar against the other; so that when a man's possession is once established by either of these possessory actions, it can never be disturbed by the same antagonist, in any other of them.

This remedy by writ of assise was called by stat. Westm. 2. 13 Edw. I. c. 24. *seisinum remedium*, in comparison with that by a writ of entry; as it did not admit of many dilatory pleas and proceedings, to which other real actions are subject; and it is only applicable to two species of injury by ouster, viz. *abatement* and a recent or *novel disseisin*.

Assise of Mort d'Ancestor, or death of one's ancestor, is a writ that lies when father or mother, brother or sister, uncle or aunt, nephew or niece, dies seised of lands, tenements, rents, &c. held in fee simple; and after their death, a stranger abates. It is good as well against the abator, as any other in possession; but it lies not against brothers or sisters, &c. where there is privity of blood between the person prosecuting and them. Co. Litt. 242. It must also be brought within the time limited by the statute of limitations, in fifty years; or the right may be lost by negligence.

This writ directs the sheriff to summon a jury or assise, who shall view the land in question, and recognize whether such ancestor were seised thereof on the day of his death, and whether the demandant be the next heir; soon after which, the judges come down by the king's commission to take the recognition of assise; when, if these points are found in the affirmative, the law immediately transfers the possession from the tenant to the demandant. F. N. B. 195. Finch. L. 290. If the abatement happened on the death of one's grandfather or grandmother, then an assise of mort d'ancestor no longer lies, but a writ of "*ayle*," or "*de avo*;" if on the death of the great grandfather or great grandmother, then a writ of "*besayle*," or "*de proavo*;" but if it mounts one degree higher, to the "*trifayle*" or grandfather's grandfather; or if the abatement happened upon the death of any collateral relation, other than those before mentioned, the writ is called a writ of "*cofinage*," or "*de consanguineo*." Finch. L. 266, 267. And the same points shall be inquired of in all these actions "*ancestral*," as in an assise of mort d'ancestor, as they are of the same nature (stat. Westm. 2. 13 Edw. I. c. 20.); though they differ in this point of form, that these ancestral writs (like all other writs of "*præcipe*") expressly assert a title in the demandant (viz. the seisin of the ancestor at his death, and his own right of inheritance); the assise asserts nothing directly, but only prays an inquiry whether these points be so. 2 Inst. 399. There is also another ancestral writ, denominated a "*nuper obiit*," to establish an equal division of the land in question, where, on the death of an ancestor, who has several heirs, one enters, and holds the others out of possession. F. N. B. 197. Finch. L. 293. But a man is not allowed to have any of these

actions ancestral for an abatement consequent on the death of any collateral relation, beyond the fourth degree (Hale on F. N. B. 221.), though in the lineal ascent he may proceed in *infinitum*. It was always held to be law (Bracton, l. 4. c. 13. § 3. F. N. B. 196.), that where lands were devisable in a man's will by the custom of the place, there an assise of mort d'ancestor did not lie. For where lands were so devisable, the right of possession could never be determined by a process, which merely inquired concerning the seisin of the ancestor, and the heirship of the demandant. Hence it may be reasonable to conclude, that when the statute of wills, 32 Hen. VIII. c. 1. made all socage lands devisable, an assise of mort d'ancestor no longer could be brought of lands held in socage (1 Leon. 267.); and that now, since the statute 12 Car. II. c. 24. which converts all tenures, a few only excepted, into free and common socage, no assise of mort d'ancestor can be brought of any lands in the kingdom; but that, in case of abatements, recourse must be properly had to the writs of entry. Bl. Com. vol. iii. p. 187.

These writs, however, are now almost obsolete, being in a great measure superseded by the action of ejectment, which answers almost all the purposes of real actions, some very peculiar cases excepted.

Assise of Novel Disseisin is an action of the same nature with the "*assise of mort d'ancestor*," as in this the demandant's possession must be shewn. But in other points it is different, particularly as it recites a complaint by the demandant of the disseisin committed in terms of direct averment; whereupon the sheriff is commanded to reseise the land, and all the chattels thereon, and keep the same in his custody till the arrival of the justices of assise (which, in fact, hath been usually omitted); and in the mean time to summon a jury to view the premises, and make recognition of the assise before the justices. F. N. B. 177. At which time the tenant may plead either the general issues, "*nul tort*," "*nul disseisin*," or any special plea. And if, upon the general issue, the recognitors find an actual seisin in the demandant, and his subsequent disseisin by the present tenant, he shall have judgment to recover his seisin, and damages for the injury sustained.

This is called "*novel disseisin*," because the justices in eyre went their circuits from seven years to seven years; and no assise was allowed before them, which commenced before the last circuit, called an *ancient assise*; and that which was upon a disseisin since the last circuit, an assise of *novel* or recent disseisin. Co. Litt. 153. b.

This remedy lies where a tenant in fee-simple, fee-tail, or for term of life, is put out and disseised of his lands or tenements, rents, common of pasture, common way, or of an office of profit, toll, &c. Glanv. l. 10. Reg. Orig. 197. Assise lies for tithes, by stat. 32 Hen. VIII. c. 7. Cro. Eliz. 559.; but not for an annuity, pension, &c.

For preventing frequent and vexatious disseisins, it is enacted by the statute of Merton, 20 Hen. III. c. 3. that if a person disseised recover seisin of the land again by assise of *novel disseisin*, and be again disseised of the same tenements by the same disseisor, he shall have a writ of "*re-disseisin*;" and if he recover therein, the re-disseisor shall be imprisoned. And by the statute of Marlberge, 52 Hen. VIII. c. 8. shall also pay a fine to the king; to which the statute Westm. 2. 13 Edw. I. c. 26. hath superadded double damages to the party aggrieved. In like manner, by the same statute of Merton, when any lands or tenements are recovered by assise of "*mort d'ancestor*," or other jury, or any judgment of the court, if the party be afterwards disseised by the same person against whom judgment was obtained, he shall have

a writ of "*post-disseisin*" against him; which subjects the post-disseisor to the same penalties as a re-disseisor. The reason of which, given by sir Edward Coke, 2 Inst. 83, 84. is, because such proceeding is a contempt of the king's courts, and in despite of the law. Bracton, l. 4. c. 49. Bl. Comm. vol. iii. p. 188.

The court of Common Pleas, or King's Bench, may hold plea of assises of land in the county of Middlesex, by writ out of Chancery. 1 Litt. Abr. 105. And in cities and corporations an "*assise of fresh force*" lies for recovery of possession of lands, within forty days after the disseisin, as the ordinary assise is in the county. F. N. B. 7.

ASSISE of *Darrein Presentment*, or last presentation, lies when a man, or his ancestors, under whom he claims, have presented a clerk to a benefice, who is instituted; and afterwards upon the next avoidance, a stranger presents a clerk, and thereby disturbs him that is the real patron. In this case the patron shall have this writ directed to the sheriff to summon an assise or jury, to inquire who was the last patron that presented to the church now vacant, of which the plaintiff complains that he is deforced by the defendant; and, according as the assise determines that question, a writ shall issue to the bishop, to institute the clerk of that patron in whose favour the determination is made, and also to give damages, in pursuance of statute Westm. 2. 13 Edw. I. c. 5. The statute of 7 Ann. c. 18. having given a right to any person to bring a writ of "*quare impedit*," and to recover (if his title be good), notwithstanding the last presentation, by whomsoever made; assises of darrein presentment now not being in anywise conclusive, have been totally disused, as indeed they began to be before; a "*quare impedit*," being a more general, and therefore a more usual action. For the assise of darrein presentment lies only where a man has an advowson by descent from his ancestors; but the writ of "*quare impedit*" is equally remedial, whether a man claims title by descent or purchase. 2 Inst. 355. Bl. Com. vol. iii. p. 246.

ASSISE of *Juris utrum*, sometimes filed the parson's writ of right, being the highest writ which he can have, lies for a parson or prebendary at common law, and for a vicar by stat. 14 Edw. III. c. 17. and is in the nature of an assise, to inquire whether the tenements in question are frankalmoign belonging to the church of the demandant, or else the lay-fee of the tenant. By this the demandant may recover lands and tenements, belonging to the church, which were aliened by the predecessor; or of which he was disseised; or which were recovered against him by verdict, confession, or default, without praying in aid of the patron and ordinary; or on which any person has intruded since the predecessor's death. F. N. B. 48, 49. But since the restraining statute of 13 Eliz. c. 10. whereby the alienation of the predecessor, or a recovery suffered by him of the lands of the church, is declared to be absolutely void, this remedy is of very little use, unless where the parson himself has been deforced for more than twenty years; for the successor, at any competent time after his accession to the benefice, may enter, or bring an ejectment. Bl. Com. vol. iii. p. 253.

ASSISE is also used, according to Lyttleton, for a jury. This that author supposes to be by a *metonymia effecti*, the jury being so called, because summoned by virtue of the writ of assise.

Yet it must be observed that the JURY summoned upon a writ of right is likewise called the assise; but this may be said to be *καταχρηστικως*, or abusively so termed. Assise, in this signification, is divided into *magna* & *parva*.

ASSISE is farther used, according to Lyttleton, for an ordinance or statute, regulating the weight, size, or di-

mentions of certain commodities. Thus the ancient statute of bread and ale, anno 51 Hen. III. is termed the *assise of bread and ale*, *assisa panis & cerevisie*. See *Assise of BREAD*.

ASSISE is farther used for the scantling or quantity itself prescribed by the statute. When wheat is of such or such price, bread shall be of such assise. See *BREAD*.

We have divers statutes for fixing the assise of fish, cloths, wood, billets, faggots, and the like. Vide 34 & 35 Hen. VIII. c. 3. 2 Ann. c. 15. 10 Ann. c. 6. 19 Car. II. c. 3. 4 Jac. I. c. 9. 1 Geo. I. stat. 2. c. 18.

Fixing any assise of cloth, or prescribing what length, breadth, weight, &c. it shall have, sir Josiah Child thinks, does more hurt than good. As the fashions and humours of mankind are variable, to supply all markets at all times, we must have all sorts, cheap and light, as well as heavier and better. Stretching with tenters is essential to our drapery, and the precise degree or quantity of it cannot without injury be prescribed by any law; but must be left to the vender's or exporter's discretion.

ASSISE of the *Forest*, is a statute or condition containing orders to be observed in the king's forest. It is called an assise, because it sets down and appoints a certain measure, rate, or order, in the things it concerns.

ASSISE, again, is used for the whole process in court, founded on a writ of assise; and sometimes for a part of it, viz. the issue, or verdict of the jury.

Thus we read, that "*assises of novel disseisin shall not be taken but in their shires; and after this manner*," &c. Mag. Chart. cap. 12. So in Merton, cap. 4. Hen. III. we meet with, "*certified by assise, quitted by assise*," &c.

ASSISE of the *King*, a name given to the statute of view of frank-pledge, 18 Edw. II.

ASSISE *at large*, is brought by an infant to inquire of a disseisin, and whether his ancestor were of full age, good memory, &c. when he made the deed pleaded, whereby he claims his right.

ASSISE *in Point of Assise*, *assisa in modum assise*, is when the tenant, as it were, setting foot to foot with the demandant, without any thing further, pleads directly the writ, no wrong, no disseisin.

ASSISE *out of the Point of Assise*, is when the tenant pleadeth something by exception, as a foreign release, or foreign matter triable in a foreign country; which must be tried by a jury, before the principal cause can proceed.

ASSISE of *Right of Damages*, is where the tenant confesseth an ouster, and referring it to a demurrer in law, whether it were rightly done or not, is adjudged to have done wrong; whereupon the demandant shall have a writ of assise to recover damages. Bracton, l. 4. F. N. B. 105.

ASSISE of *Arms*, a name given to an act of 27 Hen. II. which provided that every man's armour should descend to his heir, for defence of the realm; and which, together with the statute of Winchester, 13 Edw. I. c. 6. obliged every man, according to his estate and degree, to provide a determinate quantity of such arms as were then in use, in order to keep the peace.

ASSISE, *Black*, in *History*, an assise held at Oxford, in July, A.D. 1577, so called on account of a sudden "*damp*" which is said to have arisen, and, after nearly smothering the whole court and audience, occasioned the death of the judge, high sheriff, most of the jury, and above 500 of the spectators. This fatality was ascribed by the vulgar to magic; but the discernment of lord Bacon saw through the mist of superstition. The symptoms of this disorder, which seems to have been the first appearance of the gaol-fever in England, marked the most extreme putridity.

ASSISE, *Certificate of*, in *Law*, a writ granted by fiat. Westm. 2. c. 25. to a party aggrieved, by a verdict or judgment given against him in an assise, when he had something to plead, as a record or release, which could not have been pleaded by his bailiff, or when the assise was taken against himself by default, to have the deed tried, and the record brought in before the justices, and the former jury summoned to appear before them at a certain day and place, for a further examination and trial of the matter. This, in reality, was neither more nor less than a second trial of the same cause by the same jury. Bracton, l. 4. tr. 5. c. 6. § 2. F.N.B. 181. 2 Inst. 415.

ASSISE, *Continuance of*. See CONTINUANCE.

ASSISE, *Justices of*. See JUSTICES.

ASSISE, *Limitation of*. See LIMITATION.

ASSISE, *Rents of*. See RENT.

ASSISER, or **ASSIZER**, *of weights and measures*, is an officer who has the care and oversight of those matters.

ASSISI, in *Geography*, a town of Italy, belonging to the states of the church and duchy of Spoleto; it is the see of a bishop, and famous for being the native place of St. Francis, and for the beautiful church belonging to the order instituted by that saint, in which some say he is buried; as well as for the great number of pilgrims resorting to it. It is fifteen miles west of Nocera.

ASSISII, in *Ecclesiastical Writers*, denote persons benefited in a cathedral church, not in a rank below that of canons. The assisi perhaps answered to our minor canons. They were thus called, either because they were allowed an assisia or pension; or from *assiduus*, diligent.

ASSISOR, the same with assessor. In Scotland, assisors are the same with our jurors.

ASSISTANCE. See AID.

ASSISTANT is used for a person or officer appointed to attend another principal officer, for the more easy and regular discharge of his functions.—Such a bishop or priest had seven or eight assistants.

ASSISTANT, in Roman Catholic countries, is particularly applied to a kind of counsellors, or comptrollers, added to the generals or superiors of monasteries, &c. to take care of the affairs of the community.

The general of the Jesuits has five assistants, of consummate experience, chosen by him out of all the provinces of the order, and denominated from the kingdoms or countries to which they belong, *i. e.* Italy, Spain, Germany, France, and Portugal. In a like sense, most of our trading companies have their courts of assistants.

ASSISTANTS are also those condemned to assist in the execution of a criminal.

ASSISUS, in *Ancient Law Writers*, denotes a thing demised or farmed out for such an assise or certain rent, in money or provisions. Hence *terra assisa* was commonly opposed to *terra dominica*; this last being held in demesne, or occupied by the lord, whereas the former was let out to tenants. Hence also *redditus assisus* denotes the set or standing rent.

ASSITHMENT, or **ASSYTHMENT**, in the *Law of Scotland*, is a compensation for a man slain.

Assithment is the same with what, in the *English Law*, is called *Man-BOTE*.

ASSIUS LAPIS, in *Physiology*. See LAPIS ASSIUS.

ASSIUT, in *Geography*. See SIOUT.

ASSO, in *Ancient Geography*, a town of Hispania Taragonensis, in the country of the Bastitani. Ptolemy.

ASSOCIATE, compounded of *ad*, and *socius*, *compagnion*, an adjunct, partner, or member.

ASSOCIATION, **ASSOCIATIO**, the act of associating, or forming a society or company.

Association is properly a contract or treaty of partnership, whereby two or more persons unite together, either for their mutual assistance, or for the joint carrying on of an affair; or even for a more commodious manner of life.

In a military sense, it denotes any number of men embodied in arms for mutual defence in their district, and for preserving the public tranquillity against foreign and domestic enemies.

The closest of all associations is that made by the band of matrimony. See SOCIETY.

ASSOCIATION of Ideas, is where two or more ideas constantly and immediately follow or succeed one another in the mind, so that one shall almost infallibly produce the other; whether there be any natural relation between them or not. Or, it is that principle or faculty by which two or more sensations, ideas, or motions, are so united together, that any one impressed alone shall excite all the rest.

Where there is a real affinity or connection in ideas, it is the excellency of the mind to be able to collect, compare, and range them in order, in its inquiries: but where there is none, nor any cause to be assigned for their accompanying each other, but what is owing to mere accident or habit, this unnatural association becomes a great imperfection, and is, generally speaking, a main cause of error or wrong deductions in reasoning. Thus, the idea of goblins and sprites has really no more affinity with darkness than with light; and yet let a foolish maid inculcate these ideas often on the mind of a child, and raise them there together, it is possible he shall never be able to separate them again so long as he lives, but darkness shall ever bring with it those frightful ideas.—Let custom, from the very childhood, have joined the idea of figure and shape to the idea of God, and what absurdities will that mind be liable to about the Deity!

Such wrong combinations of ideas, Mr. Locke shews, are a great cause of the irreconcilable opposition between the different sects of philosophy and religion; for we cannot imagine, that all who hold tenets different from, and sometimes even contradictory to one another, should wilfully and knowingly impose upon themselves, and refuse truth offered by plain reason: but some loose and independent ideas are by education, custom, and the constant din of their party, so coupled in their minds, that they always appear there together: these they can no more separate in their thoughts, than if they were but one idea, and they operate as if they were so. This gives sense to jargon, demonstration to absurdities, consistency to nonsense, and is the foundation of the greatest, and almost of all, the errors in the world.

Mr. Hume observes (Essays, vol. i. p. 73.), that there is a principle of connection between the different thoughts or ideas of the mind; and that, in their appearances to the memory or imagination, they introduce each other with a certain degree of method and regularity. Of this connection he alleges evidence from our more serious thinking or discourse, from our wildest and most wandering reveries, and even our dreams, and from our loosest and finest conversation. Among different languages also, words expressive of ideas the most compounded, nearly correspond to each other; and hence it is inferred, that the simple ideas comprehended in the compound ones are bound together by some universal principle, which has an equal influence on all mankind. This writer ascribes the association or connection of ideas to three principles; *viz.* "resemblance," "contiguity" in time or place, and "cause" or "effect." These, he says (p. 54.), are the only bonds that unite our thoughts.

thoughts together, and beget that regular train of reflection or discourse, which, in a greater or less degree, takes place among all mankind. Although it should be allowed, that these are real principles of association or connection in our ideas, it may be urged that ideas succeed one another without resemblance or contiguity as to time and place, and without the mutual correspondence or relation of cause and effect; and that there are other associations besides those of ideas, which are associated with passions and emotions, and passions and emotions are associated together. A particular idea is associated together with a proper name, and often with the general name of the species; general conceptions, or mixed modes, as they are denominated by Mr. Locke, are associated with signs both audible and visible, and signs are associated with one another. Virtue, as it consists in action and intention, does not resemble the sound virtue, is not contiguous to it in time or place, and is neither its cause nor its effect; nor can it be imagined that the arbitrary signs of various objects should have any natural relation to one another. But if there were no other principles of association besides those of Mr. Hume, the author himself has not shewn how they account for the phenomena.

Dr. Hartley, whatever may be thought of his general system, has attempted to form a mechanical theory of the human mind and its various operations by means of "association." The principle or law of association seems to have been first noticed by Mr. Locke; but he applies it to the solution of very few phenomena. Mr. Gay, in a "Dissertation upon Virtue," prefixed to "Law's Translation of King's Origin of Evil," deduces the moral feelings from association; and Dr. Hartley traces all, or at least most of the other phenomena of mind to the same cause. This law of association extends to SENSATIONS, to IDEAS, and to MUSCULAR motions; which see respectively.

Accordingly he distinguishes it into synchronous and successive; and ascribes our simple and complex ideas to the influence of this principle or habit. Particular sensations result from previous vibrations conveyed through the nerves to the medullary substance of the brain; and these are so intimately associated together, that any one of them, when impressed alone, shall be able to excite in the mind the ideas of all the rest. Thus we derive the ideas of natural bodies from the association of the several sensible qualities with the names that express them, and with each other. The sight of part of a large building suggests the idea of the rest instantaneously, by a synchronous association of the parts; and the sound of the words, which begin a familiar sentence, brings to remembrance the remaining parts in order by successive association. Dr. Hartley maintains that simple ideas run into complex ideas by association; and apprehends that by pursuing and perfecting this doctrine, we may some time or other be enabled to analyse those complex ideas that are commonly called the ideas of reflection, or intellectual ideas, into their several component parts, *i. e.* into the simple ideas of sensation of which they consist; and that this doctrine may be of considerable use in the art of logic, and in explaining the various phenomena of the human mind. For a further explication of Dr. Hartley's doctrine of association, the philosophical principles upon which it depends, and the mode of its application, the reader must be referred to his "Observations on Man," vol. i. or part i. passim; and also to Priestley's "Abridgment of Hartley," 8vo.; Stewart's "Elements of the Philosophy of the Human Mind," 4to. 1792. ch. v.; Darwin's "Zoonomia," vol. 1. § 5—10.

A late writer observes, that the doctrine of association is to

be very carefully distinguished from the theory of vibrations, being established upon independent evidence and undeniable facts. This therefore, he adds, must stand, though the other should be regarded only as a plausible hypothesis, destitute of satisfactory proof. It was to prevent the confusion of the nature and evidence of association and vibration, says this writer, that Dr. Priestley published his edition of Hartley's work, from which the theory of vibrations is entirely excluded. Belsham's *Elements of the Philosophy of the Mind, and of Moral Philosophy*, 8vo. 1801. p. 54. See also *ÆTHER, IDEA, MEMORY, SENSATION, VIBRATIONS, and VIBRATIONCLES.*

ASSOCIATION, in *Law*, is a writ or patent sent by the king, either of his own motion, or at the suit of a party plaintiff, to the justices of assize, to have other persons associated to them, in order to take the assize.

Upon this patent of association, the king sends his writ to the justices of the assize, thereby commanding them to admit such as are so sent.

The clerk of the assize is usually associate of course; in other cases some learned serjeants at law are appointed. See *ASSISE.*

ASSOCIATION of *Parliament*. In the reign of king William III. the parliament entered into a solemn association to defend his majesty's person and government against all plots and conspiracies: and all persons bearing offices civil or military were enjoined to subscribe the association to stand by king William, on pain of forfeitures and penalties, &c. by stat. 7 and 8 W. III. c. 27.

ASSOCIATION, *Feathers Tavern*, consisted of a number of clergymen, and of gentlemen in the professions of civil law and physic, who, wishing to be exempted from the obligation of subscribing the thirty-nine articles of religion, applied in the year 1772, by petition to parliament for this purpose. Their society was so called from the place where they met. The object at which they aimed was to be permitted to hold their preferments, upon condition of merely subscribing to the holy scriptures, agreeably to the grand Protestant principle; which is, that every thing necessary to salvation is fully contained in these scriptures, and that they are the sole rule of faith and manners. The request, however, was not thought to comport with the nature of a civil establishment in religion; and principally on this ground, it was strenuously opposed by many distinguished members of parliament, and as strenuously defended by some of the first persons in the house of commons. After a long and interesting debate, the admission of the petition was rejected by a large majority. It was the general opinion, that those who propose to reap the benefits of the Established Church, ought to comply with the terms on which they are offered.

ASSOCIATION, *Protestant*, took its rise from an act passed in 1778, for relieving his majesty's subjects, professing the Romish religion, from certain penalties and disabilities imposed upon them in the eleventh and twelfth years of the reign of king William III. The act was passed unanimously; nor did it at first appear to excite any great alarm among persons of any class. The papists, as they now thought the government inclined to be more indulgent to them than it had formerly been, began to take somewhat greater liberties in the exercise of their religion than those to which they had been accustomed. By degrees, a number of persons in London, and in some other parts of the kingdom, began to express great apprehensions of the increase of popery, and to exclaim against the late act, by which they thought it was countenanced and supported. Meetings of these zealous persons were held from time to time in London; and they formed themselves into a body under the

the title of the "Protestant Association," and at length lord George Gordon became their president. The object of their association was to procure a repeal of the late act in favour of the papists. The persons who attended these meetings were, many of them, honest and well-intentioned people, who had a just aversion to popery, but who did not duly consider, that an intolerant spirit was at least as ce-
furable in a protestant as in a papist. In a little while, however, their number, consisting of persons in the lower ranks of life, became very considerable. A petition to parliament was framed, for a repeal of the late act, and the utmost pains were employed to procure subscriptions to it. The number of subscribers is said to have amounted to 120,000 persons. In order to give weight to their petition, it was determined that it should be attended by great numbers of the petitioners in person; and a public advertisement was issued for that purpose, signed by lord George Gordon. Accordingly it is supposed that at least 50,000 persons assembled on the second of June in St. George's Fields, and proceeded in great order to the house of commons, where their petition was presented by their president. Several members of both houses of parliament were grossly insulted and ill-treated by the populace, and in the evening a mob assembled which demolished two Romish chapels. The metropolis, for several subsequent days, became an unexampled scene of alarm, terror, and devastation; and for some time the magistrates in general manifested little activity. At length, when the rioters were making a formidable attack upon all property, and every man's personal security was endangered, the military interposed, and, after considerable exertions, restored the capital of the kingdom to order and tranquillity, after a devastation that had continued for six days, and not without the loss of many lives. The number of persons killed and wounded by the military in the suppression of these riots, is said to have amounted to 458. It would be unjust, however, to impute to the protestant association, as the first agents in this business thought proper to style themselves, the whole of the mischief that ensued, or to suppose that they foresaw the calamities to which they gave occasion. Yet it must be allowed, that these unhappy scenes owed their origin to their bigotry and delusion; and that the members of that association manifested a spirit the very reverse of that which distinguishes real and enlightened protestants, and very disgraceful to the national character. It has been said, that no member of the protestant association was executed or tried for any share in the riots; and it is most probable, that those who engaged in this disastrous business from religious bigotry, would have the discretion to retire before the last excesses, and before the intervention of the military. Several of the rioters were afterwards apprehended, tried, and executed. Lord George Gordon was committed to the Tower on the tenth of June, arraigned on the twenty-fifth of January, 1781; and on the fifth of February, tried under a charge of constructive treason, and acquitted.

ASSOILE, in our *Ancient Law-Books*, signifies to absolve, deliver, or set free from an excommunication. See **ABSOLUTION**.

ASSOKO, in *Geography*, a town of Africa, the capital of Iffini, in an island of the same name, formed by the river Iffini; which is the ordinary residence of the king and his attendants.

ASSOM. See **ASSEM**.

ASSONANCE, in *Rhetoric* and *Poetry*, a term used where the words of a phrase, or verse, have the same sound or termination, and yet make no proper rhyme.

These are usually vicious in English; the Romans some-

times used them with elegance: "Militem comparavit, exercitum ordinavit, aciem lustravit."

The Latins call it *similiter desinens*; and the Greeks *ἰσοσυνη*.

ASSONANT Rhymes, is a term particularly applied to a kind of verses common among the Spaniards, where a resemblance of sound serves instead of a natural rhyme:

Thus *ligera, cubierta, tierra, mesa*, may answer each other in a kind of assonant rhyme, because they have each an *e* in the penultimate syllable, and an *a* in the last.

ASSONGSONG, in *Geography*. See *Island of ASSUMPTION*.

ASSONIA, in *Botany*, a genus of plants, so named in honour of Ignatius de Aiso, a Spanish botanist. Lin. gen. Schreb. n. 1123. Cavanill. Diff. 3. p. 120. Dombeya, ib. p. 121. Clats, *monadelphia dodecandric*. Nat. Ord. *columbiferae*. *Malvaceae*, Juss. Gen. Char. *Cal.* perianth double; outer three-leaved, unilateral, deciduous; inner one-leaved, five-parted; parts lanceolate, acute, reflex. *Cor.* petals five, roundish, narrowed at the base, spreading, withering, affixed to the pitcher of the stamens. *Stam.* filaments fifteen, filiform, upright, shorter than the corolla, conjoined at the base in the form of a pitcher; anthers oblong, subsagittate, erect; five linear-lanceolate, somewhat erect, coloured, petal-formed straps between the stamens, proceeding from the pitcher. *Pist.* germ roundish, five-furrowed; style simple, longer than the stamens, permanent; stigmas five, recurved. *Pcr.* capsule subglobose, or turbinate, five-celled; cells separable, bivalve. *Seeds*, solitary or in pairs, subovate. Obs. Assonia cav. with the outer perianth one-leaved, three-toothed, and with five styles, does not seem separable from dombeya cav. with the outer perianth three-leaved, and a single style, any more than the hibiscus tiliaceus from the other hibisci; or the one styled fidas, from the rest; especially as dombeya ovate cav. has the style divided almost to the base. We have therefore followed Schreber and Martyn in uniting dombeya with assonia.

Species, 1. *A. populnea*. Cavan. Diff. 120. t. 42. f. 1. "Leaves cordate, ovate-acuminate; flowers corymbed." A small tree resembling hibiscus populneus. The French call it bois de senteur bleu ou galeux, because the wood is sweet-scented, and blue in the centre, and when old it becomes very hard. Leaves alternately scattered, large, entire, and hang obliquely; outer calyx so small as scarcely to be observed; petals small, oblong, obliquely sickle-shaped, first white, afterwards ferruginous. A native of the isle of Bourbon, in hilly woods. 2. *A. palmata*, dombeya palmata, Cavan. l. c. "Leaves cordate, palmate, smoothish, lobes seven, acute, ferrate-crenate; flowers corymbed." Stem arboreous; leaves alternate, on long footstalks; lobes oblong-acuminate; stipules lanceolate, tomentose, deciduous; flowers in solitary peduncles, at the ends of the branches, tomentose; corolla an inch and a half wide, changing from white to a sulphur colour, and lastly ferruginous. A native of the isle of Bourbon, where it is called by the natives mahot-tantan. 3. *A. acutangula*. Cavan. l. c. "Leaves cordate, roundish, three-cusped, crenate; flowers racemed." Stem arboreous; leaves alternate, of the length of the footstalks, seven-nerved, and commonly with an angular tooth between the base and lateral divisions; racemes solitary, axillary; calyxes extremely tomentose; corolla as that of the *A. palmata* (2), but veined and coriaceous; fruit pear-shaped. A native of the isle of Bourbon. 4. *A. angulata*, dombeya angulata. Cavan. l. c. "Leaves cordate, roundish, angular at top, ferrate-toothed tomentose; umbels numerous; common peduncles shorter than the petiole." Arboreous; branches tomentose; leaves with three angles at the tip, seven-nerved; stipules embracing the

the stem; umbels axillary, solitary; fruit globular, with two seeds in each cell. A native of the isle of Bourbon. 5. *A. tiliaefolia*, *dombeya tiliaefolia*. Cavan. l. c. "Leaves cordate, roundish-acute, crenate; flowers raceme-corymbed, arborescous." All the shrub very tomentose; leaves shaped like those of the common lime-tree, seven-nerved, tomentose; peduncles axillary, solitary, divided at the end into opposite horizontal racemes. A native of the isle of Bourbon. 6. *A. tomentosa*, *dombeya tomentosa*. Cavan. l. c. "Leaves cordate, roundish, crenate, tomentose, with almost circular veins; flowers umbelled." Stem arborescous, branched; the whole tree very tomentose; stipules coriaceous, broad-ovate, acuminate, ciliate, half-stem clasping; common peduncle very long, forked at the top, and terminated by two umbels; petals roundish, fiddle-shaped. A native of Madagascar. 7. *A. punctata*, *dombeya punctata*. Cavan. l. c. "Leaves ovate-lanceolate, long, quite entire, tomentose underneath, rugged with dots on the upper surface." Trunk about the thickness of the human leg or thigh, covered with dark-brown bark; branches alternate, tomentose; leaves three or four inches long (sometimes crenulate or sinuate), rounded at the base; flowers on a long axillary common peduncle, umbelled, white, but becoming ferruginous by age; pedicels twenty or thirty, one-flowered. A native of the isle of Bourbon. 8. *A. decanthera*, *dombeya decanthera*. Cavan. l. c. "Leaves ovate-acuminate, repand-crenate, smooth; stamens five, two-anthered; flowers small, umbelled." Stem arborescent, with a brown furrowed bark; leaves alternate, scattered, four times as long as the petioles; the outer calyx consists of three very small bristles; corolla scarcely three lines in diameter; filaments ten, five barren, five fertile; germ five-cornered, one seed in each cell of the fruit. A native of Madagascar. 9. *A. umbellata*, *dombeya umbellata*. Cavan. l. c. "Leaves cordate, ovate-oblong, acuminate, repand smooth; flowers umbelled, globular." A tree entirely smooth, with a brown bark; leaves longer than the petioles, either repand about the edge, or obsoletely and broadly crenate; common; peduncles solitary, axillary, on the tops of the branches reddish, very smooth, terminated by a single globose umbel. A native of the isle of Bourbon, where ropes are made of the bark. 10. *A. ovata*, *dombeya ovata*. Cavan. l. c. "Leaves ovate, toothed, five-nerved, tomentose; style very small." Stem shrubby, branched, covered with a ferruginous nap; leaves alternate, white underneath, rugged on the upper surface, double the length of the petioles; stipules capillary, tomentose; peduncles forked at the top, with a corymb at each division; corolla small; petals narrow, roundish at the end, not fiddle-shaped; their claws are permanent, and deeply ferruginous. Fruit globular, five-cornered, within the segments of the calyx. A native of the isle of Bourbon. 11. *A. ferruginea*, *dombeya ferruginea*. Cavan. l. c. "Leaves ovate-oblong, seven-nerved, ferruginous beneath; petioles, peduncles, and calyxes tomentose." Stem arborescent, from eight to ten feet high; branches covered with a rufous nap; leaves on the extreme twigs, scattered alternately, acuminate, tooth-ferrulate, tomentose on the under surface; peduncles double the length of the petiole, forked at the top, with a many-flowered corymb on each division. This, perhaps, may be a variety of the *A. ovata*; the leaves, however, are much broader at the base, acuminate, seven-nerved, and very much toothed; whereas in that they are strictly ovate, five-nerved, and the teeth are distant. A native of the isle of Mauritius, and first discovered by Commerçon in 1769.

Propagation and Culture. See *HIBISCUS* and *PENTAPETES*.

ASSONIA, or *DOMBEYA Phænicea*. See *PENTAPETES*.

ASSORUS, in *Ancient Geography*, a town of Macedonia, in Mygdonia. Ptolemy.—Also, a town of Sicily, seated on a hill to the left of the river Chrysus. Diod. Sic.

ASSOS, or *ASSUM*, a sea-port town of Asia Minor, in the Troas, fortified both by art and nature, according to Strabo. Acts, xx. 13.

Assos, or *Asso*, is now a sea-port of Asiatic Turkey, in Natolia, on a gulf of the Ægean sea, to which it gives name, four leagues S.E. from Troas, and eleven leagues west of Adramiti. N. lat. 39° 38'. E. long. 26° 1'.

Assos, *Asos*, or *Asum*, a small town of Crete.—*Affes*, a small river of Greece, in the district of Phocis, which ran from N. to S. at the foot of the mountain Edyleon, and joined the Cephissus.

ASSOUAN, in *Geography*, near the ancient SYENE, a poor village on the east side of the Nile, with a small fort commanded by an aga of the janizaries, N. lat. 24° 0' 45". E. long. 33° 30'. This place is called by the Arabs *Affouan*, which signifies *enlightened*, in allusion, as Bruce supposes, to the circumstance of the well mentioned by Pliny (H. N. l. ii. c. 73.), enlightened within by the sun's being directly over it in June. Bruce's Travels, vol. i. p. 158. See SYENE.

ASSRUMINA, in *Botany*, the name given by the people of Guinea to the shrub whose leaves they use as a cure for the long worms which are found in their flesh in those parts of the world; they only bruise the leaves, and apply a large lump of the mafs to the part where the worm is, and they are caled at once, without the pain and hazard of drawing it out. Phil. Trans. N° 232.

ASSULATUS, in *Natural History*, a species of *ECHINUS*. The shell is scutellate, the scutels united by transverse sutures. Klein, p. 15. 26. β . *Cidaris tessulata* of Klein, p. 16. 27. is supposed to be a variety of this kind.

ASSUMPSIT, in *Law*, denotes a voluntary promise by which a man assumes and takes upon him to perform, or to pay any thing to another.

This term comprehends any verbal promise made upon consideration, and is variously expressed by the civilians, according to the nature of the promise: sometimes by *pactum*; sometimes by *promissio*, *pollicitatio*, or *constitutum*.

If the promise be to do any explicit act, it is an express contract, as much as any covenant; and the breach of it is an equal injury. However, the remedy is not exactly the same. Since, instead of an action of covenant, there only lies an action upon the case, for which it is called the *assumpsit* or undertaking of the defendant; the failure of performing which is the wrong or injury done to the plaintiff, the damages of which the jury are to estimate and settle. As if a builder promises, undertakes, or assumes to Caius, that he will build and cover his house within a time limited, and fails to do it; Caius has an action on the case against the builder for this breach of his express promise, undertaking, or *assumpsit*; and shall recover a pecuniary satisfaction for the injury sustained by such delay. So also in case of a debt by simple contract, if the debtor promises to pay it and does not, this breach of promise entitles the creditor to his action on the case, instead of being driven to an action of debt, 4 Rep. 92. Thus likewise a promissory note, or note of hand not under seal, to pay money at a day certain, is an *express assumpsit*; and the payee at common law, or by custom and act of parliament the indorsee, may recover the value of the note in damages, if it remains unpaid. Action on the case on *assumpsit* lies, for not making a good estate of land sold, according to promise; not paying money upon a bargain and sale, according to agreement; not delivering goods promised on demand; this is by *express assumpsit*.

assumpsit. When one becomes legally indebted to another for goods sold, the law implies a promise that he will pay the debt; and if it be not paid, *indebitatus assumpsit* lies: and the same lies for goods sold and delivered to a stranger "*ad requisitionem*" of the defendant; the price being agreed upon and proved. 1 Danv. Abr. 26, 27. If a tenant, being in arrear for rent, settles an account of arrears with his landlord, and promises to pay him the sum in arrear, an *assumpsit* lies on this promise. 1 Rol. Abr. 9. If a man and woman, being unmarried, mutually promise to marry each other, and afterwards the man marries another woman, by which he renders himself incapable of performing his contract, an *assumpsit* lies, in which the woman shall recover damages. Carter, 233. There are, however, five cases, specified by the statute of frauds and perjuries, 29 Car. II. c. 3. in which no verbal promise will be sufficient ground of action, without some note or memorandum in writing, signed by the party who is to become chargeable. 1. Where an executor or administrator promises to answer damages out of his own estate. 2. Where a man undertakes to answer for the debt, default, or miscarriage of another. 3. Where any agreement is made, upon consideration of marriage. 4. Where any contract or sale is made of lands, tenements, or hereditaments, or any interest therein. 5. Where there is any agreement that is not to be performed within a year from the time of its being made. In all these cases a mere verbal *assumpsit* is void. The consideration is the ground of the common action on the case; and no such action lies against a man for a promise, where there is no consideration why he should make the promise.

Besides *express* contracts, there are others implied by law: and these are such as reason and justice dictate, and which, therefore, the law presumes that every man has contracted to perform: and, upon this presumption, to become answerable to such persons as suffer by his non-performance. Of this nature are, *first*, such as are necessarily implied by the fundamental constitution of government, to which every man is a contracting party. Thus it is that every person is bound and hath virtually agreed to pay such particular sums of money, as are charged on him by the sentence, or assessed by the interpretation of the law. By the same principle of an implied original contract to submit to the rules of the community of which we are members, a forfeiture imposed by the bye laws and private ordinances of a corporation upon any that belong to the body, or an amercement set in a court-leet or court-baron upon any of the suitors to the court, create a debt in the eye of the law; and such forfeiture or amercement, unpaid, works an injury to the party or parties entitled to receive it, for which the remedy is by action of debt. The same reason may with equal justice be applied to all penal statutes, or such acts of parliament that inflict a forfeiture for transgressing the provisions enacted by them. A *second* class of implied contracts are such as arise from natural reason, and the just construction of law; and this class extends to all presumptive undertakings or *assumpsits*, which, though never perhaps actually made, yet constantly arise from this general implication and intendment of the courts of judicature, that every man hath engaged to perform what his duty or justice requires. Thus, if I employ a person to transact any business for me, or to perform any work, the law implies that I undertook or assumed to pay him so much as his labour deserved. If I neglect to make him amends, he has a remedy by an action on the case upon this implied *assumpsit*. The valuation of his trouble is submitted to the judgment of a jury, who will assess such a sum in damages as they think he really merited. This is called an *assumpsit* on a "*quantum meruit*." There is also an

implied *assumpsit*, on a "*quantum valebat*," similar to the former; where one takes up goods or wares of a tradesman, without expressly agreeing for the price. Here the law concludes, that both parties did intentionally agree, that the real value of the goods should be paid; and an action on the case may be brought accordingly, if the vendee refuses to pay that value. Another species of implied *assumpsits* is when one has had and received money belonging to another, without any valuable consideration given on the receiver's part; for the law construes this to be money had and received for the use of the owner only; and implies that the person so receiving promised and undertook to account for it to the true proprietor. And if he unjustly detain it, an action on the case lies against him for the breach of such implied promise and undertaking; and he will be made to repair the owner in damages, equivalent to what he has detained in violation of such promise. This is applicable to almost every case where the defendant has received money, which "*ex æquo et bono*" he ought to refund. 4 Burr. 1012. Moreover, when a person has laid out and expended his own money for the use of another at his request, the law implies a promise of repayment, and an action will lie on this *assumpsit*. Carth. 446. 2 Keb. 99. Also, upon a stated account between two merchants, or other persons, the law implies that he against whom the balance appears has engaged to pay it to the other, though there be no actual promise. From this implication, actions on the case are frequently brought, declaring that the plaintiff and defendant had settled their accounts together, "*in simul computassent*," which gives name to this species of *assumpsit*, and that the defendant engaged to pay the plaintiff the balance, but has since neglected to do it. The last class of contracts, implied by reason and construction of law, arises upon the supposition, that any one who undertakes any office, employment, trust, or duty, contracts with those who employ or entrust him to perform it with integrity, diligence, and skill; and, if by his wanting either of these qualities, any injury accrues to individuals, they have their remedy in damages by a special action on the case. If a sheriff does not execute a writ sent to him, or wilfully makes a false return, the party aggrieved shall in both cases have an action on the case for damages, to be assessed by a jury. Moor, 431. 2 Rep. 99. If a sheriff or gaoler suffers a prisoner, taken upon mesne process, or during the pendency of a suit, to escape, he is liable to an action on the case; but if, after judgment, a debtor charged in execution for a certain sum be permitted to escape, a gaoler or sheriff is compellable by action of debt for a sum liquidated and ascertained, to satisfy the creditor his whole demand, stat. Westm. 2. 13 Edw. I. c. 11. and 1 Ric. II. c. 12. 2 Inst. 382. An advocate or attorney betraying the cause of their client, or, being retained, neglecting to appear at the trial, by which the cause miscarries, are liable to an action on the case, for a reparation to their injured client. Finch L. 188. There is also in law an implied contract with a common innkeeper, to secure the goods of his guest; with a common carrier or barge-master, to be answerable for the goods he carries; with a common farrier, that he shoes a horse well, without laming him; with a common tailor, or other workman, that he performs his business in a workman-like manner; in which if they fail, an action on the case lies for the recovery of damages for such breach of their general undertaking. 11 Rep. 54. 1 Saund. 324. If an innkeeper, or other victualler, hangs out a sign, and opens his house for travellers, it is an implied engagement to entertain all persons who travel that way; and upon this universal *assumpsit* an action on the case will lie against him

for damages, if he without good reason refuses to admit a traveller. 1 Ventr. 333. If one cheats with false cards or dice, or by false weights and measures, or by selling one commodity for another, an action on the case lies against him for damages, upon the contract which the law always implies, that every transaction is fair and honest. 10 Rep. 56. In contracts for provisions, it is always implied, that they are wholesome, and if they be not, the same remedy may be had. If cloth is warranted to be of such a length, when it is not, an action on the case lies for damages. Finch L. 189. Also, if a horse be warranted sound, and he wants the sight of an eye, it has been held that an action on the case lies to recover damages for this imposition. Salk. 611. Bl. Com. vol. iii. p. 158, &c. See CONTRACT, and PROMISE.

ASSUMPTION, in *Antiquity*, a feast celebrated in the Romish church, in honour of the miraculous ascent of the Holy Virgin, as they describe it, body and soul into heaven.

ASSUMPTION, was also, among our ancestors, used for the day of the death of any saint: "quia ejus anima in cœlum assumitur." See ANNIVERSARY.

ASSUMPTION, in *Geography*, an episcopal city of South America, in the province of Paraguay, situate in the eastern division of the province, on a river of the same name, a little above the place where it is joined by the river Picol-maga. It was built by the Spaniards in 1538, and is distinguished by the salubrity of its situation, by the fertility of the territory in which it stands, producing a great variety of native and exotic fruits in the highest perfection, and also by the number of its inhabitants, who are partly descendants of Spanish families that settled in the place, and partly Mestizos and mulattoes. This city lies about fifty leagues above the confluence of the Paraguay and Paruna, where the former begins to be called the river de la Plata. It is the residence of a governor appointed by the king of Spain, under the viceroy of Peru. Near the city is a lake, remarkable for having in the middle of it a rock, which rises to a prodigious height like an obelisk. S. lat. 25° 30'. W. long. 57° 40'.

ASSUMPTION, or *Affonsong*, one of the Marianne or Ladrones islands, situate according to La Perouse's chart in N. lat. 19° 45'. and W. long. 145° 35'. It is a volcanic island, about three leagues in circumference; and its highest point is about 200 toises above the level of the sea. Its form is that of a perfect cone, whose surface, as far as forty toises above the level of the sea, is as black as coal. Some cocoa-nut trees occupy nearly a fifteenth part of the circumference of the island, for a depth of forty toises, which are in some measure sheltered from the east wind; and this is the only part of the island where it is possible to anchor, in a depth of water of thirty fathoms over a bottom of black sand, extending nearly a quarter of a league. The lava, flowing from the island, has formed precipices and hollows, bordered with a few stunted cocoa-nut trees, thinly scattered and mixed with limes and a small number of plants; and it has covered the whole circumference as far as a border of about forty toises towards the sea. The summit appeared to be vitrified, resembling black glass, and its termination was concealed by clouds. Although no smoke was visible, the sulphureous smell, which extended half a league out to sea, induced a suspicion that the fire of the volcano was not extinguished, and that its last eruption was not very ancient; more especially as there appeared no trace of decomposition in the lava, on the middle of the mountain. The island exhibits no appearance of having been ever inhabited, even by quadrupeds, much less by

human beings. Some very large crabs were found here; and these, it is apprehended, have driven away the sea-birds, who lay on shore, and whose eggs they would devour. Some very fine shells were found in the hollows of the rocks; and three or four new species of the banana-tree were collected. No fish was perceived, besides a red ray, some small sharks, and a sea-serpent, which might be three feet long, and three inches thick. No water could be procured in this desolate island, except some small quantity lodged in the hollows of the rocks. The sea glides along the shore, and forms at every point a surf which renders debarkation extremely dangerous. Voyage of La Perouse, vol. i. p. 24. Eng. Transl. Lond. 1798.

ASSUMPTION, is also an island lying on the south-west coast of California, forming with a projecting point of land a bay, both on its north-east and south-east sides. N. lat. 28°. W. long. 120°.

ASSUMPTION, a river of North America, in New York, which falls in from the east into the lake Ontario, after a N.W. and W. course of about 28 miles; 5 miles S.E. from Pl. Gaverfe.

ASSUMPTION, a name sometimes given to the island ANTICOSTA.

ASSUMPTION, in *Logic*, is the minor or second proposition in a categorical syllogism.

ASSUMPTION, is also sometimes used for a consequence drawn from the propositions whereof an argument is composed. Thus we say, the premises are true, but the *assumption* is captious.

ASSUMPTIVE ARMS, in *Heraldry*. See ARMS.

ASSURÆ, in *Ancient Geography*, an episcopal town of Africa, in the proconsular province, placed by Antonine (Itiner.), on the road from Carthage to Sufatula, 108 miles from the former, and 42 from the latter.

ASSURANCE, POLICY OF. See POLICY.

ASSURANCE, in *Commerce*. See INSURANCE.

We have also *offices of assurance for life*, where policies are granted for securing a sum of money on the extinction of any given life, in consideration of an adequate compensation either paid down in one sum, or by annual instalments during the continuance of such life.

ASSURANCES on *Lives*. By *assuring* a life is meant, obtaining security for a sum of money to be received should the life drop, in consideration of such a payment made to the *assurer*, as shall be a sufficient compensation for the loss and hazard to which he exposes himself. In estimating this compensation, the amount of it will depend entirely on the rate of interest at which money is improved, and the probability of the duration of the life to be assured. If the interest be high, and also the probability high of the duration of the life, this compensation or premium of assurance will be proportionably low; on the contrary, if the rate of interest be low, and the probability of living be also low, the premium will be proportionably high. In order to explain this, let 100*l.* be supposed to be assured on a life for a year to come; that is, let 100*l.* be supposed payable a year hence, provided a life of a given age fails in that time. Were the interest of money at 5 *per cent.*, and the life sure of failing, the value of the assurance would be the same with the present value of 100*l.* payable at the end of a year, reckoning interest at 5 *per cent.*, that is, it would be that sum, which being now put out to interest at 5 *per cent.* would produce 100*l.* at the end of the year, or 95*l.* 4*s.* 8*d.* See ANNUITIES, Tab. II.

On the contrary, if it be an even chance, or the odds be equal, whether the life does or does not fail in the year, the value of the *assurance* will be half the former value, or

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47*l.* 12*s.* 4*d.* If the odds *against* its failing be two to one, that is, if it may be expected that some one of three lives, at the age of the given life, will fail in the year, the value of the *assurance* will be a *third* of the first value, reckoning the same interest, or 31*l.* 14*s.* 11*d.* If the odds be nineteen to one, or if it may be expected that some one out of twenty lives, at the age of the given life, will fail in a year, the value of the *assurance* will be a *twentieth* part of the first value, or 4*l.* 15*s.* 3*d.* If the odds be forty-nine to one, or only one out of fifty such lives as the given life can be expected to fail in the year, the value of the *assurance* will be a *fiftieth* part of the first value; that is, it will be 1*l.* 18*s.* 1*d.* Now the odds of three to one are, according to the *Northampton* Table of Observations (see *MORTALITY*), the odds that a life aged 92 will not drop in a year. The odds of 19 to 1 are the odds, according to the same table, that a life aged 65 will not drop in a year; and the odds of 49 to 1 are the odds that a life aged 39 will not drop in a year. It follows, therefore, that the value of the *assurance* of 100*l.* for a year on a life aged 92 is 31*l.* 14*s.* 11*d.*; on a life aged 65, 4*l.* 15*s.* 3*d.* on a life aged 39, 1*l.* 18*s.* 1*d.* reckoning interest at 5 *per cent.* If interest be reckoned at 3 *per cent.* these values will be 32*l.* 7*s.* 3*d.*; 4*l.* 17*s.*; 1*l.* 18*s.* 10*d.*

The assurances most commonly practised are those on single lives, either for a given term, or during their whole continuance. When a life is assured for a given term or number of years, the value may be paid either in one *single present payment*, or in *annual* payments, to be continued till the failure of the life, should that happen within the term; or if not, till the determination of the term.

The method of finding these values cannot be easily understood by those who are unacquainted with the doctrine of life-annuities, as it has been taught by mathematicians; but the following observations may be of use to give some general idea of the subject.—Let us suppose that a person aged 39 years wants to assure 100*l.* on his life for 27 years, or till he is 66 years of age, and that he chuses to advance the proper compensation for it in a *fixed annual* payment, the first to be made immediately, and the following payments to be continued till either the term ends, or his life drops. The value of the *assurance* for the *first* year, is, by what has been already shewn, 1*l.* 18*s.* 1*d.* reckoning interest at 5 *per cent.* The value of the *assurance* for the *last* year of the term, supposing him to have lived to the beginning of it, or to have completed 65, is likewise, by what has been already shewn, 4*l.* 15*s.* 3*d.*, reckoning all along at the same interest. If, therefore, the value of the *assurance* for the whole 27 years, is to be one constant sum payable at the beginning of every year, that sum, it is obvious, ought to be *greater* than the *first*, and *less* than the *last*; or a sum which is some *mean* between 1*l.* 18*s.* 1*d.* and 4*l.* 15*s.* 3*d.* The rule for finding this mean in all cases is the following:

“ From the value of an annuity *certain* for the given term, found by Tab. III. under the article *ANNUITIES*, subtract the value of the life for the given term, found by the method explained under the article *LIFE-ANNUITIES*, and reserve the remainder. Multiply the value of 1*l.* due at the end of the given term (found by Tab. I. under the article *Annuities*), by the *perpetuity* (see *REMARK II.*), and also by the *probability* (see *MORTALITY*), that the given life shall fail in the given term. This product being added to the *reserved remainder*, let the total be multiplied by the sum to be assured, and afterwards divided by the *perpetuity* increased by unity, then let this *quotient* be *reserved*. Find next the value of an annuity on the given life for one year

less than the given term, and the *reserved quotient* being divided by this last value, increased by unity, will give the required value of the assurance in a *fixed annual* payment, till either the life fails, or the term ends.”

EXAMPLE.

Let the term be 27 years, the life aged 39, the sum 100*l.* and the interest 5 *per cent.*

SOLUTION.

The value of the life of a person whose age is 39, for 27 years, is (reckoning interest at 5 *per cent.* and by the *Northampton* Table of *LIFE-ANNUITIES*) 11.191. This value subtracted from 14.643 (the value of an annuity certain for 27 years, see Tab. III. *ANNUITIES*), leaves 3.452, the remainder to be *reserved*. The value of 1*l.* to be received at the end of 27 years is .26785, by Tab. II. under the article *ANNUITIES*. The probability that the life of a person aged 39 shall fail in 27 years, is, by the *Northampton* Table, (see *MORTALITY*) $\frac{21}{118}$; and the *perpetuity* is 20. These numbers multiplied by one another, and 3.452 added to the product, make 6.568, which multiplied into 100*l.* the given sum, and divided by 21, the *perpetuity* increased by unity, gives 31.276 for the *quotient* to be *reserved*.

The value of an annuity on a life of 39 for 20 years, is 11.019. Dividing therefore 31.276 (the *reserved quotient*) by 12.019, or the value of the above annuity, with unity added, we have 2.60*l.*, or 2*l.* 12*s.*, which is the required value, in *fixed annual* payments, of the assurance of 100*l.* on the given life for 27 years, reckoning interest at 5 *per cent.*

The value of the same assurance in one *present payment* is the *quotient reserved* above, or 31*l.* 5*s.* 6*d.*; in other words, it is the value of an annuity of 2*l.* 12*s.* for 26 years on a life of 39; the first payment of which is to be made immediately, and the remaining ones at the *beginning* of each year; or, it is the sum arising in the foregoing operation before the division by the value of the life for the term of 26 years.

If the *assurance* is to be made for the whole possible duration of the life, the method of finding the value will be more simple, and the rule for this purpose is as follows: “ From the *perpetuity* subtract the value of the given life, and multiply the remainder by the given sum, and this last product divided by the *perpetuity*, increased by unity, will give the value in a *single present payment*. And this payment, divided by the value of the life, will give the value of the *assurance* in *annual payments* during the continuance of the life.”

EXAMPLE.

Let the age of the life be, as in the last example, 39; the sum to be assured for its whole duration 100*l.*; and the rate of interest 5 *per cent.* The value of the life, according to the *Northampton* Table (see *LIFE-ANNUITIES*), is 11.979. The value of the life subtracted from 20 (the *perpetuity*) is 8.021, which multiplied by 100, the given sum, and divided by 21, the *perpetuity* increased by unity, gives 38.195*l.* or 38*l.* 4*s.* for the value in a *single payment* of the *assurance* of 100*l.* for the whole duration of a life aged 39, reckoning interest at 5 *per cent.* And this payment divided by 11.979 is 3.188*l.* or 3*l.* 3*s.* 9*d.* the value of the same *assurance* in *annual payments* during the continuance of the life.

REMARK I.

If the value of the *assurance* is desired in annual payments, the first of which, instead of being made at the *end* of the year as the preceding rule supposes, is to be made *immediately*, the value in a single payment (found as directed above) must be divided by the value of the life *increased by unity*;

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that is, in the present instance, by 12.979, which will make the required value of the assurance 2.941*l.* instead of 3.188*l.* or 2*l.* 18*s.* 10*d.* instead of 3*l.* 3*s.* 9*d.*

The reason of adding unity to the values of lives taken from the tables is, that in all the tables the values of annuities on lives are given on the supposition that the first payment is not to be made till the end of a year. If, therefore, the first yearly payment is to be made immediately, the value must exceed that in the tables by one year's purchase.

REMARK II.

The *perpetuity* means the value of the fee-simple of an estate, which is found by dividing 100*l.* by its interest for a year. For example, if the rate of interest be 5*l.* per cent. 100*l.* divided by 5 gives 20 for the perpetuity; if the rate of interest be 4, $3\frac{1}{2}$, or 3 per cent. 100*l.* divided by 4, 3.5 or 3, will give 25, 28.571, or 33.333 for the perpetuity.

REMARK III.

If instead of a *gross sum*, an *estate* or a *perpetual annuity* is to be assured during the whole duration of a life, the value in a *single payment* will be "the value of the life subtracted from the perpetuity, and the remainder multiplied by the annuity, or by the rent of the estate."—And the value in *annual payments beginning immediately* will be "the single payment divided by the value of the life increased by unity."—Universally, it ought to be remembered that the *assurance* of an *estate* or *annuity* after any given life or lives, is worth as much more than the *assurance* of a corresponding sum, as 100*l.* increased by its interest for a year is greater than 100*l.*—Thus the present values, in *single and annual payments* of the *assurance* of an estate of 5*l.* per ann. for ever, and of 100*l.* in money on the whole duration, or on any part of an assigned life, are to one another (interest being at 5 per cent.) as 105*l.* to 100*l.* The reason of the difference is, that the algebraical calculations, by which these values are determined, suppose that the *gross sum* and the first yearly payment of the *annuity* are to be received at the same time after the extinction of the lives. It is easy to see, that this is a circumstance which must make the latter of more value.

This specimen is sufficient to explain the general nature and principles of assurances on single lives, and to teach in all cases the method of finding the values of such assurances. To those who wish to be further informed on this subject, it may not be improper to add the following mathematical demonstrations of the rules which have been given above. Let *a* be the number of persons living at the age of any given life *A*; let *a'*, *a''*, *a'''*, &c. be the number of persons who have died in the 1st, 2d, 3d, &c. year after the age of *A*; let *r* be 1*l.* increased by its interest for a year, and *S* the sum to be assured. The probability that *A* dies in the 1st year is $\frac{a'}{a}$, the value therefore of the assurance in that year is $\frac{S \cdot a'}{ar}$. The probability that *A* dies

in the 2d, after having survived the 1st year, is $\frac{a''}{a}$, and consequently the value of the assurance in the 2d year is $\frac{S \cdot a''}{ar^2}$.

In like manner, the value of the assurance in the 3d, 4th, 5th, &c. *n*th year, supposing *m* to denote the number of persons

who have died in the *n*th or last year, is $\frac{S \cdot a'''}{ar^3}$, $\frac{S \cdot a^{iv}}{ar^4}$, $\frac{S \cdot a^v}{ar^5}$

&c. and $\frac{S \cdot m}{ar^n}$ respectively. The whole value, therefore, of

the assurance for *n* years is $S \times \frac{a'}{ar} + \frac{a''}{ar^2} + \frac{a'''}{ar^3} + \dots + \frac{m}{ar^n}$.

But the series $\frac{a'}{ar} + \frac{a''}{ar^2} + \frac{a'''}{ar^3}$, &c. is $= \frac{1}{r} - \frac{a - a'}{ar} +$

$\frac{1}{r^2} - \frac{a - a' + a''}{ar^2} + \frac{1}{r^3} - \frac{a - a' + a'' + a'''}{ar^3} + \frac{1}{r^n} - \frac{a - m}{ar^n}$

$= \frac{1}{r^2} + \frac{a - a'}{ar^3} - \frac{1}{r^3} + \frac{a - a' + a''}{ar^3} - \frac{1}{r^4} + \dots - \frac{a - a' + a'' + a'''$

$\dots - \frac{1}{r^n} + \frac{a - l}{ar^n}$ (supposing *l* to be the number of per-

sons who have died in the *n* - 1th year). The series $\frac{a - a'}{ar}$

$+ \frac{a - a' + a''}{ar^2}$, &c. $\dots + \frac{a - n}{ar^n}$ is known to express the

value of an annuity on the life of *A* for *n* years, and the series

$\frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3} \dots + \frac{1}{r^n}$ to express the value of an annuity certain for *n* years. Call the first of these series

A, and the second *N*, then will the whole of the above series be $= N - A - \frac{N}{r} + \frac{A}{r} + \frac{1}{r^{n+1}} - \frac{a - m}{ar^{n+1}} = \frac{r - 1}{r}$

$\times N - A + \frac{1}{r} \times \frac{m}{ar^n}$. Now since $\frac{1}{r - 1}$ is equal to the

perpetuity (or *p*), $\frac{r - 1}{r}$ will be $= \frac{1}{p + 1}$ and $\frac{1}{r} = \frac{p}{p + 1}$;

hence the whole value of the assurance of *S* for *n* years will

be $\frac{S}{p + 1} \times N - A + \frac{m \cdot p}{ar^n}$ agreeable to the rule given above.

If the assurance be for the whole continuance of life, the fraction $\frac{m \cdot p}{ar^n}$ vanishes, *N* becomes equal to the perpetuity,

and *A* to the value of an annuity for the whole life of *A*,

so that in this case the expression becomes simply $= \frac{S}{p + 1}$

$\times p - A$, which is the rule given in words for finding the value of an assurance on the whole possible duration of the life of *A*.

If the assurance be that of an *estate* or a *perpetual annuity*, the value of each payment of such annuity depending on the failure of the life of *A* in one, two, three, &c. years to *n*

years will be $\frac{1}{r} - \frac{a - a'}{ar}$, $\frac{1}{r^2} - \frac{a - a' + a''}{ar^2}$, $\frac{1}{r^3} -$

$\frac{a - a' + a'' + a'''}{ar^3} \dots - \frac{1}{r^n} - \frac{a - m}{ar^n}$, and the value of the

fee-simple after *n* years, depending on the contingency of

A having died in the mean time, will be $\frac{m \cdot p}{ar^n}$; the whole

value, therefore, of the assurance will be $N - A + \frac{m \cdot p}{ar^n}$

multiplied into the annuity; or simply $p - A$ multiplied into such annuity, if the assurance is to be continued during

the whole duration of *A*'s life. For the more ample discussion of this subject, the reader is referred to Mr. Simpson's "Select Exercises," Dr. Price's "Treatise on Rever-

sonary Payments," and Mr. Morgan's "Doctrine of Annuities and Assurances stated and explained."

Assurances may be made on any number of *joint* lives, or on the *longest* of any lives. Rules for finding the values of such assurances

assurances are given in the books just referred to.—There are further *assurances* on survivorships; by which is meant an obligation for the value received, to pay a given sum or annuity, provided a given life shall survive any other given life or lives. The method of finding these values is given under the article SURVIVORSHIP.

All these different kinds of *assurances* are of the greatest use; and the offices for making them are a particular advantage to the public. The principal of these offices in England are, the Amicable Society, incorporated for a perpetual assurance; the Society for Equitable Assurances on Lives and Survivorships; the Royal Exchange Assurance; the Westminster and the Pelican Life-Offices. The Amicable Society requires an annual payment of 5*l.* from every member, payable quarterly during life. The whole annual income hence arising is equally divided among the representatives of such members as die every year; and this renders the dividends among the claimants in different years more or less according to the number of members who have happened to die in those years. But this society engages that the dividends shall not be *less* than 150*l.* to each claimant, though they may be *more*.—None are admitted whose ages are *greater* than 45, or *less* than 12; nor is there any difference of contribution allowed on account of difference of age. This society has subsisted ever since 1706, and its credit and usefulness are well established.—Its plan, however, is liable to several objections.—First, it is evident that regulating the dividends among the *representatives* by the number of members who die every year, is not equitable; because it makes the benefit which is to accrue from the assurance, to depend, not on the value of the contribution, but on a *contingency*; that is, on the number of members who have happened to die in the year. Secondly, its requiring the same payments from all persons under 45, is also not equitable, for the payment of a person admitted at 12 ought not to be more than *half* the payment of a person admitted at 45. Thirdly, by limiting the sums assured on one and the same life to 450*l.* it is but ill adapted to make a competent provision for the families of its members; nor can it be of any service to persons whose age exceeds 45 years; a period of life, which it has been found from experience that many, if not most persons, have exceeded before they have begun to provide for their families by assuring their lives. It is likewise by no means fitted to the circumstances of persons who want to make assurances on their lives for only one year, or for a short term of years. Thus, the true value of the assurance of 150*l.* for five years on the life of a person whose age is 39, may be found by the first rule to be nearly three guineas *per ann.* supposing interest at 3 *per cent.* and the probabilities of the duration of human life as they are given in the *Northampton Table* of Observations. But such an assurance could not be made in this society without an annual payment of 5*l.*

Neither is the plan of this society at all adapted to the circumstances of persons who want to make *assurances* on particular survivorships. For example, a person possessed of an estate or salary, which must be lost with his life, has a person dependent upon him, for whom he desires to secure a sum of money payable at his death. But he desires this only as a security against the danger of his dying *first*. In these circumstances he enters into this society; and by an annual payment of 5*l.* entitles his *nominee* at his death to 150*l.* In a few years, perhaps, his *nominee* happens to die, and the object of his *assurance* having thus ceased, he determines to give up the advantage arising from his former payments and to withdraw from the society. The right method in this case would have been to have taken from such a person the true value of the sum assured “on the supposition of non-pay-

ment, provided he should survive.” Had this been done, he would have paid for the *assurance* (supposing interest at 3 *per cent.* his age 30, the age of his *nominee* also 30, and the values of lives as given by Dr. Price from the *Northampton Table*) 3*l.* 6*s.* 8*d.* in annual payments, to begin immediately, and to be continued during the joint duration of his own life and the life of his *nominee*.

None of these objections, however, are applicable to the other offices just mentioned. In all of them assurances may be made for any term and at any age between eight and sixty-seven years, either at single or annual premiums, proportioned to the age of the person assured, and to the risk or hazard attending the assurance. The business transacted in these offices is very extensive, and so far as relates to the *premiums* they require, is founded on strict calculation. These *premiums*, which are now indiscriminately adopted by all of them, were originally computed in the year 1781 for the use of the Equitable Society,—an institution so entirely guided by computation in all its practice, that in ascertaining its profits at fixed periods, and distributing them among its members, it has never failed to proceed on the same sure principles, and by this means to render itself one of the greatest public benefits to this country. In consequence of its immense capital, and the very wide extent of its business, it certainly far exceeds any other office of the same kind; and therefore by giving an account of its rise and progress, a proper idea will be obtained of the nature of life-assurances, as well as of the important benefits which are derived from them.

This society was established in the year 1762, in consequence of proposals which had been made, and lectures recommending such a design, which had been read by Mr. Thomas Simpson; and the premiums then adopted for its practice were computed by Mr. James Dodson, the author of the *Mathematical Repository*. It assures any sums or reversionary annuities on any life or lives, for any number of years, as well as for the whole continuance of the lives, and in any manner that may be best adapted to the views of the persons assured; that is, either by making the assured sums payable *certainly* at the failure of any given lives, or on condition of *survivorship*; and also, either by taking the price of the assurance in *one present payment*, or in *annual payments* during any single or joint lives, or any terms less than the whole possible duration of the lives. Any persons, for instance, who depend on incomes which must be lost when they die, or who are only tenants for life in estates, may, by assuring an equivalent on their own lives, guard their families or representatives against the loss which would accrue by their death. Hence, clergymen, counsellors, persons holding any places of profit, traders, and others who have families whose subsistence depends on the continuance of their lives, may be enabled to make provision for their families after their decease. All persons likewise who enjoy annuities for the lives of others, may here secure themselves against the loss they would sustain, should they survive the persons on whose lives the annuities depend, by making *assurances* which would entitle them to any sums payable on condition their survivorship should take place. Any person entitled to an estate, annuity, legacy or office after another person provided he survives, may here secure an equivalent for his family at his decease, provided he does *not* survive. Husbands may in this society secure annuities for their wives, provided they should leave them widows. Parents, by assuring the lives of their children, when infants, till they attain a given age, may secure for them, should they live to that age, such sums as may be necessary to put them out to apprenticeships, or to make capitals or fortunes for them, with which to set out in business, or to marry. Any persons, apprehensive of being left without support in old age, when

ASSURANCE ON LIVES.

incapable of labour, may purchase an annuity to commence at any future year of his life and to continue during the remainder of his life, and he may do this at a small expence if he is young, and willing to wait for the commencement of his annuity, till he is fifty-five or sixty years of age. In short there are no kinds of *assurance* on lives or survivorships which this society does not make. In doing this, while it proceeds on mathematical principles in computing its premiums, it takes advantage of making these computations at so low an interest as 3 *per cent.* in order to gain such a profit as shall enable it to bear the expences of management, and render it a *permanent* benefit to the public. In the infancy of the institution also, it adopted tables of the values and probabilities of lives in *London*, where, as in all great towns, the rate of human mortality is much greater than it is among mankind in general. But after an experience of twenty years, it found that tables giving higher probabilities of life might be safely used, and therefore it made choice of those more correct tables which were published by Dr. Price from observations at *Northampton*; and it appears, from comparing the decrements of life in the society with those in the table just mentioned that, during a term of thirty-four years, the ratio of mortality in the former is to that in the latter between the ages of 10 and 20 as 1 to 2

20 and 30 as 1 to 2
30 and 40 as 3 to 5
40 and 50 as 3 to 5
50 and 60 as 5 to 7
60 and 80 as 3 to 4,

or that in all ages between 10 and 80, fewer deaths have happened in the society than should have happened according to the tables from which its premiums have been computed in the proportion of *two to three*. In consequence of this and of other still less equivocal proofs of its prosperity, the society has been enabled since its first establishment not only to reduce its premiums above *one half*, but to make such additions to the claims in the years 1782, 1786, 1791, 1793, 1795, and 1800, as amount at present to the sums specified below:

For every 100 <i>l.</i> assured in	1762,	{ an addition over and above the sum assured of }	£ s.
	1762,	{ an addition over and above the sum assured of }	258
	1763, ditto	- -	249 10
	1764, ditto	- -	241
	1765, ditto	- -	232 10
	1766, ditto	- -	224
	1767, ditto	- -	215 10
	1768, ditto	- -	207
	1769, ditto	- -	198 10
	1770, ditto	- -	190
	1771, ditto	- -	181 10
	1772, ditto	- -	173
	1773, ditto	- -	164 10
	1774, ditto	- -	156
	1775, ditto	- -	147 10
	1776, ditto	- -	139
	1777, ditto	- -	130 10
	1778, ditto	- -	122
	1779, ditto	- -	113 10
	1780, ditto	- -	105
	1781, ditto	- -	96 10
	1782, ditto	- -	88
	1783, ditto	- -	81
	1784, ditto	- -	74
	1785, ditto	- -	67
	1786, ditto	- -	60
	1787, ditto	- -	54
	1788, ditto	- -	48
	1789, ditto	- -	42

For every 100 <i>l.</i> assured in	1790,	{ an addition over and above the sum assured of }	£
	1790,	{ an addition over and above the sum assured of }	36
	1791, ditto	- -	30
	1792, ditto	- -	24
	1793, ditto	- -	19
	1794, ditto	- -	16
	1795, ditto	- -	13
	1796, ditto	- -	10
	1797, ditto	- -	8
	1798, ditto	- -	6
	1799, ditto	- -	4
	1800, ditto	- -	2

These are advantages peculiar to this society, and therefore it is no wonder that its business should so far surpass that of every other institution of the same kind. But in the midst of its prosperity the society has hitherto proceeded with the utmost prudence and caution. Aware of the danger of being led astray by the dazzling appearance of a large capital, necessarily increased by an influx of new members, it has provided by a special law, that, as on former occasions, so in future, no distribution of its stock shall ever be made without a previous investigation of its finances; that this investigation shall take place once in ten years; that the distribution shall never exceed *two-thirds* of the surplus stock of the society; and that no such distribution shall be adopted at all without the concurrence of *four-fifths* of its members, attending at three successive general courts. As far as human prudence and foresight can provide against danger, these precautions are likely to secure the society, and to increase its usefulness. But there is one danger against which no laws can guard it: we mean the danger of employing ignorant persons to conduct the management of its affairs. It must be manifest from the preceding account of this society, that none but skilful mathematicians are qualified for this business; and it is to be hoped that on any future vacancies, no other regard will be had in filling them up, than to the ability and integrity of the candidates. The melancholy experience of other societies for the benefit of age, for the benefit of widows, &c. which were established about thirty years ago, and which have long since ended in disappointment and ruin, should serve to guard this society against the attempts of ignorance, as much as the present prosperous state of its affairs should incite it to persevere in that wise and temperate course which has displayed so much prudence and skill in the management of its affairs, and raised it so high in the opinion of the public.

The following are the rates of *assurance* on single lives in this society, and also very nearly in the *Royal Exchange*, and other offices, where those premiums have been adopted with little or no variation.

Age.	One year.			Seven years at an annual premium.			Whole life at an annual premium.		
	£	s.	d.	£	s.	d.	£	s.	d.
10	0	17	9	1	1	5	1	17	7
15	0	17	11	1	2	11	1	18	7
20	1	7	3	1	9	5	2	3	7
25	1	10	7	1	12	1	2	8	1
30	1	13	3	1	14	11	2	13	5
35	1	16	4	1	18	10	2	19	8
40	2	0	8	2	4	1	3	7	11
45	2	6	8	2	10	10	3	17	11
50	2	15	1	3	0	8	4	10	10
55	3	5	0	3	12	0	5	6	4
60	3	18	1	4	7	1	6	7	4
65	4	15	2	5	10	10	7	16	9
67	5	5	6	6	5	2	8	12	1

ASSURANCE ON LIVES.

ASSURANCE, *Royal Exchange*, is a corporation or company established by an act 6 Geo. I. c. 18.; and, by their charter, executed June 22, 1720, empowered to assure ships and goods at sea, or going to sea, and to lend money on bottomry; and to raise for this purpose a capital of 1,500,000*l.*; on condition that, upon three years' notice being given by parliament, at any time within thirty-one years from the date of the charter, and repayment of the sum of 300,000*l.* which the company had agreed to pay to government, the corporation should cease. In the following year they obtained another charter, dated the 29th April 1721, by which they were authorized to assure lives, and also to assure houses and goods from fire, and were empowered to raise a farther capital of 500,000*l.* making, with the former sum, two millions. It was also enacted, that, in consequence of the company having paid into the exchequer 111,250*l.* and having covenanted to pay the farther sum of 38,750*l.* within three months, they should be released from payment of the remainder of the 300,000*l.* The whole

capital of 2,000,000*l.* was subscribed, but it was thought necessary to call for the payment of only 500,000*l.*; which, after paying the 150,000*l.* to government, had been found sufficient for carrying on the extensive concerns of the company. A new branch was added to their business, by an act, obtained in 1793, enabling them to grant and purchase annuities on lives, either immediate or in reversion; and, in 1801, the company obtained an act for assuring vessels and their cargoes on canals and inland navigations, in which act the London Assurance company are likewise included.

The dividend to the proprietors, which has gradually increased from 3 to 7½ per cent. becomes due at Christmas and Midsummer, and is usually paid about the 15th January and July. [At Midsummer 1802, an occasional dividend was made in stock, being 10*l.* five per cents. 1797, for every 100*l.* of the company's stock.] The transfer-days are Tuesdays and Thursdays, between the hours of eleven and one. The dividends are paid on Mondays, Wednesdays, Fridays, and Saturdays, from ten to two.

THE TABLE OF RATES OF THE ROYAL EXCHANGE ASSURANCE ANNUITY COMPANY.
September 15th, 1802.

SINGLE LIVES.						JOINT LIVES AND THE SURVIVOR.					
Age.	Years Purchase.	per cent. per ann.	Age.	Years Purchase.	per cent. per ann.	Ages.	Years Purchase.	per cent. per ann.	Ages.	Years Purchase.	per cent. per ann.
		£ s.			£ s.			£ s.			£ s.
3	17.85	5 12	43	14.92	6 14	45 and 45	16.95	5 18	40 and 45	17.85	5 12
4	18.18	5 10	44	14.70	6 16	46 46	16.66	6 0	50	17.54	5 14
5	18.18	5 10	45	14.49	6 18	47 47	16.39	6 2	55	17.24	5 16
6	18.52	5 8	46	14.28	7 0	48 48	16.12	6 4	60	16.95	5 18
7	18.52	5 8	47	14.08	7 2	49 49	15.87	6 6	65	16.66	6 0
8	18.52	5 8	48	13.88	7 4	50 50	15.62	6 8	70	16.39	6 2
9	18.52	5 8	49	13.70	7 6	51 51	15.38	6 10	75	16.12	6 4
10	18.52	5 8	50	13.51	7 8	52 52	15.15	6 12	80	15.87	6 6
11	18.52	5 8	51	13.33	7 10	53 53	14.92	6 14	45 and 50	16.39	6 2
12	18.52	5 8	52	13.15	7 12	54 54	14.70	6 16	55	16.12	6 4
13	18.52	5 8	53	12.98	7 14	55 55	14.49	6 18	60	15.87	6 6
14	18.18	5 10	54	12.82	7 16	56 56	14.28	7 0	65	15.62	6 8
15	18.18	5 10	55	12.65	7 18	57 57	14.08	7 2	70	15.38	6 10
16	18.18	5 10	56	12.50	8 0	58 58	13.88	7 4	75	15.15	6 12
17	18.18	5 10	57	12.19	8 4	59 59	13.70	7 6	80	14.92	6 14
18	17.85	5 12	58	11.90	8 8	60 60	13.51	7 8	50 and 55	15.15	6 12
19	17.85	5 12	59	11.63	8 12	61 61	13.33	7 10	60	14.92	6 14
20	17.85	5 12	60	11.36	8 16	62 62	13.15	7 12	65	14.70	6 16
21	17.85	5 12	61	11.11	9 0	63 63	12.98	7 14	70	14.49	6 18
22	17.54	5 14	62	10.87	9 4	64 64	12.82	7 16	75	14.28	7 0
23	17.54	5 14	63	10.63	9 8	65 65	12.65	7 18	80	14.08	7 2
24	17.54	5 14	64	10.41	9 12	66 66	12.50	8 0	55 and 60	14.08	7 2
25	17.24	5 16	65	10.20	9 16	67 67	12.34	8 2	65	13.88	7 4
26	17.24	5 16	66	10.00	10 0	68 68	12.19	8 4	70	13.70	7 6
27	17.24	5 16	67	9.80	10 4	69 69	11.90	8 8	75	13.51	7 8
28	16.95	5 18	68	9.61	10 8	70 70	11.63	8 12	80	13.33	7 10
29	16.95	5 18	69	9.34	10 14	71 71	11.36	8 16	60 and 65	13.15	7 12
30	16.95	5 18	70	9.09	11 0	72 72	11.11	9 0	70	12.98	7 14
31	16.66	6 0	71	8.84	11 6	73 73	10.87	9 4	75	12.82	7 16
32	16.66	6 0	72	8.62	11 12	74 74	10.63	9 8	80	12.50	8 0
33	16.66	6 0	73	8.40	11 18	75 75	10.41	9 12	65 and 70	12.19	8 4
34	16.39	6 2	74	8.19	12 4	76 76	10.20	9 16	75	11.90	8 8
35	16.39	6 2	75	8.00	12 10	77 77	9.90	10 2	80	11.63	8 12
36	16.12	6 4	76	7.81	12 16	78 78	9.61	10 8	70 and 75	11.11	9 0
37	16.12	6 4	77	7.63	13 2	79 79	9.34	10 14	80	10.52	9 10
38	15.87	6 6	78	7.46	13 8	80 80	9.09	11 0	75 and 80	10.00	10 0
39	15.87	6 6	79	7.29	13 14	85 85	8.33	12 0	80 and 85	8.77	11 8
40	15.62	6 8	80	7.14	14 0						
41	15.38	6 10	upwards								
42	15.15	6 12		7.14	14 0						

N. B. The foregoing Annuities are receivable in Quarterly Payments; and they vary at different times according to the current rate of Interest.

The person making the assurance is to declare the place and date of birth of the person whose life is to be assured; whether he has had the small-pox; whether subject to the gout; and whether in the army or navy.

The life assured to appear at the office, or to one of the company's agents, or pay

10*s.* per cent. on assurances for one year.

15*s.* per cent. for more than one year, and } in the first
not exceeding seven years, } payment

20*s.* per cent. if for more than seven years, } only.

One quarter per cent. additional, will be taken on the first payment as admission-money.

Fifteen days are allowed for payment of the annual premiums after they respectively become due, but if the same remain unpaid more than the said fifteen days, and not exceeding three calendar months, a fine of ten shillings per cent. must be paid, and a warrantee given of the health of the life assured.

Conditions of Assurance made by Persons on their own Lives.

The assurance to be void if the person whose life is assured shall depart beyond the limits of Europe, shall die upon the seas (except in his majesty's packets passing between Great Britain and Ireland); or shall enter into or engage in any military or naval service whatever, without the previous consent of the company; or shall die by suicide, duelling, or the hand of justice; or shall not be, at the time the assurance is made, in good health.

Conditions of Assurance made by Persons on the Lives of others.

The assurance to be void if the person whose life is assured shall depart beyond the limits of Europe, shall die upon the seas (except in his majesty's packets passing between Great Britain and Ireland); or shall enter into or engage in any military or naval service whatever, without the previous consent of the company; or shall not be, at the time the assurance is made, in good health.—Any person making an assurance on the life of another, must be interested therein, agreeable to act 14 Geo. III. c. 48, which prohibits wagering, or speculative insurances.

N. B. Assurances on the lives of persons engaged in the army or navy, or going beyond the limits of Europe, may be made by special agreement. See LIFE-ANNUITIES, and LIFE-ASSURANCE.

ASSURANCE, London. The charters of this company were granted at the same time with those of the Royal-Exchange Assurance, for the same purposes, and upon similar conditions; one of which is, that no person possessing stock in either company can purchase stock in the other, under penalty of forfeiting the share so purchased. The principal difference in the business of the two offices is, that the London assurance confine themselves to sea and fire assurances, very seldom assuring lives, and not being empowered to grant annuities. Their stock is 1,000,000*l.* divided into shares of 25*l.* each, on which 12*l.* 10*s.* has been paid in, making the whole sum paid in 500,000*l.* The dividend has been raised to 18*s.* per share per annum, and becomes due at Lady-day and Michaelmas. The transfer-days are Tuesdays and Thursdays, from eleven to three o'clock. The dividends are paid on Mondays, Wednesdays, and Fridays, from eleven to three.

ASSURANCE, Collateral, in Law. See COLLATERAL.

ASSURANCES, Common, of the kingdom, express the legal evidences of the conveyance or translation of property; by which every man's estate is assured to him, and all controversies, doubts, and difficulties, are either prevented or removed. These common assurances are of four kinds: 1.

By matter *in pais*, or deed; which is an assurance transacted between two or more private persons *in pais*, in the country; that is, according to the old common law, upon the very spot to be transferred. See DEED. 2. By matter of record, or an assurance transacted only in the king's public courts of record. See RECORD. 3. By special custom, obtaining in some particular places, and relating only to some particular species of property. See CUSTOM. These three assurances are such as take effect during the life of the party conveying or assuring. 4. The fourth takes no effect till after his death; and that is by devise, contained in his last will and testament. See DEVISE, and WILL. Bl. Com. vol. ii. p. 254.

ASSURGENT Leaves, in *Botany*, denote such as are first bent down, and then rise erect towards the apex. This term scarcely differs from *ascendens* or *incurvus*, and seems peculiarly proper for describing the change which takes place in the position of the leaves of *mimosæ*, and other sleeping plants.

ASSURGENT, in *Heraldry*, a term used for a man or beast rising out of the sea.

ASSUROR, a merchant or other person, who assures or makes out a policy of assurance for a ship, house, life, or the like. Assurors are not answerable for what damages arise through the negligence, or other fault of the master or seamen; or even those which arise from any vice or defect in the thing assured. See INSURANCE.

ASSURRITANI, or **ASSURRANI**, in *Ecclesiastical History*, a branch of Donatists in the middle of the fourth century. The Assurritani maintained the son to be inferior to the father; they re-baptized their converts from the catholics, and asserted that the church is not composed of good and bad, but of the good alone.

ASSURUS, or **ASSURAS**, now *Kiffer*, in *Ancient Geography*, a town of Africa, situate in the inland country of the ancient Bizacium, to the west of Adrumetum, and south-east of Sicca Veneria.

ASSY, in *Geography*, a town of France, in the department of the Oise, and chief place of a canton in the district of Crespy, eight miles south of Crespy.

ASSYANI, in *Ancient Geography*, an ancient town of the Tauric Chersonesus.

ASSYRIA, a kingdom of Asia, of the extent, origin, and duration of which very different accounts have been given by ancient writers. Ctesias and Diodorus Siculus affirm, that the Assyrian monarchy, under Ninus and Semiramis, comprehended the greater part of the known world: but, if this had been the case, it is not likely that Homer and Herodotus would have omitted a fact so remarkable. The sacred records intimate, that none of the ancient states or kingdoms were of considerable extent; for neither Chedorlaomer, nor any of the neighbouring princes, were tributary or subject to Assyria; and we find nothing, says Playfair, of the greatness or power of this kingdom in the history of the Judges, and succeeding kings of Israel, though the latter kingdom was oppressed and enslaved by many different powers in that period. It is therefore highly probable, that Assyria was originally of small extent. According to Ptolemy, this country was bounded on the north by part of Armenia and mount Niphates; on the west by the Tigris; on the south by Susiana; and on the east by part of Media, and the mountains Choatra and Zagros. The country within these limits is called, by some of the ancients, **ADIABENE**, and by others **ATURIA** or **ATYRIA**. It is divided, by Ptolemy, into the following provinces or districts; *viz.* **CALACHENE** or **Calicine**, **ARRAPACHITIS**, **ADIABENE**, **ARBELITES**, **APOLLONIATIS**, **SITTACENE**, and **CHALONITIS**. Among the rivers of Assyria we may reckon the **TIGRIS**, the **LYCUS**, the **CAPRUS**, and the **GORGUS**.

GORGUS. Of the origin, revolutions, and termination of Assyria, properly so called, and distinguished from the grand monarchy which afterwards bore this appellation, the following account is given by Mr. Playfair, as the most probable. The founder of it was Ashur, the second son of Shem, who departed from Shinar, upon the usurpation of Nimrod, at the head of a large body of adventurers, and laid the foundations of Nineveh, where he resided, and erected a new kingdom, called Assyria after his name. See **ASHUR**. Gen. x. 11. These events happened not long after Nimrod had established the Chaldean monarchy, and fixed his residence at Babylon; but it does not appear that Nimrod reigned in Assyria. The kingdoms of Assyria and Babylon were originally distinct and separate (Micah, v. 6.); and in this state they remained until Ninus conquered Babylon, and made it tributary to the Assyrian empire. Ninus, the successor of Ashur, (Gen. x. 11. Diod. Sicul. l. 1.), seized on Chaldæa after the death of Nimrod, and united the kingdoms of Assyria and Babylon. This great prince is said to have subdued Asia, Persia, Media, Egypt, &c. If he did so, the effects of his conquests were of no long duration; for, in the days of Abraham, we do not find that any of the neighbouring kingdoms were subject to Assyria. Ninus was succeeded by Semiramis, a princess bold, enterprising, and fortunate; of whose adventures and exploits many fabulous relations have been recorded. Playfair is of opinion, that there were two princesses of this name who flourished at different periods: one, the consort of Ninus, and another, who lived five generations before Nitocris, queen of Nebuchadnezzar. Euseb. Chron. p. 58. Herod. l. 1. c. 184. See **SEMIAMIS**. Of the successors of Ninus and Semiramis nothing certain is recorded. The last of the ancient Assyrian-kings was Sardanapalus, who was besieged in his capital by Arbaces, governor of Media, in concurrence with the Babylonians. These united forces defeated the Assyrian army, demolished the capital, and became masters of the empire, B. C. 821. See **ARBACES**, and **SARDANAPALUS**. Such is the substance of the account given by Ctesias, and after him by several ancient Greek and Latin writers; and particularly by Diodorus Siculus. These writers have referred the commencement of the Assyrian empire to about sixty or seventy years after Noah's flood; but concerning its beginning, as well as its duration, ancient writers have given very different accounts. Africanus and Eusebius suppose that Ninus, the second Assyrian king, began to reign 309 years after the flood, and 43 years before the birth of Abraham. Berosus, the Chaldean historian, dates the foundation of the empire from the building of the tower of Babel, about 131 years after the flood. Cassiodorus admits an interval of more than four centuries between these two remarkable events. Usher extends this interval to 1085 years; and Jackson reduces it to 531. As to the period of the duration of this empire, Ctesias, Diodorus, and others, make it 1360 years; Justin, 1300; Castor, 1280; Syncellus, 1460; Scaliger, 1306; Eusebius, 1240; Velleius Paterculus, 1070; Herodotus, 520; and Appian makes the whole duration of the Assyrian, Median, and Persian empires, not to exceed 900 years. In Blair's Tables the commencement of the Assyrian empire is assigned to the year before Christ, 2059, and its termination to the year before Christ 820; so that its whole duration comprehends 1239 years. Goguet refers the conquest of Babylon by Ninus, king of Assyria, and the consequent union of the Babylonian throne with that of Nineveh, to the 590th year after the flood, or the 1758th year B. C. In settling this date, he places the foundation of the kingdom of Babylon by Nimrod, about the year 150 after the flood. This king-

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dom, as most chronologers allow, had subsisted 440 years, under two distinct dynasties or families, at the time of Babylon's being taken by the Assyrians. The first of these dynasties, whose kings were Chaldeans, possessed the throne 225 years; and the second, originally from Arabia, reigned 215 years; and the total is 440 years. If to these years we add 150 years from the flood to the foundation of Babylon by Nimrod, the capture of Babylon will fall in the 590th year after the flood, and consequently in the 1758th year B. C. After the capture of Babylon, the two monarchies formed one state, under the name of the Assyrian empire. From this time the kingdom of Babylon was no more than a province of the Assyrian empire, to the time in which the revolt of the Medes gave the Babylonians an opportunity of shaking off the Assyrian yoke, about 770 B. C. As most of these computations are primarily borrowed from Ctesias, it may not be improper to inquire how far his testimony is credible. Aristotle, who was almost his contemporary, declares him to be unworthy of credit; and his history of India evinces him to be a fabulous writer. Although he gives us the names of the Assyrian kings from Belus and his son Ninus to Sardanapalus, the last king of that monarchy, yet his list is a mere medley of Greek, Persian, Egyptian, and other names; and except in two or three instances, they have no affinity with the names of the Assyrians mentioned in scripture. The true empire of the Assyrians, described in scripture, whose kings were Pul, Tiglath-pileser, &c. he does not mention, though much nearer to his own times; and this circumstance shews that he was ignorant of the antiquities of the Assyrians.

After the death of Sardanapalus, says Mr. Playfair, the Assyrian empire was divided into three kingdoms; viz. the Median, Assyrian, and Babylonian. Arbaces retained the supreme authority, and nominated governors in Assyria and Babylon, who were honoured with the title of kings, while they remained subject and tributary to the Persian monarchs. Belesis, he says, a Chaldean priest, who assisted Arbaces in the conquest of Sardanapalus, received the government of Babylon as the reward of his services; and Phul was entrusted with that of Assyria. The Assyrian governor gradually enlarged the boundaries of his kingdom, and was succeeded by Tiglath-pileser, Salmanasar, and Sennacherib, who asserted and maintained their independence. After the death of Assar-haddon, the brother and successor of Sennacherib, the kingdom of Assyria was split, and annexed to the kingdoms of Media and Babylon. Several tributary princes afterwards reigned in Nineveh; but we hear no more of the kings of Assyria, but of those of Babylon. Cyaxares, king of Media, assisted Nebuchadnezzar, king of Babylon, in the siege of Nineveh, which they took and destroyed B. C. 606.

The history of Assyria, deduced from scripture, and acknowledged as the only authentic one by Sir Isaac Newton and many others, ascribes the foundation of the monarchy to Pul or Phul, about the second year of Menahem, king of Israel, twenty-four years before the era of Nabonassar, 1579 years after the flood, and according to Blair 769, or according to Newton 790, years before Christ. Menahem having taken forcible possession of the throne of Israel by the murder of Shallum (2 Kings, xv. 10.), was attacked by Pul, but prevented the hostilities meditated against him, by presenting the invader with a thousand talents of silver. Pul, thus gratified, took the kingdom of Israel under his protection, returned to his own country, after having received voluntary homage from several nations in his march, as he had done from Israel, and became the founder of a great empire. As it was in the days of Pul that the Assyrians began to afflict the inhabitants of Palestine (2 Kings, xi. 9. and 1 Chron.

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1 Chron.

1 Chron. v. 26.), this was the time, according to sir Isaac Newton, when the Assyrian empire arose. Thus he interprets the words "since the time of the kings of Assyria" (Nehem. ix. 32.); *i. e.* since the time of the kingdom of Assyria, or since the rise of that empire. But though this was the period in which the Assyrians afflicted Israel, it is not so evident that the time of the kings of Assyria must necessarily be understood of the rise of the Assyrian empire. However Newton thus reasons; and observes, "that Pul and his successors afflicted Israel, and conquered the nations round about them; and upon the ruin of many small and ancient kingdoms erected their empire, conquering the Medes, as well as other nations." It is further argued that God, by the prophet Amos, in the reign of Jeroboam, about ten or twenty years before the reign of Pul (see ch. vi. 13, 14.), threatened to raise up a nation against Israel; and that as Pul reigned presently after the prophecy of Amos, and was the first upon record who began to fulfil it, he may be justly reckoned the first conqueror and founder of this empire. See 1 Chron. v. 26. Pul was succeeded on the throne of Assyria by his elder son Tiglath-pileser, and at the same time he left Babylon to his younger son Nabonassar, B. C. 747. Of the conquests of this second king of Assyria against the kings of Israel and Syria, when he took Damascus and captivated the Syrians, we have an account in 2 Kings, xv. 29. 37. xvi. 5. 9. 1 Chron. v. 26. Amos, i. 5. Joseph. Ant. l. 9. c. 13., by which the prophecy of Amos was fulfilled, and from which it appears that the empire of the Assyrians was now become great and powerful. The next king of Assyria was Shalmaneser or Salmanassar, who succeeded Tiglath-pileser, B. C. 729, and invaded Phœnicia, took the city of Samaria, and B. C. 721 carried the ten tribes into captivity, placing them in Chalach and Chabor, by the river Gazon, and in the cities of the Medes. Jos. Ant. l. 9. c. 14. 2 Kings, xvii. 6. Shalmaneser was succeeded by Sennacherib, B. C. 719; and in the year B. C. 714 he was put to flight, with great slaughter, by the Ethiopians and Egyptians. In the year B. C. 711, the Medes revolted from the Assyrians; Sennacherib was slain; and he was succeeded by his son Esarhaddon, Afferhadon, Afordan, Afaradin, or Sarchedon, by which names he is called by different writers. He began his reign at Nineveh, in the year of Nabonassar 42; and in the year 68 extended it over Babylon. He then carried the remainder of the Samaritans into captivity, and peopled Samaria with captives brought from several parts of his kingdom, and in the year of Nabonassar 77 or 78, he seems to have put an end to the reign of the Ethiopians over Egypt. "In the reign of Sennacherib and Affer-Hadon," says sir I. Newton, "the Assyrian empire seems arrived at its greatness; being united under one monarch, and containing Assyria, Media, Apolloniatis, Susiana, Chaldæa, Mesopotamia, Cilicia, Syria, Phœnicia, Egypt, Ethiopia, and part of Arabia; and reaching eastward into Elymais, and Parætæene, a province of the Medes, and if Chalach and Chabor be Colchis and Iberia, as some think, and as may seem probable from the circumcision used by those nations till the days of Herodotus (l. ii. c. 104.), we are also to add these two provinces, with the two Armenias, Pontus, and Cappadocia, as far as to the river Halys. For Herodotus (l. i. c. 72. l. vii. c. 63.) tells us, that the people of Cappadocia, as far as to that river, were called Syrians by the Greeks, both before and after the days of Cyrus; and that the Assyrians were also called Syrians by the Greeks." Affer-Hadon was succeeded in the year B. C. 668, by Saolduchinus. At this time Manasseh was allowed to return home and fortify Jerusalem: and the Egyptians also, after the Assyrians had harassed Egypt and Ethiopia three years (Isai. xx. 3, 4.), were

set at liberty. Saolduchinus, after a reign of twenty years, was succeeded at Babylon, and probably at Nineveh also, by Chyniladon, in the year B. C. 647. This Chyniladon is supposed by Newton to be the Nabuchadonofor mentioned in the book of Judith (i. 1—15.); who made war upon Arphaxad, king of the Medes, and though deserted by his auxiliaries of Cilicia, Damascus, Syria, Phœnicia, Moab, Ammon, and Egypt, routed the army of the Medes, and slew Arphaxad. This Arphaxad is supposed to be either Dejoces, or his son Phraortes, mentioned by Herodotus (l. i. c. 102.). Soon after the death of Phraortes in the year B. C. 635, the Scythians invaded the Medes and Persians; and in 625, Nabopalassar, the commander of the forces of Chyniladon in Chaldæa, revolted from him, and became king of Babylon. Chyniladon was either then, or soon after, succeeded at Nineveh by the last king of Assyria, called Sarac by Polyhistor. The authors of the Universal History suppose Saolduchinus to have been the Nabuchadonofor of Scripture, and Chyniladon or Chynaladan to have been the Sarac of Polyhistor. At length Nebuchadnezzar, the son of Nabopalassar, married Amyite, the daughter of Astyages king of the Medes; and sister of Cyaxeres; and by this marriage the two families having contracted affinity, they conspired against the Assyrians. Nabopalassar being old, and Astyages dead, their sons Nebuchadnezzar and Cyaxares led the armies of the two nations against Nineveh; slew Sarac, destroyed the city, and shared the kingdom of the Assyrians. This victory the Jews refer to the Chaldæans; the Greeks, to the Medes; Tobit (xiv. 15.), Polyhistor (apud Euseb. in Chron.), Josephus (l. x. c. 2. § 2. p. 435.), and Ctesias (apud Diod. Sic. l. ii. c. 24. p. 78.), to both. With this victory commenced the great successes of Nebuchadnezzar and Cyaxares, and it laid the foundation of the two collateral empires of the Babylonians and Medes, which were branches of the Assyrian empire; and hence the time of the fall of the Assyrian empire is determined, the conquerors being then in their youth. In the reign of Josiah, when Zephaniah prophesied, Nineveh and the kingdom of Assyria were standing, and their fall was predicted by that prophet, Zeph. i. 3. and ii. 13. And in the end of his reign, Pharaoh-Necho, king of Egypt, the successor of Psammitichus, went up against the king of Assyria to the river Euphrates, to fight against Carchemish or Circutium, and in his way thither slew Josiah (2 Kings, xxiii. 29. 2 Chron. xxxv. 20.); and therefore the last king of Assyria was not yet slain. But in the third and fourth year of Jehoiakim, the successor of Josiah, the two conquerors having taken Nineveh and finished their war in Assyria, prosecuted their conquests westward; and leading their forces against the king of Egypt, as an invader of their right of conquest, they beat him at Carchemish, and took from him whatever he had recently taken from the Assyrians (2 Kings, xxiv. 7. Jer. xlvi. 2. Eupolemus apud Euseb. Præp. l. ix. c. 35.); and therefore we cannot err, says sir Isaac Newton, above a year or two, if we refer the destruction of Nineveh, and fall of the Assyrian empire, to the third year of Jehoiakim, or the 140th, or, according to Blair, the 141st year of Nabonassar, that is the year 607 B. C. Newton suggests, that the name of the last king Sarac might have been contracted from Sarchedon; as this name was from Afferhadon, Afferhadon-Pul, or Sardanapalus: but how, says his learned commentator, bishop Horsley, is this consistent with what he has so fully proved in the preceding discussion of this subject, that Afferhadon had two successors at Nineveh, Saolduchinus and Chyniladon; or, with his assertion, that Sarac, the last Assyrian king, was the successor of Chyniladon?

Blair, in his Chronological Tables, states the commencement of the reign of Phul, in the year 777 B. C.; the succession

Succession of Tiglath-pileser, in the first year of Nabonassar, or 747 B.C.; that of Salmanassar, in 727 B.C.; that of Senacherib in 712, B.C.; that of Esarhadon or Assaradinus, in 709 B.C.; and the union of Assyria and Babylon under Assaradinus in 680 B.C.; and the separation of Assyria and Babylon in 667 B.C. he makes Saoduchinus king of Babylon, who then commenced his reign, and was succeeded in 647 B.C. by Chyniladanus; and the king of Assyria, who commenced his reign in 667, he calls Ninus II. and his successor, in 641, Nabuchodonosor; and the last king of Assyria, Sarac or Sardanapalus, whose reign commenced in the year 621 B.C.; and the union of Assyria and Media he refers to the sixteenth year of this king, and the twentieth of Cyaxares king of Media, on the 606th year B.C.; in which year Nineveh was taken and destroyed by the united armies of Cyaxares and Nabopolassar.

Of the government, laws, religion, learning, customs, &c. of the ancient Assyrians, nothing absolutely certain is recorded. Their kingdom was at first small, and subsisted for several ages under hereditary chiefs; and their government was very simple. Afterwards, when they rose to the sublimity of empire, their government seems to have been truly despotic, and the empire to have been hereditary. Their laws were probably few, and depended upon the arbitrary will of the prince. To Ninus we may ascribe the division of the Assyrian empire into provinces and governments, for we find (Diod. Sic. l. ii.) that this institution was fully established in the reigns of Semiramis and her successors. In this empire the people were distributed into a certain number of tribes (Herodot. l. i. Strabo, l. xvi.); and their occupations or professions were hereditary. The Assyrians had several distinct councils, and several tribunals for the regulation of public affairs. Of councils there were three, which were created by the body of the people, and who governed the state in conjunction with the sovereign. The first consisted of officers who had retired from military employments; the second of the nobility; and the third of the old men. The sovereigns also had three tribunals, whose province it was to watch over the conduct of the people. The first was employed in disposing of the young women in marriage, and in punishing adultery; the second took cognizance of theft; and the third of all acts of violence. Strabo, l. xvi. As to their religion, they were idolaters, and had their idols and temples. In customs, arts, and learning, they differed but little, if at all, from the Babylonians. The Assyrians are said to have one practice, with respect to marriage, that is worthy of attention. All the young girls, who were marriageable, were assembled in one place, and a public crier put them up to sale one after another. The money which was received for those that were handsome and fetched a high price, was bestowed as a portion with those whose persons were more plain and homely. When the most beautiful were disposed of, the more ordinary were offered with a certain sum, and allotted to those who were willing to take them with the smallest portion. In this manner all the young women were provided with husbands. This ingenious and politic method of facilitating and promoting marriages, was also practised by several other nations. If at any time it happened that the parties could not agree, the man was obliged to refund the money which he had received. It was likewise very expressly forbidden to use women ill, or to carry them into any foreign country. Herodotus informs us, that this wise institution was abolished towards the end of the Assyrian monarchy. Herodot. l. i. Ælian. Var. Hist. l. iv. c. 1. Strabo, l. xvi. The Assyrians have been competitors with the Egyptians for the honour of having invented alphabetic writing. It appears from the few remains now extant of

the writing of these ancient nations, that their letters had a great affinity with each other. They much resembled one another in shape; and they ranged them in the same manner, from right to left. Playfair's Chronology, p. 67—70. Newton's Chron. ch. iii. apud Oper. by Horsley, t. v. p. 193—211. Anc. Un. Hist. vol. iii. p. 325—367. Goguet's Orig. of Laws, &c. vol. i. p. 41.

ASSYRIAN Letters, *Litteræ Assyriæ*, a denomination given by several Rabbins and Talmudists to the characters of the present Hebrew alphabet, as supposing them to have been borrowed from the Assyrians during the Jewish captivity in Babylon. Montfaucon.

ASTA, now *Asti*, in *Ancient Geography*, a town of Liguria, or Piedmont, which was a Roman colony, upon a river of the same name, not far from the Tanarus. The fortifications of this place afforded a temporary shelter to the emperor Honorius, when he was pursued by the Goths, A.D. 403; and he was relieved from the danger of a successful siege, and the indignity of a capitulation to the Barbarians, by the seasonable arrival of Stilicho, who cut his way through the Gothic camp under the walls of Asta, and thus revived the hopes and vindicated the honour of Rome. See ASTI.—Alfo, a town of Spain, in Bætica, south of Nebriffa, upon the left arm of the Bætis, which discharged itself into the bay of Gades.

ASTA, in *Geography*, a town of the united Netherlands, in the duchy of Guelderland, four miles south-east of Culemburg.—Alfo, a river of Spain, which empties itself into the bay of Biscay, at Villa Viciosa.

ASTABAT, a town of Armenia, thirty-three leagues south-east of Erivan.

ASTABENI, in *Ancient Geography*, a people of Asia, in Hyrcania. Ptolemy.

ASTABORAS, a river of Abyssinia, forming, as Pliny has said, the left channel of Atbara; or as the Greeks have called it, the island or peninsula of Meroe; as Astapus forms the right channel. Astaboras, is the name given by the natives to the Tacazze, or the Siris of the ancients. It joins the Nile in N. lat. 17° 47'. See ATBARA, MEROE, and TACAZZE.

ASTACAMPRON, a promontory of Asia, in the Indian sea, to the left of the gulf of Baryza. Arrian.

ASTACANA, a town of Asia, in Bactriana, called *Aflacia* by Ammianus Marcellinus. Ptolemy.

ASTACANI, a name given by some to the ASSACANI.

ASTACAPRA, a town of India, on this side of the Ganges, situated between the mouths of the Indus. Ptolemy.

ASTACENA, a country of Asia, in Pontus, which took its name from the river Astaces which traversed it.

ASTACENUM ÆSTUARIIUM, *Maresma*, a gulf of Spain in Bætica. Ptolemy.

ASTACENUS SINUS, a gulf of the Propontis, on which was situated the town of Nicomedia.

ASTACHAR, in *Geography*, formerly *Aflacara*, a town of Persia, near Bendimir and the ruins of Persepolis. It is now a village, having however a caravanserai, mosques, and the ruins of a palace.

ASTACILICIS, a town of Africa, in Mauritania. Ptolemy.

ASTACILIS, TESSAILAH, a place of the interior country of Africa, in Mauritania Cæsariensis, which was a Roman station, situate in the mountains south of Portus Magnus. Ptolemy.

ASTACUS, in *Entomology*, a species of CANCER, with a smooth thorax; proboscis toothed along the sides; and a single tooth on each side at the base. This is the common craw-fish, that inhabits rivers, and lodges itself in holes

which it forms in the banks. Very frequent in many countries of Europe.

ASTACUS is also the name of a genus in the Fabrician system, formed of those species of the Linnæan *Cancer*, that have four pedunculate antennæ, the two fore-ones of which are long and setaceous, and the posterior ones cleft. Among these the lobster and craw-fish are included.

ASTACUS, in *Ancient Geography*, a town of Asia, in Bithynia, situate upon the Astacene gulf, according to Strabo. The city was built by the Megarians and Athenians, and destroyed by Lysimachus, and its inhabitants transported to Nicomedia, by whom it was founded or re-established. Some have said that Nicomedia was built on the ruins of Astacus.—Also, a town of Greece, in Acarnania.

ASTÆ, a people of Europe, in Thrace. Steph. Byz.

ASTAFORT, in *Geography*, a town of France, in the department of the Lot and Garonne, and chief place of a canton in the district of Agen. The place contains 4139, and the canton 12,151 inhabitants: the territory comprehends 132½ kilometres and 11 communes.

ASTAGENI, in *Ancient Geography*, a people of Arabia Felix. Ptolemy.

ASTAGON, in *Geography*, a town of Africa, in Moenmugi, on the confines of Zanguebar.

ASTAMAR, **ACTAMAR**, or **ABAUNAS**, a large lake, with a fortified town of the same name, in Armenia. N. lat. 36° 30'. E. long. 44° 14'.

ASTAN, a river of Arabia, in Lahsa, which is probably the stream in Neged mentioned by D'Anville, and is represented by Niebuhr as only a wall or brook which runs after rains.

ASTANDA, called also **ASTALIN**, in *Antiquity*, a royal courier, or messenger, the same with **ANGARUS**.

King Darius of Persia is said by Plutarch, in his book on the fortune of Alexander, to have formerly been an astanda.

ASTANDA, in *Ancient Geography*, a town of Asia, in Aria. Ptolemy.

ASTAPA, **ESTEPA LA VIEJA**, a town of Spain, in Bætica, south-west of Singili. It is distinguished by the records of its vigorous defence against Marius and the Romans, in the year of Rome 546. When they were no longer able to resist the besiegers, they kindled a fire, into which they threw all their effects, and rushed with their women and children into the midst of their enemies, by whom they were vanquished and slain; but no trophy of victory remained for their conquerors.

ASTAPÆI, a people of Africa, placed by Steph. Byz. in Libya.

ASTAPUS, a river of Abyssinia, which with the Ataboras formed the peninsula of Meroe. This river, known now by the name of the "White River," is represented by Diodorus Siculus as proceeding from large lakes to the southward, and having thrown itself into the Nile, makes with it the right hand channel inclosing Meroe in Atbara. See **ASTABORAS** and **MEROE**.

ASTARA, in *Geography*, a town of Persia, in Ghilan, on the Caspian Sea.

ASTARABAT, a town of Persia, in Segestan, 100 miles north of Zareng, and 220 W. N. W. of Candahar.

ASTARAC, a small territory of France, situate in the late province of Gascony, about eight leagues square, of which the capital is Mirande.

ASTAROTH, in *Ancient Geography*, a town of Palestine in Batanæa, or Bashan. This was a strong city belonging to the half tribe of Manasseh, on the other side of Jordan. It was granted to the Levites of the family of Gershon, according to Joshua.

ASTAROTH-CARNAIM, another town of Palestine, south-west of the former, and distant from it nine miles, between Adraa and Abila. It is supposed to have derived its name from Astarte, called Astaroth, the deity of the Phœnicians, and Carnaim, signifying horns or a crescent, with which she was represented.

ASTAROTH, in *Mythology*, an idol of the Philistines, which the Jews destroyed at the command of Samuel. It was also the name of a deity of the Sidonians, which was worshipped by Solomon in his idolatrous days. See **ASTARTE**.

ASTARTA, in *Ancient Geography*, an island of Ethiopia. Steph. Byz.

ASTARTE, a deity of the Assyrians, under which appellation they worshipped the moon, and from them that species of idolatry extended to the Phœnicians, Carthaginians, and other ancient nations. Adonis, who was an Assyrian by descent, is said to have married Astarte; and after their death they were elevated to the rank of gods: and as it was the opinion of ancient times, that the souls of distinguished personages after their death inhabited the stars, it has been imagined that those of Adonis and Astarte made choice of the sun and moon for their respective residence; and hence their worship and that of these luminaries was the same. Astarte was called in Hebrew Astaroth or Astaroth; which appellation some have erroneously ascribed to her having been represented in the form of a sheep. Others have conjectured, from the etymology of the word *Astaroth*, which signifies "flocks of sheep or goats," that in ancient times, when men were chiefly addicted to pastoral life, and peculiarly delighted in this occupation, the most approved similes of excellence and beauty were deduced from hence; and this has been supposed to have been the reason of the name Astaroth or Astarte. Astarte was usually represented, like Isis, with cow's horns on her head, and for the same reason, namely, for exhibiting the moon's increase and decrease; as she was consecrated into that planet, and adored under the denomination of the "queen of heaven." Her principal worship was established at Hierapolis in Syria, where she had a magnificent temple, and more than 300 priests employed at her altars.

Cicero, and also Suidas, suppose that the Astarte of the Phœnicians was one of the four Venuses, whom the Roman orator enumerates. Beger and Bochart add, that she was Venus armed, or the goddess of war; and Pausanias, on whose authority they rely, says, that the Cythereans, who adored her under this form and appellation, had received this worship from the Phœnicians. Astarte, according to Lucian, was the moon; and Juno among the Carthaginians, according to St. Augustin, who, as Bochart imagines, had derived their opinion from Horace, l. ii. od. 1. and Virgil *Æn.* l. i. 15. This goddess was represented by her votaries, in different nations, under a variety of forms and attributes. The Sidonians represented her under the figure of a hen who covered her chickens with her wings. The Astarte, mentioned by Cicero, was exhibited in Phœnicia with a quiver and arrows. In her temple on mount Libanus, where she was mourning her lost Adonis, her head was veiled, and rested on her left hand, and floods of tears streamed down her cheeks. Among the Assyrians, she was sometimes termed a goddess, and sometimes a god, on account of the ambiguity of gender in the Oriental languages, and because the Hebrews knew no distinction of sex in the gods. The mythological writers, in general, have thought that Astarte is, under different names, the Venus or Mylitta of the Assyrians, the Mithra of the Persians, the Isis of the Egyptians, the Io and Venus Urania of the Greeks, the great goddess of the Syrians, the Derceto of Ascalon, and probably Diana, &c. When the black conical stone, which

which was thought to have fallen from heaven at Emefa, and under the form of the sun, was worshipped in that place, and under the appellation of Elagabalus, was brought to Rome by the emperor, who assumed this name, and fixed in a magnificent temple raised on the Palatine mount; this imperial fanatic made choice of Astarte, under which name the moon was adored by the Africans, for his consort. Accordingly her image, with the rich offerings of her temple as a marriage portion, was transported with solemn pomp from Carthage to Rome; and the day of these mystic nuptials was a general festival in the capital, and throughout the empire. Antiquaries have supposed that she is exhibited as a half-naked female, &c. on the medals of Berytus and Cæsarea; in a chariot, &c. on a medal of Elagabalus at Sidon; and on the medals of Carthage, in the form of a female seated on a lion, with a thunderbolt in her hand. Prostitution was practised by the female worshippers of Astarte at Byblus, in Phœnicia, in Babylon, and in Carthage.

ASTASANA, in *Ancient Geography*, a town of Asia, in Aria. Ptolemy.

ASTATI, in *Ecclesiastical History*, the followers of one Sergius, in the ninth century, who renewed the errors of the MANICHEES.

The word is derived from the primitive α and $\tau\eta\mu\iota\sigma\tau\alpha$, to stand, and signifies any thing unstable and inconstant. They prevailed much under the emperor Nicephorus; but his successor, Michael Curopalates, curbed them with very severe laws.

ASTCHIKOUNIPI, in *Geography*, a large lake in New Britain, abounding with whales, and supposed to communicate with the Northern sea.

ASTEISM, in *Rhetoric*, a genteel way of irony, or handsome way of deriding another. Such is that of Virgil;

“Qui Baviurn non odit, amet tua carmina Mævi.”

ASTEIXIS, in *Ancient Geography*, a mountain of Africa, part of mount Atlas, to the south of Mauritania Cæsariensis.

ASTELEBE, a town of Asia Minor, in Lydia. Steph. Byz.

ASTELEPHUS, a river of Colchis, which ran into the Euxine sea. Arrian.

ASTELL, MARY, in *Biography*, the daughter of a merchant at Newcastle-upon-Tyne, was born in the year 1688, and instructed by her uncle, who was a clergyman, in logic, mathematics, and philosophy, as well as in the Latin and French languages. At twenty years of age she removed to London, and devoted the principal part of her time to study. In order to excite emulation, and a desire of improvement among her sex, she published “A Serious Proposal to the Ladies, wherein a method is offered for the improvement of their minds,” printed in 12mo. at London in 1697. Her proposal, which was the establishment of a seminary for female education, excited so much attention, that a lady, supposed to be the queen, formed a design of giving 10,000 *l.* towards erecting a kind of college for the education of the female sex, and as an asylum to such ladies as might wish to retire from the world; but bishop Burnet discouraged the liberal intention, by alleging, that such an institution would too much resemble a nunnery. Mrs. Astell’s “Reflections on Marriage,” written in consequence of a matrimonial disappointment, were published in 1700 and 1705. Mrs. Astell was orthodox in her religious creed, and in her politics an advocate for the doctrine of non-resistance. Besides some controversial pieces, such as “Moderation truly stated,” “A Fair Way with the Diffenters,” “An Impartial Inquiry into the Causes of the Rebellion,” and “A Vindication of the Royal Martyr,” all printed in 4to. in 1704; she also distinguished herself

by a more elaborate performance, published in 1705, and intitled, “The Christian Religion as professed by a Daughter of the Church of England,” in which she had the resolution to attack Locke and Tillotson. The close of her life was embittered by the anguish of a cancer in her breast, and she bore amputation with fortitude. She died in the year 1731. Her manners were austere, and her principles rigid; and though she attracted notice at the time in which she lived, neither her natural talents, nor literary attainments, would command attention among the females of the present day. Grudging the waste of time occasioned by trifling visitors, and yet scrupulous of dictating falsehoods to her servants, according to the refinement of modern practice, she used to accept such intruders on their approach, and jestingly say to them, “Mrs. Astell is not at home.” Ballard’s Mem. of British Ladies. Biog. Brit.

ASTENAS, in *Ancient Geography*, a town of Spain, in Bætica. Strabo.

ASTENOUS, in *Entomology*, a species of PAPILIO (Eq. *Achi.*) that inhabits the Cape of Good Hope. The wings are black, both above and beneath; a radiated white spot on the anterior pair; disk of the posterior ones yellow. Fabricius. This is *papilio pompeus* of Cramer; and *papilio minor* of the same author, is supposed to be a variety (β) of this species.

ASTER, in *Botany*, Starwort ($\alpha\sigma\tau\epsilon\rho$, a star, the flower being radiated). Linn. Gen. 954. Schreb. 1291. Juss. 181. Gærtn. t. 170. Class, *syngenesia polygamia superflua*. Nat. Order, *compositi radiati*. *Corymbifera*. Juss. Gen. Char. Cal. common imbricate; the inner scales prominent a little at the end, lower ones spreading. Cor. compound radiate; corollules hermaphrodite, numerous in the disk; females ligulate, more than ten in the ray; proper of the hermaphrodite, funnel-shaped, with a five-cleft spreading border; of the female ligulate, lanceolate, three-toothed, at length rolling back. Stam. hermaphrodite; filaments five; capillary very short; anthers cylindric, tubulous. Pist. germ oblong. Style filiform, the length of the stamens. Stigma bifid, spreading. Females, germ and style the same; stigmas two, oblong revolute. Per. none. Calyx scarcely changed. Seeds solitary, oblong, ovate; down capillary; rec. naked, flattish.

Eff. Gen. Char. Recept. naked; down simple. Cor. rays more than ten. Cal. imbricate, lower scales spreading.

* Shrubby.

Species 1. *A. taxifolius*, yew-leaved star-wort. “Under-shrubby; leaves decurrent, subulate, channelled, ciliate; flowers terminal.” Stem scarce a foot high; leaves alternate, crowded, linear, revolute; flowers sessile, or subpedunculated, solitary. 2. *A. reflexus*, reflected star-wort. “Shrubby; leaves ovate, subimbricate, recurved, ferrate-ciliate; flowers terminal.” Stem proliferous; leaves crowded, sessile, little, smooth, lower ones ferrate, upper ciliate; flowers solitary, sessile, ray blood-red. 3. *A. crinitus*. “Sub-shrubby; leaves ovate-oblong, acute, tomentose underneath; calyxes terminated in a hair.” Branches with few divisions; leaves sessile, exquisitely pointed, rough about the edges; peduncles terminal, leafy, one-flowered; ray of the flower blue. 4. *A. fruticosus*, shrubby star-wort. “Shrubby; leaves linear, dotted; peduncles one-flowered, naked.” Stems three feet high; branches woody, furnished with clusters of narrow leaves like those of the larch tree; flowers solitary, upon long slender peduncles; they are of a pale blue colour, and appear in March. Leaves narrow, acute, approximating. Cultivated in 1759 by Mr. Miller. This and the preceding species grow wild at the Cape of Good Hope.

** Her.

** *Herbaceous, entire-leaved, peduncles naked.*

5. *A. tenellus*, bristly-leaved star-wort, Curt. Bot. Mag. 33. "Leaves filiform, prickly-ciliate; calyxes hemispherical, with equal leaflets." Stem annual, seven inches high; leaves scattered, linear, mucronate underneath; flowers peduncled, solitary, terminal; disk of the corolla yellow, ray blue, often rolled back. A native of the Cape. Introduced here by Masson in 1774. 6. *A. alpinus*, great blue mountain star-wort, Curt. Mag. 199. "Leaves subspatulate, rough with hairs, entire; stems simple, one-flowered." With us it rises to near a foot in height; at the top of each stalk is one large blue flower; stem-leaves two, seldom three; they are ovate, ciliate, petiolate next the root, on the stem slender, lanceolate. It flowers in June. A native of the Alps and Pyrenées. Cultivated by Miller in 1759. 7. *A. sibiricus*, Siberian star-wort, Gmel. Sib. 2. 186. "Leaves lanceolate, almost stem-clasping, ferrate, hairy-scabrous; calyxes lax; leaflets lanceolate acuminate." Stems two feet high; peduncles one-flowered; ray of the corolla blue. A native of Siberia. Flowers in August. Cultivated by Miller in 1768. 8. *A. Tripolium*, sea star-wort, Hudf. With. Lightf. Smith 888. Eng. Bot. 87. "Leaves linear-lanceolate, entire, fleshy, smooth, three-nerved, calycine leaflets submembranaceous, obtuse." Height of the stem very variable; flowers numerous, handsome, yellow in the disk, blue at the ray. There is a variety destitute of rays. A native of muddy sea shores and mouths of rivers, in every part of our coast. 9. *A. Amellus*, Italian star-wort, Jacq. Aust. 5. 425. "Leaves oblong-lanceolate, entire, scabrous; branches corymbd; calyxes imbricate, subsquarrose; leaflets obtuse, the inner membranaceous, coloured at the end." Stems numerous, branching at the top into eight or ten peduncles, each terminated by a single large flower having blue rays, with a yellow disk. A native of the south of Europe. Cultivated by Gerard in 1596. 10. *A. divaricatus*, divaricate star-wort. "Branches divaricate; leaves ovate, ferrate; floral leaves quite entire, rather obtuse, stem-clasping." Stems rough, about two feet high, dividing towards the top into many forked branches; flowers grow almost into an umbel. A native of Virginia.

*** *Herbaceous, entire-leaved, peduncles scaly.*

11. *A. hyssopifolius*, hyssop-leaved star-wort. "Leaves linear-lanceolate, drawn to a point at the base, entire, stiff; branchlets corymbd, fastigate; leaflets frequently linear, imbricate; calyxes imbricate." Stem a foot high; eight purple florets in the ray; disk elevated, greenish; stamens testaceous; pistil yellow. A native of North America. Cultivated in 1760 by Miller. 12. *A. dumosus*, bushy star-wort. "Leaves linear, entire, smooth, those on the branchlets very short; branches panicled; calyxes cylindrical, closely imbricated." Stem two feet high, much branched; branchlets filiform; stem-leaves narrow-lanceolate, on the branches linear; flowers small, very white, disk yellow. Cultivated in Chelsea garden in 1725. 13. *A. ericoides*, heath-leaved star-wort. "Leaves linear, entire, very smooth, those of the branchlets subulate, approximating, those of the stem elongated; calyxes subsquarrose; leaflets acute, stem smooth." Stalks slender, three feet high; branches numerous, forming a thick bush, and terminated by single flowers. Cultivated by Miller in 1758. 14. *A. tenuifolius*, fine-leaved star-wort. "Leave sublinear, quite entire; peduncles leafy." Stems five feet high, slender, angular, smooth, with few branches; leaves alternate, roughish; flowers terminal, solitary, small, white; peduncles with small subulate leaflets scattered over them. 15. *A. linearifolius*, favory-leaved star-wort. "Leaves linear, entire, mucronate, scabrous, stiff, upper ones lax, remote;

calyxes imbricate; branches fastigate." Stems purplish; leaves very rough, sharp; keeled, scattered; peduncles alternate; flowers few, terminal, solitary. Cultivated here in 1712. 16. *A. linearifolius*, flax-leaved star-wort. "Leaves linear, entire, roughish; branches corymbd, fastigate, with small leaflets; calyxes imbricate; rays about equal to the disk." Leaves lanceolate, gradually narrowing to the end; peduncles with many small subulate scales; stems strong, from two to three feet high, with many branches, terminated by one blue flower. Cultivated in 1739 by Miller. These species are natives of North America. 17. *A. acris*. "Leaves lanceolate-linear, stiff, entire, flat; flowers corymbd fastigate; peduncles leafy." Much branched; leaves very narrow; flowers of a pale bluish colour, in large clusters at the top of the plant. A native of the south of Europe. 18. *A. concolor*. "Leaves ovate, sessile, quite entire; stem simple; raceme terminal." Four feet high; flowers of a pale blue colour; the whole plant tomentose; raceme simple, with very short peduncles. A native of Virginia. 19. *A. rigidus*, stiff-leaved star-wort. "Leaves linear, alternate; flowers terminal, solitary." Leaves small, stiff, many; stem woody, almost simple, terminated by one specious flower; floscules of the ray purple, long. A native of Virginia. 20. *A. nove anglie*, New England star-wort. "Leaves lanceolate, entire, cordate, stem-clasping, hairy; calyxes longer than the disk, loose; leaflets linear-lanceolate, nearly equal; stem hispid." Stems many, five feet high, brown, terminated by large purple violet flowers, growing in a loose panicle, and appear in August; peduncles very short. A native of New England and Virginia. Cultivated in 1731 by Miller. There is a variety with numerous panicled branches. 21. *A. undulatus*, waved star-wort. "Leaves ferrate, hairy waved, lower cordate; petioles winged, dilated at the base; branchlets virgate; calyxes imbricate; stem hispid." Stems two or three feet high; leaves broad, heart-shaped at bottom; flowers on loose spikes, of a pale blue colour, inclining to white; leaves on the peduncles minute, ovate. A native of North America. Cultivated in 1699, by J. B. B. 22. *A. grandiflorus*, Catesby's star-wort, Mill. fig. t. 282. "Leaves stem-clasping, linear, entire, hispid, ciliate; those of the branches and calyx reflex." Stems many, three or four feet high, stiff, reddish, hairy; leaves of the branches small, lanceolate, rough, about the size of those on common hyssop; branches each terminated by one large blue flower. Mr. Catesby, in 1720, brought this plant from Virginia.

**** *Herbaceous, leaves ferrate, peduncles smooth.*

23. *A. cordifolius*, heart-leaved star-wort. "Leaves heart-shaped, acute, finely ferrate, underneath hairy; petioles almost simple; branches panicled; stem rough with hairs." Stem smoothish, much branched at top; root-leaves cordate, sharply ferrate; lower stem leaves ovate, ferrate, with edged petioles; upper spatulate-lanceolate, stem clasping; ray whitish, with twelve floscules. A native of North America. Cultivated in 1759 by Miller. 24. *A. puniceus*, red-stalked star-wort. "Leaves stem-clasping, lanceolate-ferrate, subscabrous; branches panicled; calyxes surpassing the disk; leaflets linear-lanceolate, nearly equal; stem hispid." Stems purple; more than two feet high; flowers forming a corymb, blue, on single peduncles. A native of North America. Cultivated here in 1739. There are two varieties of this species. 25. *A. annuus*, annual star-wort, Flor. Dan. 486. "Leaves somewhat hairy, lower ones subovate, ferrate; the upper lanceolate; calyxes hemispheric; leaflets subequal, strigose." Stems about two feet high, terminated by a corymb of white flowers in August; annual. A native of North America. Cultivated here in 1640. 26. *A. vernus*, vernal star-wort. "Root-leaves lanceolate, quite entire, obtuse;

obtuse; stem almost naked; filiform, a little branching; peduncles naked." Stem green, hairy, erect; leaves like those of daisy; floscules, slender, white. A native of Virginia.

***** *Herbaceous, leaves ferrate, peduncles scaly.*

27. *A. indicus*, Indian starwort. "Leaves ovate-oblong, ferrate; floral leaves oval-lanceolate, quite entire; branchlets one-flowered." Stem herbaceous, round, striated, branched, two feet high; lower leaves oblong, remotely and acutely ferrate; upper lanceolate, entire, gradually diminishing towards the top; flowers solitary. A native of Japan and China. 28. *A. levis*, smooth aster. "Leaves stem-clasping, entire, shining; root-leaves subferrate; branches simple, bearing about one flower; calyxes imbricate, peduncles leafy, subdivided; leaflets somewhat wedge-shaped; acute, thickened at the end; stem smooth." Ray blue. A native of North America. Cultivated in 1758 by Miller. 29. *A. mutabilis*, variable starwort. "Leaves almost stem-clasping, lanceolate, ferrate, glossy, drawn to a point below; branchlets virgate; calyxes rather leafy, lax; stem smooth." Leaves of the peduncles and calyx squarrose and recurved; ray a deep purple; disk first yellow, afterwards purple. Cultivated by Miller in 1731. 30. *A. Tradescanti*, Tradescant's starwort. "Leaves lanceolate, ferrate, sessile, smooth; middle branches virgate; calyxes closely imbricate; stem round, smooth." Radical leaves four inches long, like those of willow; stems round, smooth, woody, brownish; ray varies from white to purple, consisting of twenty florets. A native of Virginia. Cultivated in 1731 by Miller. There are two varieties, viz. the dwarf and tall starwort. 31. *A. Novi Belgii*, New Holland starwort. "Leaves almost stem-clasping, lanceolate, smooth, but scabrous about the edge, the lower ferrate; branches subdivided; calyxes loosely imbricate, leaflets linear-lanceolate; stem round, smooth." Stem four feet high, having broad leaves at the bottom, diminishing gradually to the top; disk of the corolla yellow; ray pale blue, revolute. It is very like *A. mutabilis*. Its flowers appear in the latter end of August. A native of N. America. Cultivated in 1759 by Miller. 32. *A. tardiflorus*, late-flowering starwort. "Leaves sessile, lanceolate, drawn to a point at the base, ferrate, smooth; calyxes lax, leaflets lanceolate-linear, subequal, smooth." Stems two feet high, scarcely branching, smooth; leaves large, smooth, rather stiff, ferrate at the middle, and having a pubescent streak; flowers like those of the foregoing. It differs from the 31st in having the branches more divaricate, and a knot or joint at the base. A native of N. America, introduced here in 1775 by Mr. Cree. 33. *A. miser*, small white-flowered starwort. "Leaves sessile, lanceolate, subferrate, smooth; calyxes imbricate, leaflets acute; disk equal to the rays." Stem a foot and a half high, thick, green, less paniced than the rest; stem-leaves a little ferrate, nodding, those of the branches lanceolate; ray white, very small, poor, disk small, convex, pale, with dark yellow styles. A native of N. America. Introduced here in 1776 by Monf. Thouin. 34. *A. macrophyllus*, broad-leaved blue starwort. "Leaves ferrate, oblong; the upper ovate, sessile, those on the stem cordate, petioled; upper petioles winged." Peduncles crowded at the top, often trifid. A native of N. America. Cultivated in 1739 by Miller. 35. *A. Chinensis*, China aster or starwort. "Leaves ovate, angular, toothed, petioled; calyxes expanding, leafy, terminal." Height from eighteen inches to two feet, putting out long bending branches from top to bottom; leaves next the ground, and at the origin of the branches resemble those of common goosefoot (*chenopodium*), those on the branches are much smaller, and the upper ones narrow

and very entire. The flowers are largest and handsomest of any of this genus. Disk yellow, floscules of the ray broad and long. Dillenius and Miller affirm, that this species came originally to Europe from China; Linnæus doubts of this. Besides the common varieties, white, blue, purple, and red, both single and double, there is now another in the gardens with variegated blue and white flowers. 36. *A. tataricus*, Tartarian starwort. "Root leaves lanceolate-ovate, ferrate, scabrous; stem few-flowered." Radical leaves large, running into petioles; stem rough, scarcely twice as long as the radical leaves; flowers large, five or eight in number; the peduncle has two alternate slender entire bractes; ray of the corolla blue. A native of Siberia. 37. *A. hispidus*, shaggy starwort. "Lower leaves oblong, crenate, scabrous, stem leaves lanceolate, entire, ciliate, stem scabrous." Stem erect, hispid, branching, a foot high; lower leaves obtuse, remotely notched; flowers terminal, solitary; ray white; down ferruginous. 38. *A. scaber*, rugged starwort. "Leaves oblong, ferrate, scabrous, peduncles paniced." Stem herbaceous, a foot high, at top branched in panicles; leaves alternate, petiolate, pointed, above green, rough, with white cilia, underneath pale, veined, smooth; flowers in terminal paniced branchlets. Both the above are natives of Japan.

Species recited by Mr. Miller, &c.

39. *A. glaber*, peach-leaved starwort. "Leaves oblong-lanceolate, acute, ferrate, stem branching, flowers terminal, calyxes linear, erect." Five feet high, bearing large, pale blue flowers. A native of N. America. 40. *A. serotinus*, late-flowering blue starwort, or Michaelmas daisy. "Leaves oblong, acute, broader at the base, half stem clasping, stem branching, flowers terminal, and for the most part solitary." Stems numerous, three feet high; branches lateral, bearing large pale blue flowers. Brought from Virginia by Tradescant. 41. *A. praecox*, early starwort. "Leaves oblong, acute, scabrous, sharply toothed, half stem clasping, stem hairy, flowers corymbed, calyxes hairy, erect." Stems a foot and a half high; flowers large, blue, expanding in July. A native of the Alps and Pyrenæes. 42. *A. altissimus*, lofty starwort. See puniceus (β) n. 24. 43. *A. ramosissimus*, branching starwort. "Leaves linear-lanceolate, stiff; stem very branching, spreading; flowers placed regularly one above another; peduncles leafy." Stems slender, purplish, about three feet high; branches numerous, spreading; flowers small, pale purple, appearing in November. A native of N. America. 44. *A. umbellatus*, umbelled starwort. "Leaves lanceolate, drawn to a point at the base, entire, scabrous about the edge, branches corymbed, fastigiate." Stems several feet high, channelled; ray of the flower white. A native of N. America, flowering in July and August. Cultivated by Miller in 1759. 45. *A. nervosus*, three-nerved starwort. "Leaves linear-lanceolate, acute, nerved; stem simple, flowers terminal in a kind of umbel." This much resembles the umbellatus, but the leaves are narrower, whiter on the under side, and have three longitudinal veins. The flowers are also larger and whiter. Sent from Pennsylvania to P. Collinson, esq. who gave it to Miller. 46. *A. paniculatus*, paniced starwort. "Lower leaves ovate, half-stem clasping at the base; upper leaves lanceolate, small; stem paniced, branches one-flowered, peduncles leafy." About four feet high; branches erect, forming a loose spike of large blue flowers. A native of N. America. 47. *A. latifolius*. "Leaves linear-lanceolate, smooth, three-nerved, flowers corymbed, terminal." Stems a foot and a half high, terminated by peduncles on every side, each sustaining one pale blue flower. A native of Canada. 48. *A. procumbens*, procumbent starwort. Mill. fig. t. 57.

f. 2. "Leaves ovate, toothed; stem procumbent; peduncles naked, axillary, one-flowered." Stems round, inclining to the ground, about four or five inches long, destitute of leaves, each supporting one flower of the shape and size of the common daisy, of a whitish purplish colour. Discovered by Dr. Houston, about Vera Cruz in America. Perhaps some of these may not be distinct from the foregoing ones, as there are certainly many species recited by authors which have not yet taken their proper place in the system, and require a very sagacious botanist to arrange them. In Gordon's Catalogue we find the following names not noticed by Linnæus: 1. *A. alienatus*, virgatus, salicifolius, purpureus, aculeatus, repens, corymbosus. 49. *A. holosericus*, Forst. "Herbaceous, leaves oblong-lanceolate, ferrate, underneath silver-silky; scapes one-flowered, leafy." A native of New Zealand. 50. *A. coriaceus*, Forst. "Herbaceous, leaves ovate, quite entire, furrowed above, woolly underneath, scapes one-flowered, leafy, woolly." A native of New Zealand.

Species of Aster, from Aiton's Hort. Kew.

51. *A. cymbalaria*, cymbalaria-leaved starwort. "Shrubby, leaves ovate, sinuate, rough, with hairs, calyxes imbricate, hairy." Found at the Cape, by Masson. Introduced here in 1786. It flowers most of the summer. 52. *A. nemoralis*, wood starwort. "Leaves linear-lanceolate, drawn to a point at the base, somewhat scabrous; branches filiform, one-flowered; calyxes lax imbricate, leaflets acute." A foot high, ray of the corolla blue, disk white. It flowers in August. A native of Nova Scotia. Introduced in 1778, by W. Malcolm. 53. *A. paludosus*, marsh starwort. "Leaves linear, stem clasping, entire, smooth, scabrous at the edge; peduncles almost naked, calyxes squarrose." Leaves three or four inches long, remote, ray blue, large, disk yellow. A native of the swamps of Carolina. Introduced by Mr. Fairbairne, in 1784. It puts out flowers in September and October. 54. *A. patens*, spreading, hairy-stalked, starwort. "Leaves oblong, entire, acute, cordate, almost stem-clasping, scabrous, branches spreading, elongated, few-flowered, calyxes imbricate, subquarrose, stem rough with hairs." Three feet high; branches remote, pubescent; leaves bent obliquely at the base; ray pale blue, disk tawny. A native of Virginia, flowering in September. Introduced about 1773, by G. Aufrere, esq. 55. *A. foliosus*, leafy starwort. "Leaves lanceolate-linear, entire, smooth; those on the branchlets spreading very much; calyxes imbricate, leaflets acute, stem pubescent." A native of N. America. Cultivated by Dr. Sherard in 1732. It flowers in October. 56. *A. multiflorus*, small-leaved starwort. "Leaves linear, entire, smoothish; branches one-ranked; calyxes imbricate, squarrose, scales somewhat leafy, acute; stem pubescent." Stems unequal to support the abundance of its flowers; leaves rough, the veins form rhomboids; scales of the calyx minute, reflex; flowering branches and peduncles covered with leafy scales; ray white, small. A native of North America. Cultivated by Dr. Sherard in 1732. F. October. There is an early and a late flowering variety of this species. 57. *A. salicifolius*, willow-leaved starwort. "Leaves linear-lanceolate, quite entire, smooth; calyx imbricate, lax; stem glossy. Stem five or six feet high, leaflets of the calyx acute, expanding at the end; ray of a bluish flesh-colour. A native of N. America. Cultivated in 1760, by Miller. 58. *A. astivus*, Labrador starwort. "Leaves lanceolate, almost stem-clasping, quite entire, smooth, scabrous about the edge; calyxes lax, leaflets equal." Stem two feet high, hispid; ray blue. A native of N. America. Introduced here in 1776, by Mess. Gordon and Co. F. in July and August. 59. *A. junceus*, slender-stalked starwort. "Leaves lanceolate-

linear, sessile, smooth, the lowest subserrate, those of the branchlets lanceolate; branches virgate; calyxes imbricate; stem smoothish." Four feet high, leaflets of the calyx acute, spreading at the end; ray slightly flesh-coloured; disk elevated, pale yellow. A native of N. America. Cultivated in 1758, by Miller. F. in October. 60. *A. pendulus*, pendulous starwort. "Leaves elliptic-lanceolate, ferrate, smooth, those of the branchlets rather remote; branches very much divaricated, pendulous; stem pubescent." Ray of the flower white; disk yellow, changing to ferruginous. A native of North America. Cultivated in 1758 by Miller. F. October. 61. *A. diffusus*, diffuse starwort. "Leaves elliptic-lanceolate, ferrate, smooth, proportioned; branches spreading; calyxes imbricate; stem pubescent." Ray white. A native of North America. Introduced by Messrs. Kennedy and Lee in 1777. F. September. There is a red and white-flowered variety. 62. *A. divergens*, spreading downy-stalked starwort. "Leaves elliptic-lanceolate, ferrate, smooth; those on the stem linear-lanceolate, elongated; branches spreading; calyxes imbricate; stem pubescent." Above five feet high, weak; calyx cylindric, with numerous acute leaflets; ray white; shorter than the calyx, disk reddish. A native of North America. Cultivated in 1758 by Miller. F. October. 63. *A. corymbosus*, corymbed starwort. "Leaves cordate, smooth, acuminate, all finely ferrate; petioles simple; branches fastigiate; stem smooth." A native of North America. Cultivated in 1765, by P. Collinson, esq. F. September. 64. *A. spectabilis*, showy starwort. "Leaves lanceolate, somewhat scabrous; the lower ferrate; branches corymbed; calyxine leaflets lax, nearly wedge-shaped, sharpish, squarrose." Two feet high; ray blue. A native of North America. Introduced in 1777, by Dr. Pitcairn. F. August and September. 65. *A. radula*, rough starwort. "Leaves lanceolate, ferrate, acuminate, wrinkled, very scabrous; calyxes imbricate; leaflets lanceolate, obtuse." A native of Nova Scotia. Introduced in 1785 by Dr. Pitcairn. F. September.

Propagation and Culture. The species from the Cape N° 1—5, and N° 51, together with N° 27, 37, and 38, not producing seeds in England, are propagated by cuttings any time during the summer. These should be planted in small pots filled with light earth, and plunged into an old hot-bed; where, if they are shaded from the sun, and gently watered, they will put out roots in six weeks, when they may be placed in the open air; and in about a month afterwards they should be separated, each in a small pot, and filled with light sandy earth. In October they must be removed into the green-house, and placed where they may enjoy as much free air as possible; but be secured from frosts or damps; so that they are much easier preserved in a glass-case, where they will have more light and air than in a green-house; but they must not be placed in a stove, for artificial heat will soon destroy the plants. The North American species, which make at least three-fifths of the genus, together with the Alpine and Italian asters, are easily propagated by parting the roots in autumn; they are most of them hardy, and will thrive in almost any soil and situation; for these reasons, and because they adorn the latter season with the abundance and variety of their species flowers, they are valuable plants, especially among shrubs, and in large ornamental plantations, properly mixed with golden rods, and other perennial, autumnal, hardy plants. The sorts most cultivated, are the grandiflorus, linifolius, linarifolius, tenuifolius, ericoides, dumosus, serotinus, alpinus, novæ angliz, and puniceus or altissimus. Some of the species (N° 6. 41, 42,) prefer a shady situation and moist soil. They are apt to spread very much at the

the roots, so as to be troublesome, and the seeds of some are blown about and come up like weeds. The Italian star-wort (9) has not been so much cultivated in England since the great variety of American species has been introduced, though it is by no means inferior to the best of them. It is propagated by parting the roots soon after the plant is out of flower. The roots should not be removed oftener than every third year. Catesby's star-wort (22) not multiplying fast by its roots, may be propagated in plenty by cuttings from the young shoots in May, which, if planted in light earth and shaded from the sun, will flower the same year. When the annual star-wort (25) is once introduced, the seeds will scatter, and the plants come up without care. The China aster (35) being an annual plant, is propagated by seeds, which must be sown in the spring on a warm border, or rather upon a gentle hot-bed, just to bring up the plants; for they should be inured to the open air as soon as possible; when the plants are three inches high, they should be taken up and planted in a bed of rich earth, at six inches distance every way, observing to shade them from the sun till they have taken new root; and if the season is dry, they must be often refreshed with water. In this bed they may remain a month or five weeks, by which time they will be strong enough to transplant into the borders of the flower garden, where they are designed to remain; or into pots to adorn court-yards, &c. The plants should be taken up carefully with large balls of earth at their roots; after they are planted, and the earth closed about their roots, there should be some water given them to settle the earth. If the ground be rich, these plants will flower in August, and form the greatest ornament in the flower garden in autumn. They ripen in the beginning of October, and should be gathered when they are perfectly dry. Procumbent star-wort (48) being a native of a warm climate, will not live in the open air in England. The seeds must be sown in a hot-bed; and the plants will require a stove to preserve them during the winter. See Martyn's *Miller's Dict.*

ASTER. See ARCTOTIS, ARNICA, BUPHTHALMUM, CARPESIUM, CHRYSANTHEMUM, CHRYSOCOMA, CINERARIA, CONYZA, ERIGERON, GORTERIA, INULA, SENE-CIO, SOLIDAGO, TUSSILAGO.

ASTER, in *Mineralogy*, a denomination given to a species of Samian earth.

ASTER, in *Natural History*, a species of HYDRA in Gmelin's *Syst. Nat.* This is the *actinia* after of Ellis, and inhabits the American seas. The stem is thick, fleshy, subcylindrical, smooth, truncated, and radiated, with tentacula.

ASTER is also a denomination, in the *Ancient Pharmacy*, given to a kind of medicine, invented by Andromachus, against defluxions, and divers other pains.

ASTERIA is the name of a gem, usually called the cat's eye, or *oculus cati*. It has only two colours, a pale brown and a white, the brown seeming the ground, and the white playing about it, as the fire colour in the opal. It is considerably hard, and will take a fine polish, but is usually worn with its native shape and smoothness.

It is found in the East and West Indies, and in Europe. The island of Borneo affords some very fine ones, but they are usually small; they are very common in the sands of rivers of New Spain: and in Bohemia they are not unfrequently found, immersed in the same masses of jasper with the OPAL.

ASTERIA is also the name of a figured stone. See STAR-stone.

ASTERIA, in *Ancient Geography*, a small island between those of Ithaca and Cephalenia. Strabo. This is called *Asteris* by Homer in the *Odyssey*.

VOL. III.

ASTERIAS, in *Botany*. See GENTIANA.

ASTERIAS, in *Entomology*, a species of PAPILIO (*Eg. Tro.*), the wings of which are black, with two bands of yellow spots; anal angle fulvous, with a black dot. Fabricius mantissa. Inhabits America.

ASTERIAS, in *Natural History*, a genus of *Vermes* in the mollusca tribe, the body of which is depressed, grooved beneath; covered with a coriaceous crust, and mucicated with tentacula; mouth central, of five valves. These are the stellæ marinæ, star-fish, or sea-stars of most authors; are all inhabitants of the sea; reproduce parts which have been lost by violence; and move either by swimming or crawling. In shape they vary exceedingly, and hence Gmelin has arranged them under different families, as *lunata*, *stellata*, and *radiata*. The species he enumerates are these: nobilis, pulvillus, militaris, luna, papposa, spongiosa, rubens, scposita, endeca, minuta, glacialis, reticulata, phrygiana, nodoïsa, violacea, sanguinolenta, perforata, aranciaca, equestris, lævigata, membranacea, granularis, rosea, pertusa, ophiura, aculeata, ciliaris, filiformis, tenella, pectinata, multiradiata, caput medusæ, euryale, oligates, nigra, tricolor, and fragilis; which see respectively.—*A. aculeata*; five rayed: disk orbicular; covered with glabrous prickles. *A. aranciaca*; disk broad; rays somewhat depressed, and prickly along the margins. Inhabits the North and Mediterranean sea. Müll. Gmel. &c.

ASTERIAS, in *Ornithology*, a term synonymous with *astur*, &c.; a name by which some old writers have called the common gof-hawk, *falco palumbarius*. Linn. The name *astur* has been applied by Ray to the same bird.

ASTERIE, in *Entomology*, a species of PAPILIO. (*Nymph. Gem.*) Wings dentated, varied with pale yellow, a large bipupillated spot on the posterior pair, above; beneath pale, with three ocellar spots. Fab. &c. Linnæus describes this insect as *papilio alis dentatis lutea variis, singulis utrinque ocellis sesquialteris; anteriore pupilla gemina*. *Syst. Nat.* It is figured by Cramer and Kleeman.

ASTERION, in *Astronomy*, one of the CANES VENATICI.

ASTERION, in *Ancient Geography*, a river of Peloponnesus. Pausanias.—Also, a town of Greece, in Pæonia. Livy, l. 24. c. 24.—Also, a town of Thessaly, seated on a mountain, called also *Perefia*. Steph. Byz.

ASTERISCOIDES, in *Botany*. See OSMITES.

ASTERISCUS. See ANTHEMIS, BUPHTHALMUM, and SILPHIUM.

ASTERI-SIMILIS. See ERIGERON.

ASTERISK, a character in form of a small star, set over any word or sentence, to make it the more conspicuous, or to refer to the margin, or elsewhere, for a quotation, explanation, or the like.

The word is a diminutive of *αστηρ*, a star.

ASTERISM, from *αστηρ*, star, in *Astronomy*, the same with CONSTELLATION.

ASTERIUS, in *Ancient Geography*, an island on the coast of Ionia, at a distance from the mouth of the Meander; south-east of the promontory of Trogilium, north of that of Posideum, and W.N.W. from the town of Miletus. It was famous for the victory obtained near it by the Greeks, gained on the same day when they triumphed over the same enemies at Platæa.

ASTERIUS *Urbanus*, in *Biography*, a writer against the Montanists, was either a bishop or presbyter, and lived about the beginning of the third century. Copious extracts of a treatise, which was the substance of his disputation held at Ancyra in Galatia, are preserved by Eusebius. *Hist. Eccl. l. v. c. 16, 17*. See *Cave Hist. Lit. t. i. p. 85*. Lardner's Works, vol. ii. p. 387.

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ASTERIUS,

ASTERIUS, a writer of the Arian sect, in the reign of Constantius, or about the beginning of the fourth century, was a sophist of Cappadocia, and renouncing Gentilism, he embraced Christianity. About the year 304, during the persecution of Maximian, his virtuous resolution failed him, and he offered sacrifices to the Pagan divinities, which prevented his attaining the honour of being a bishop, to which he aspired. But though he was recovered by Lucian, he was attached to Arianism; and whenever he is mentioned by Athanasius, he is called a cunning sophist, and a patron of heresy. Philostorgius, however, represents him as a moderate Arian, having taught, that the Son was in sub-stance like the Father, and a complete likeness of the Father. According to Jerom, he wrote commentaries upon the epistle to the Romans, upon the Gospels, and upon the Psalms, and many other things, "which were much read," he says, "by the men of his party." Some passages of his writings are cited by Athanasius and Eusebius, in which, says Lardner, "there appear an air of piety, and zeal for the Christian religion." Cave H. L. t. i. p. 201. Lardner's Works, vol. iv. p. 123.

A-STERN, denotes any distance behind a ship; as opposed to **A-HEAD**.

ASTEROCEPHALUS, in *Botany*. See **SCABIOSA**.

ASTEROIDES, *bastard star-wort*. See **INULA**, **BUPHTHALMUM**, and **CONYZA**.

ASTEROIDS, formed of *αστερ*, *star*, and *ειδος*, *form*, and denoting that they resemble fixed stars, in *Astronomy*, a name given by Dr. Herschell to the new planets, or two celestial bodies, *Ceres* and *Pallas*, lately discovered; and which he defines as "celestial bodies, which move in orbits either of little or of considerable eccentricity round the sun, the plane of which may be inclined to the ecliptic in any angle whatsoever. This motion may be direct or retrograde; and they may or may not have considerable atmospheres, very small comas, disks, or nuclei. According to the definitions which he premises, planets are celestial bodies of a considerable size and small eccentricity of orbit, moving in planes that do not deviate many degrees from that of the earth, in a direct course, and in orbits at considerable distances from each other, with atmospheres of considerable extent, but bearing hardly any sensible proportion to their diameters, and having satellites or rings: and comets are very small celestial bodies, moving in directions wholly undetermined and in very eccentric or apparently parabolic orbits, situated in every variety of position, and having very extensive atmospheres. Dr. Herschell having compared the newly discovered stars by the criteria introduced in the above definitions, maintains, that they differ in so many respects from both planets and comets, as to warrant his not referring them to either of these two classes. Our astronomical readers will probably think the difference not sufficient to render this kind of distribution necessary; they will regret, that the author has contributed to introduce, without absolute necessity, a new term in the science of astronomy; and they will perhaps be of opinion, that the new name of "Asteroid," is not the most appropriate and expressive that could have been devised. An asteroid is a body resembling fixed stars; but the two new planets have no one circumstance in common with those distant bodies. If a new name must be found, let them be called by some appellation, which shall, in some degree, be descriptive of, or at least consistent with, their properties. "The invention of a name," says an anonymous writer, "is but a poor achievement in him who has discovered whole worlds." Phil. Trans. for 1802, Part II. p. 213, &c.

ASTEROPE, in *Mythology*, one of the daughters of

Atlas, the first of the principal stars that compose the Pleiades. Ovid. Fast. iv. 170.

ASTEROPHYTON, in *Natural History*, the name given to a kind of star-fish, which is composed of a great number of cylindric rays, each branching out into several others, so as to represent the branched stalks of a very intricate shrub.

ASTEROPLATYCARPOS, in *Botany*. See **OTTHONNA**.

ASTEROPODIUM, in *Natural History*, the name given by authors to a kind of extraneous fossil, of an imbricated texture, composed of a number of small convex, or concave plates, and serving, when entire, as a base or root to the *asteria*, or star-stone.

It is very plain, that this is the remains of some animal body, probably of the star-fish kind, to which the *asteria* have also once belonged; but our imperfect knowledge in the animal history, has not yet ascertained us of the particular creature; the most probable conjecture is, that it is the Magellanic star-fish, the rays of which nicely and exactly represent some of the most perfect asteropodia.

ASTEROPTERUS, in *Botany*. See **INULA**, and **LEYSERA**.

ASTERUSIA, in *Ancient Geography*, a mountain towards the sea, in the southern part of the isle of Crete.—Also, a town situate upon mount Caucasus, founded by a Cretan colony, according to Steph. Byz.

ASTESAN, or *County of Asti*, in *Geography*, a country of Piedmont, in Italy, bounded on the west by the principality of Chieri and Carmagnola, on the north by the Vercellois and the Alexandrin, and on the south by the marquise of Gorzegno; about 25 miles long and ten broad.

ASTHÆA, or **ASTHALA**, in *Ancient Geography*, an island of Asia, on the coast of Gedrosia. Ptolemy.

ASTHAGURA, a town of India, on this side of the Ganges. Ptolemy.

ASTHENIA, in *Medicine*, a term employed to denote bodily debility. It is derived from *α* privative, and *σθενος*, *robur*. In the system of Sauvages, and some other nosological writers it forms a distinct genus, being classed with syncope, and other similar diseases; but it is commonly used by physicians in a more extended sense, so as to embrace all that vast variety of chronic complaints, in which there is a general languor of the body, from the vital functions and muscular actions not being performed with that degree of energy which is necessary to health. The general therapeutic treatment proper in cases of debility, consists in the employment of tonic medicines, such as the Peruvian bark, bitters, chalybeates, the cold bath, or temperate bath, sea-bathing, country air, a mild nourishing diet, riding on horseback, &c. It should be remarked, however, that this general tonic plan is not applicable, in its full extent, to all asthenic diseases, some of them being complicated with visceral and other local obstructions and inflammations, which require peculiarities of treatment, as will be duly noticed in the course of our observations under those several heads.

ASTHMA, a shortness of breath; from *ἀσπν*, or *ἀσπν*, *spiro*, *anbello*, *I breathe*, *I pant*.

The disease which bears this name may be defined to be a short and laborious respiration, accompanied with a wheezing noise, generally coming on by fits, and going off by a cough, and spitting up of phlegm. It is not ushered in by fever.

In Sauvages's system it is classed under anhelationes; in Cullen's, under spasm. The former enumerates no less than eighteen species thereof; the latter only three, viz. *A. spontaneum*, *A. exanthematicum*, and *A. plethoricum*. Another writer has subdivided this disorder into four species. Some

of these distinctions are unfounded, and most of them are of little or no utility in practice. By far the greater number of those cases of difficult respiration, which Sauvages has referred to asthma, belong to dyspnoea; a symptom common to various and opposite diseases, and distinguished from asthma by its manner of coming on, by its duration, and by the set of morbid phenomena with which it is associated. Thus the shortness of breath which occurs in pleurisy, peripneumony, consumption, catarrh, dropsy of the chest, &c. is only a concomitant of those diseases, but not the disease itself; and is therefore not asthma, but dyspnoea. The same may be said of those cases which Floyer has enumerated as instances of *continued asthma*.

There is strictly but one idiopathic species of asthma; the *periodic*, or *convulsive* asthma (the asthma spontaneum of Cullen; the dry or flatulent asthma of others); the *humoural asthma*, as it is termed, being for the most part a variety thereof.

The periodic or convulsive asthma has been so well described by the celebrated Floyer, who himself laboured under this disease for the space of thirty years, that we shall chiefly take from him the history of its phenomena.

For some hours preceding a fit of asthma, the patient experiences a sense of straightness, a fulness about the pit of the stomach, and is much troubled with flatulency. At the same time there is a heaviness of the head, drowsiness, propensity to yawning, and a discharge of pale urine. If these symptoms come on towards the afternoon, they are followed at night by a tightness and weight across the chest, by oppression of the breath, and some wheezing. There is generally, too, a convulsive cough, with little or no expectoration. In the course of the night, the symptoms become more urgent, the inspirations are made with the utmost labour, the chest and shoulders being lifted up with great violence, and in a convulsive manner. In this distressing state the patient is necessitated to get out of bed, and to remain in an erect posture. Although the expirations are not so difficult as the inspirations, yet they are performed very slowly, and with a wheezing noise. In this stage of the fit, a person can neither speak nor cough. His face appears pale or livid, his hands and feet are cold; and his pulse is generally weak and irregular. He has a great desire for fresh air, and is much oppressed by a close heated room, by dust, smoke, or bad smells; and even by the weight of his clothes upon his chest. After some continuance of the attack, head-ach is superadded to the other symptoms; and, the pulse becoming somewhat accelerated, there is a slight degree of feverishness, the necessary consequence of fatigue and irritation. As the fit declines, there is a breaking of wind both upwards and downwards, and frequently a motion to stool. The urine, which before the fit was pale, is now high-coloured, and deposits a sediment. If the attack last but two or three hours after rising out of bed, the straightness of breathing abates, and some phlegm is spit up.

When a short fit happens, it is accompanied only with wind and spitting; with a quickness of the pulse, a disposition to sweat, and a discharge of higher-coloured water in the morning. It is not preceded, as in the former case, by oppression at the pit of the stomach, nor by pale urine, nor by much drowsiness over-night. This is what Floyer calls a *spitting-fit*. It is only a milder form of the other attack.

The duration of an asthmatic paroxysm varies in different individuals, and in the same individual at different times. Sometimes it continues only a few hours, at other times it lasts three or four days. In these cases, very little phlegm, and that of a dark colour, is spit up for the first two days; on the third or fourth it is coughed up more freely, of a

less viscid consistence and of a better colour. At the end of four or five days, the cough and spitting generally cease, and the patient remains free from oppression of the breath, until the next return of a fit. The intervals between the attacks are extremely various, sometimes short, sometimes long. The short intervals do not exceed the space of three, six, or seven days; the longer intermissions extend to twelve, fourteen, or fifteen days. The longer the paroxysm, in general, the longer the interval; and vice versa. The late Dr. Heberden has remarked, that some asthmatics experience only four attacks in a year; others only two, viz. in spring and autumn; and some not more than one attack annually, and that every winter. Others only once in two years; but these last, and especially another instance mentioned by him, must be regarded as rare and anomalous cases. The periods of recurrence are much influenced by changes of the atmosphere. Rainy weather, foggy weather, an approaching fall of snow, a change from frost to thaw, or a change of wind into the east, will often bring on a fit; which, however, may happen from other causes, in every kind of weather. As the fits usually recur, in confirmed asthmatic subjects, once a fortnight, they must often take place on or near the changes of the moon. Hence the asthmatic periods have been supposed to be regulated by the phases of that celestial body. The recurrence of the paroxysms, however, is known to happen at other times; so that it is evident there is no necessary connection between them and the lunar changes. Alterations of the weather, happening at those periods, are (as Floyer has remarked) the probable cause.

Asthma may occur at any age; but, except where there is a mal-confirmation of the chest, it seldom attacks in early life. It usually afflicts persons of mature or advanced age. People who follow certain occupations are more liable to it than others; such are millers, masons, stone-cutters, wool-combers, flax-dressers, &c. Many of these instances, however, of short breathing belong rather to dyspnoea, than to asthma. Although the attacks are so severe and distressing for the time, yet in the intervals the patient commonly enjoys a tolerable share of health, and is able to engage in the pursuits of business or pleasure, according to his station in life; nor do they seem, in numerous instances, to have much effect in shortening the natural period of human existence, many asthmatics having been known to live to the age of seventy and upwards. The disease, however, terminates at length in peripneumony, consumption, dropsy, lethargy, or apoplexy.

Edematous swellings of the legs, ulcers in those parts, the bleeding piles, a fit of the gout, or an eruption on the skin, have suddenly produced, in very desperate cases, a favourable termination of an attack, and have suspended the recurrence of the paroxysms for a great length of time.

Besides the changes of the atmosphere, and certain irritations (such as dust, smoke, &c.) before mentioned, there are other causes which are capable of exciting a fit of asthma; such are errors in diet, violent exercise, long fasting, profuse evacuations, intense study, retropulsion of cutaneous eruptions, and of gout, passions of the mind, &c. With regard to the *proximate cause*, Cullen supposed it to consist in a spasmodic constriction of the muscular fibres of the bronchia, preventing the free ingress and egress of the air, and consequently the due expansion of the lungs. This opinion, however, is not altogether reconcilable with the known structure of the bronchia, and has accordingly been controverted by a late writer (Dr. Bree); who has assigned in its stead, irritation, either from an offending material in the lungs themselves, or from acrimony and disease in the stomach, intestines, and other viscera of the abdomen. There is little doubt, however, that the mucus which he supposes to be

the cause, is rather the effect of the morbid action of the lungs. Others have attempted to refer all the phenomena of an asthmatic attack to a spasmodic affection of the diaphragm (Burser. Institut. Medicinæ Practicæ, vol. iv. pars i. in notâ ad sect. ccii.), which, according to Floyer's description of his own feelings, seems to be rendered stiff, and tied or drawn up by the mediastinum. The resistance thus opposed to the natural dilatation of the chest, would, it is said, necessarily occasion a vehement and convulsive action of the intercostal and other muscles concerned in respiration. All this, however, is mere conjecture; and it is to be regretted, that dissections have been of very little use towards elucidating this pathological discussion.

Whatever be the proximate cause of asthma, all its symptoms are stamped with the character of spasm and irritation; a circumstance which at once points out the plan of treatment that should be adopted; in regard to which, we are to consider, 1. The remedies which should be resorted to during the fits; and, 2. Those which should be employed during the intervals, to prevent their recurrence.

When a fit comes on, the patient, if recumbent, should be raised up, and kept in a sitting posture. All external pressure from clothes or bandages should be removed from the breast, and fresh air should be admitted into the room; which should be kept cool, and free from smoke, dust, and every sort of disagreeable smell. Should there be much tendency to sickness, an ipecacuanha emetic will be proper, after the operation of which an antispasmodic draught should be given, composed of æther, castor, and opium, mixed with a sufficient quantity of peppermint water, or cinnamon water. In some cases, a few drops of spirit of ammonia may be added to this draught, which should be repeated every hour, or every second hour, according to the urgency of the symptoms. The strong smelling antispasmodics, such as amber, musk, and asa-fetida, should be avoided. From the white oxyd of zinc (calcined zinc); or sulphat of zinc (vitriolated zinc), less benefit has been derived, than the reports of some authors had given reason to expect. The digitalis has been employed with advantage, according to some late accounts, in the paroxysm of convulsive asthma; but it promises to be more generally useful in that species which is termed the *humoural asthma*, under which we shall therefore mention its doses and mode of exhibition. With a view of promoting a diaphoresis, the aqua ammoniæ acetatæ may be given in conjunction with the antispasmodics above mentioned; but all heating sudorifics will be improper. In some instances, the wine of tartarized antimony may be added with good effect to the antispasmodic medicines. Floyer has recommended the internal use of vinegar; but though it may have afforded relief in some cases, we are persuaded it will disagree with the majority of such patients; and will, indeed, be extremely hurtful to hysterical and gouty asthmatics. For these, the absorbent earths, such as magnesia and chalk (with which last a few grains of rhubarb should be joined), will answer much better. While these medicines are given, a blister should be applied between the shoulders, but not upon the sternum, where its weight would incommode the patient. Bleeding is rarely admissible. The diet during the fit should consist of cold toast and water, milk and water in a tepid state, a cup of strong coffee, &c. Solid animal food and puddings should be withheld; nor should a glass of wine be allowed, except to very infirm and aged asthmatics, or in case of alarming deliquium. Even then, a dose of sal volatile drops in water will generally be preferable.

As the fit declines, and a tendency to spitting shews itself, that effect should be promoted by the exhibition of expectorating medicines; such as ipecacuanha, oxymel of

squill, and ammoniacum. Of the first of these, not more than two or three grains should be given for a dose, so as to excite, in this stage of the disorder, merely nausea, but not vomiting. The two others should be joined together in the form of a draught or mixture, with or without the addition of æther. Costiveness should be prevented by a laxative-clyster, or by other means; but it should be remembered, that much evacuation by the bowels is always hurtful in these cases.

Considering the strong desire expressed by persons labouring under an attack of asthma for fresh air, and that the appearances of the sputum are such as seem to indicate an excess of the carbonaceous principle in the blood, it was natural to suppose much relief might be obtained by the inhalation of oxygen gas. Accordingly this gas mixed with common air in various proportions, has been administered by different practitioners to such patients; but not with the expected success. Other factitious airs have also been tried, such as hydrogen and hydrocarbonate. But if in any case of asthma, these gaseous substances have produced a beneficial effect, it has been too transitory and inconsiderable to entitle them to be ranked among the remedies that may be relied upon for the cure of this disease. The vapour of radical vinegar, or acetic acid (see Duncan's Annals of Medicine, vol. iii.), will be found an equally uncertain auxiliary; and æther-vapour is much better adapted to that condition of the lungs which occurs in consumptions.

When the fit has gone through its course, such remedies should be prescribed as are calculated to prevent its return. These should be taken from the class of tonics and stomachics, such as the Peruvian bark, bitters, chalybeates, &c. With these should be joined the temperate bath, or cold bath (in summer and autumn), change of air, and regular exercise of walking, or riding on horseback. The benefit derived from following the plow, as asserted by Baglivi, is to be attributed partly to the country air, but more to the exercise of walking. A dry and pure air, but not that of an elevated situation, is in general best suited to asthmatics; there are, however, frequent exceptions to this observation, some patients having fewer and less violent attacks in the contaminated atmosphere of the metropolis and other large towns than in the country. The bowels should be kept regular, by rhubarb and aloetic aperients. Small doses of calomel may be given with great advantage, in many cases; and especially where the asthmatic affection is connected with a disease of the skin. Whenever the patient's feelings warn him of an approaching attack, he should take an emetic, and after its operation an opiate: and at all times he should encourage a tendency to spitting, by ammoniacum and squill. Issues have been recommended by some practitioners for lessening the frequency and violence of the paroxysms. It is said that king William continued perfectly free from his asthmatic complaint, during the whole of the time that the wound he received on his shoulder, in the battle of the Boyne, kept open and discharged matter.

The diet, during the intervals of the fits, should be carefully attended to. All flatulent vegetables, all sorts of pastry and puddings, all fat and slimy food, and broths, should be avoided. A moderate quantity of butcher's meat, and poultry, roasted or boiled, will be proper every day, with a small proportion of the more digestible and nutritious vegetables. Strong ale should be wholly forbidden. In some few instances, no harm seems to have arisen from the use of fresh small beer or porter; but in general toast and water will be the most suitable beverage. Wine should be allowed very sparingly. In regulating its quantity, the age, constitution, and habits of the patient should be duly attended to.

It does not appear that the smoking of tobacco, which some physicians have recommended, is really beneficial in these complaints.

As this disease occurs so frequently, and is of so obstinate a nature, those who have the misfortune to be afflicted with it necessarily become their own physicians. Hence we have been induced to extend our observations, on this subject, to a greater length than we shall hereafter do (with very few exceptions,) on single diseases. But we have yet to add a word or two on the *humoural asthma*. Under this term some physicians have comprehended the anasarca of the lungs; but we understand by it that species or variety of shortness of breath and wheezing, which is accompanied with a constant cough, and expectoration of mucus, and which is distinguished from phthisis and catarrh by being unattended with fever. It is distinguished from a dropy of the chest, by the absence of a numbness of the arms; and (after the cessation of a temporary aggravation of the short-breathing from accidental causes,) by the patient being able to bear the horizontal posture. It is the pituitous asthma of some writers. Cullen has referred it to dyspnœa; but it rather belongs to this head, as it generally begins under the form of convulsive asthma; and, like it, is liable to accidental aggravations from changes of the weather, and the other exciting causes before mentioned. In regard to its therapeutical treatment, emetics and expectorants (joined with æther and other antispasmodics); and blisters and issues, are as serviceable here as in the convulsive asthma; but the employment of diuretics is more particularly indicated; such as squill, acetated kali, and the digitalis. Ten or fifteen drops of the tincture of this herb, or one grain, or a grain and a half of the powdered leaves, joined with a fourth part of opium, should be given at a dose, and be repeated twice in twelve or fourteen hours, until the shortness of the breath is relieved by a flow of urine, or until such an effect is produced on the pulse, the head, or the bowels, as shall make it necessary to suspend the use of the medicine. Decoctions of feneka or dulcamara (see Practical Synopsis of the Materia Medica, vol. i. p. 152. 233.) may be prescribed in place of the digitalis, where this last shall be found to disagree. The patient should wear flannel next his skin, except during the summer, and should at all times be particularly attentive to keep his feet warm and dry.

Among systematic writers, Willis, Hoffman, and Cullen, should be consulted on this disease; and among the authors of distinct treatises, Floyer on Asthma, 1698, Ryan on ditto, 1793, and Bree on Disordered Respiration, 1800.

ASTI, in *Geography*, a large city of Piedmont, the capital of the county of Asti, situate in a delightful and fertile valley, on the banks of the Tanaro. Few cities in Lombardy exceed it in its palaces and public buildings; and the surrounding country is embellished by the seats of the nobility and gentry. By the extent of its walls, which inclose the suburbs, it may be supposed to have been formerly well fortified; but those works are now decaying. The cathedral is an elegant structure with a lofty roof, a fine cupola, and good painting in fresco: upon this is an inscription which expresses that it was anciently a temple of Juno, and converted into a christian church by a St. Surus, one of Jesus's seventy disciples. It has more than thirty other churches, parochial and conventual. Several remains of antiquity are seen in this place; and it is said to have been a favourite town with Augustus Cæsar and the emperors. It is the see of a bishop, suffragan of the archbishop of Milan; 24 miles east from Turin, and 20 west from Alessandria. N. lat. 44° 50'. E. long. 8° 2'. See ASTA.

ASTI, in *Ancient Geography*, a people of Europe, in Thrace, who possessed the town of Calyba.

ASTICA, or ASTICE, a country of Thrace, extending along the Euxine sea, and commencing at a small distance north-west of Constantinople.

ASTIGI, or ASTIGIS, *Ecija*, a town of Spain, in Bætica, upon the Singilis, nearly south of Corduba. This town was a Roman colony, and denominated "Augusta Firma."

ASTIGI JULIENSIS, a town of Spain, situate between the river Bætis and the sea. Pliny.

ASTIPULATOR, in the Roman order, the person by whose consent and leave a nun takes the religious habit. Du Cange.

ASTONISHMENT, denotes a high degree of wonder or surprise: Johnson defines it a confusion of mind from fear or wonder. Dr. Cogan, in his "Philosophical Treatise of the Passions," concisely defines high astonishment as the incubus of the mind, which feels nothing at the instant so much as its inability to act.

ASTORCHA, in *Botany*, a name by which some authors call the yellow *flacchas*, and others the purple, commonly called the Arabian.

ASTORES ISLAND, in *Geography*, lies north-east from the north point of the island of Madagascar, in the Indian Ocean. S. lat. 10° 22'. E. long. 53° 20'.

ASTORGA, Baron d', in *Biography*, a native of Sicily, contemporary with Marcello. Under the title of baron he is mentioned by Walther in 1732, who says, that in 1726 he composed a pastoral, called "Daphne," at Breslaw, which was performed with great applause. His "Stabat Mater," the best of his productions, was frequently performed at the Academy of Ancient Music established at the Crown and Anchor, but his cantatas, which are numerous, though some of them are excellent, are not equal to those of Marcello. His "Stabat Mater" is a very admirable composition; and some of his movements surpass in pathos and expression even those of Pergolesi.

ASTORGA, in *Geography*, a city of Spain, in the province of Leon, situate in a plain near the river Tueria. It is a strong place and the see of a bishop, suffragan of Compostella. It was formerly the capital of the Asturias, but is now only the chief place of a marquiseate erected here in 1465. It is called "the city of priests," from the number of ecclesiastics belonging to the cathedral; twenty-eight miles nearly west of Leon. N. lat. 42° 33'. W. long. 6° 16'.

ASTRABAD, a town of Persia, and capital of a district of the same name, is situated at the south-eastern extremity of the Caspian sea, near a considerable bay, with a chain of mountains behind. The Russians land at this bay, and then proceed to the capital. The province of Astrabad lies in the north-west part of Persia, having Chorasan on the east, part of Tartary on the north, and Comis and a branch of mount Taurus to the south. The country in general is mountainous, and the soil, except near the banks of the rivers which run through it, sandy and barren. The productions of this province are silk, rice, and cotton, like those of Mazanderan, and its exports and imports nearly similar. The commerce of Astrabad is chiefly with Candahar. This city lies very convenient for a harbour to the eastern districts of Chorasan, Bucharia, Samarcand, and even India. N. lat. 36° 50'. E. long. 54°.

ASTRACAN MOUSE, in *Zoology*, the English name of the *Mus Phæus* of Gmelin, and Zarizyn rat of Pennant. See PHÆUS *Mus*.

ASTRAKHAN, or ASTRACHAN, in *Geography*, a city of the Russian empire, formerly the capital of the kingdom of that name, having a large and commodious harbour, with

with a dock-yard and spacious quays, situate on an island in the Volga, not far from its outlet into the Caspian, in 46° 22' lat. and 65° 43' long. It contains four monasteries, twenty-five Russian churches, and two Armenian, one Roman Catholic monastery with a church, one Lutheran church, several medsheds, schools, and seminaries, and two printing houses. The principal suburbs are the Tartarian, the Kazanian, and the Siberian. At Astrakhan are 40 houses of brick, and 3773 of timber, besides the suburbs. The number of inhabitants amounts to 18,023, without including the foreigners and periodical residents; taken all together, they may be computed at 70,000, as on account of the fishery alone upwards of 20,000 persons are annually drawn hither. Of this mass the Russians are the most numerous, the remainder being made up of Germans, English, French, Italians, Swedes, Armenians, Georgians, Tartars, Persians, Greeks, Kabardinians, Kalnuks, Indians from Hindostan, &c.

Commerce. 1. By sea to Persia, Khiva, Bukharia, India, &c. exporting thither linen, wax, soap, wrought gold, silver, and copper, tin, iron in bars and manufactured, steel, quicksilver, alum, vitriol, sal ammoniac, sugar, tea, yuffs, &c. in return for which they import, especially from the Persian harbour Mangishlak, raw silk (annually about 3000 poods), various sorts of silk, half silk, and cotton stuffs, Circassian felt, raw cotton, sumptuous girdles, otterskins, sea-grafs, woven kaftans, frankincense, mountain honey, lamb-skins, cloths, tobacco, rice, Persian pease, various sorts of fruits, &c. In the year 1775, these exports amounted in value to 561,327 rubles, the imports to 237,224 rubles, and the duties to 24,308 rubles. 2. Freights to Kiliar, Gurief, &c. of crown stores, wine, provisions, and commodities for sale. 3. Land trade to the towns lying on the upper parts of the Volga. 4. A very large barter of commodities within the city in the numerous markets: this is carried on by the foreigners, generally by the Armenians and Indians.

Manufactories. In number there are 175, mostly belonging to Armenians, and are employed in weaving silk, half silk and cotton veils and girdles, broad-striped and plain silks, plain cottons, striped linens, in preparing morocco, leather, shagreen, &c.

Other trades. 1. The fishery is of very great importance, and belongs to the citizens, who have established a factory, the profits whereof, from 1762 to 1785, amounted to upwards of a million of rubles. 2. The capture of the porpus on the Caspian is likewise carried on by the citizens of Astrakhan, and is extremely lucrative. 3. The culture of orchards and vineyards gives employment to great multitudes of people. The number of vineyards within the circuit of the city is 135, whereof 21 belong to the crown, and the remainder to private owners. 4. The culture of the silk-worm is carried on partly by the citizens, and partly by the crown. The latter has a large silk manufactory.

ASTRAKHAN, Territory or District of, comprehends two extensive steppes or moors, abounding in saline marshes, and in some parts barren heaths. 1. The Astrakhan steppe between the Volga and the Don; and 2. The Kalmuk or Ural steppe between the Volga and the Ural. The greater part, therefore, of this district would be entirely sterile, were it not for the salutary overflowings of the Volga, which, at least on the shores of that river, as also of the Don and the Ural, create as fine meadows and pasture grounds as can any where be seen. As corn, in this district, and even in the parts adjacent to Astrakhan, where much industry is bestowed on the culture of the soil, does not succeed well, the deficiency is supplied from Kazan. On the other hand, the finest sorts of fruit flourish here, partly growing wild and partly cultivated in orchards, such as melons, arbutus or

water melons, apples, pears, peaches, apricots, quinces, plums, cherries, &c. The mulberry tree grows in great abundance. The vine has been domesticated since the year 1613, when the first vineyards were laid out at Astrakhan, and planted with Persian stocks. They produce the purple as well as the white grape, both of excellent flavour; and the clusters of the latter grow to an uncommon size. The vintage lasts from the end of August to the end of September, old style, when the greater part of the clusters are pressed, but likewise a great quantity are packed up fresh and transported to all parts of the empire. Cotton is cultivated to a considerable degree, and succeeds extremely well. Even the saline heaths or steppes are not entirely barren; on them grow wild in great quantities, various kinds of flowers and herbs, as asparagus, poppies, dandelion, fennel, &c. Along the Volga many sweet woods, the roots whereof yield the succus glycyrrizæ, with which the Astrakhan druggists supply the whole empire; saline herbs, viz. salicornia, chenopodium, falfola, statice, nitraria, &c. which are employed in soap boiling.

The breeding of cattle is principally carried on by the Kalmucks and Tartars, who, with their prodigious droves, frequent the pastures along the shores of rivers, and nomadise in the steppes. Here are likewise found whole herds of wild goats (cervi capra, antelope saiga), hares, rabbits, the bison, eagles, bustards, partridges, grouse, &c. The fishery is in no part of the empire so productive and profitable as in the Caspian and the rivers that flow into it, the Volga and the Ural. Little account is made of smaller kinds of fish, such as pike, barbel, sudak, which are caught farther up in the Volga and the Ural, and transported through the whole empire. In the Caspian only the several species of sturgeon are taken, viz. the beluga, the sturgeon, the sterlet, and the sevriuga; after them, however, shads and mullet; the former are not unfrequently of an enormous size. In the year 1769, a beluga was caught in the Ural weighing 2520 pounds, and from which 720 pounds of caviar was obtained. Of all the fish of the Volga, the beluga, the sturgeon, and the white salmon are the most precious. The fishery in the Ural is the principal occupation of the Uralian Kozaks; and no where throughout all Russia is this business so well regulated by immemorial usages as here. The chief kinds of fish taken in this river are the beluga, sturgeon, sevriuga, sterlet, shad, barbel, white salmon, &c. All these fish swim in shoals, and the sevriuga, in such incredible multitudes, that, particularly near Gurief, the swarms of them are clearly seen below the surface of the water. The fish are here, as on the Volga, mostly salted down, the roes made into caviar, and the sounds into isinglass; but the fish caught in the winter are transported frozen. Beavers are found in the Sunsha, tortoises in the Terek, the Don, the Volga, &c. The Terek and the Kuban likewise yield belugas, sturgeon, and sterlets. The Caspian abounds more in porpuses than any of the other lakes or inland seas. Among the insects of these parts several are venomous, and tarantulas are frequently seen. The hot baths on the banks of the Terek were explored by order of Peter the Great in the year 1717. The principal of them is the St. Peter's bath, consisting of three springs at a considerable distance asunder. Their proper heat is 71° of Reaumur, be the temperature of the atmosphere what it may. The heat of the other sources rises from 41 to 60 degrees of the same thermometer. According to Guldenstædt, they contain sulphur and alkaline salt, no iron, but a considerable portion of calcareous earth. Besides these are several other springs. M. Guldenstædt, in 1771 and 1773, cured forty patients by means of these baths, and since

since that time the use of them has become very common in the surrounding territory.

The chief employments of the inhabitants are the labours of the fishery, the curing of the fish, the preparing of caviar and stroganoff, which is extremely well made, particularly at Gurief, and the making of wine. The white wine produced here is almost as white as water, the red only reddish. Both are exceeding light, but well flavoured sweet table wines. They commonly lose their agreeable taste after two years, turning sour, and then they are converted into brandy or vinegar. Great quantities of the grapes are dried and sent through the country, as raisins, or boiled into a syrup. The silkworm employs a great number of hands about the Terek, between Kisliar and Mosdok, near Astrakhan, &c. likewise in the silk and cotton manufactories in Astrakhan. In this city also yellow, black, and particularly red Russian leather is fabricated of the greatest beauty and best quality. The shagreen, which is manufactured here mostly by Tartars and Armenians, is a valuable species of leather, not prepared in any other country. The Tartarian soap, which is made at and about Astrakhan, of pot-ashes and the blubber of the sea-dog, is in great repute, and used in the cloth-manufactories. The chief salt-petre works, about sixty versts above Astrakhan, are situate on an arm of the Volga, and carried on by the artillery company. They produce such abundance of salt-petre, that, after deducting the stated quantities for the powder-mills, many thousand poods are annually exported from St. Petersburg, on the crown's account.

This is the only government of the empire that has coasts on the Caspian. The grand mart of the Caspian commerce is Astrakhan. The other Russian ports on this sea are Kisliar and Gurief. The principal part of this commerce is in the hands of the Armenians; next to these are the Russians, then follow the Indians, the Persians, the Truchmenian and Chivintzian Tartars, and lastly the Nogay Tartars, belonging to Astrakhan. The commodities in which this trade consists, have been already mentioned. It was likewise observed, that it is divided into the sea and land commerce; the exports by the former amount at present to about 1,200,000, and the imports to a million rubles: the latter is carried on by way of Kisliar and Mosdok, and amounts to about 300,000 rubles, the imports being about three-fourths of that sum.—The inland trade of this government with the other provinces of the Russian empire is very considerable. Its products having been particularised above, it needs here only to be observed, that in exchange it receives, chiefly by the Volga, various kinds of European commodities, the greater part whereof are again exported to Persia, &c.

Astrakhan is a viceroyalty, and consists; 1. of the former government of that name, which was a Tartarian kingdom till it was conquered by the Russians in the year 1554; 2. of the Caucasian territory; and 3. of the north-eastern division of the Kuban, which for the most part fell to Russia by the peace of 1774, and the border treaty in 1783: It was erected into a viceroyalty in 1785, and has its own governor-general.

The ecclesiastical concerns of the Russians are under the jurisdiction of the Archbishop of Astrakhan and Stavropol. The other religious parties have presidents appointed over them, or manage their own spiritual affairs independently among themselves.

The public expenditure of this government, including the pay of the military, is stated at 147,373 rubles.—Moreover, this and the government of Saratof, have assigned them in common 7000 rubles to provide for emergencies with the neighbouring tribes.

Along the Ural, from Ural'sk to Gurief, is a line of forts, for securing the borders against the Kirghises, which are garrisoned by Uralian Kozaks, who, in compensation for their service, have a grant of the free fishery of the Ural. The corps of them, always in readiness to march, consists of 12,000 men.

Along the Kuban and the Terek lines are likewise drawn, and on the Volga, from Astrakhan upwards, are several foreposts or redoubts.

This considerable district of Tartary formerly bore the name of Kaphshak, in honour of the son of a commander, whom his mother brought into the world in the hollow of a tree; it was afterwards denominated Nagaiya. The city was anciently called Tmutorakan; but in process of time got the appellation of Adshi-Darchan, which the Russians corruptedly pronounced Astrakhan. Old Astrakhan was situate eight versts higher up than where the present city stands, and its first site still discovers ruins of ancient edifices. At that time it bore the name of Tmutorakan; and Lomonosof positively asserts, that czar Yaroslav Vladimirovitch waged war, in conjunction with his brother Mstislaf, against the sovereignty of Tmutorakan, and terminated hostilities by entering into an alliance with him; a circumstance which would prove, on one hand, that the pretensions of Russia upon Astrakhan are of a much earlier date than the reign of Ivan Vassilievitch, and, on the other hand, authenticates the denomination of Tmutorakan, attributed to it. As to the particular time, however, when this city was transferred to another spot, as well as that when it changed its name, little or no knowledge is at present to be obtained.

The term Adshi-Darchan implies, "A pilgrim of Mecca has granted liberty." Whence it is pretended, that a noble Tartar, on his return from a pilgrimage to Mecca, precisely at the time when the labourers were at work in laying the foundations of the city in its new place, granted liberty to one of his slaves, whether as a sort of favourable omen to the success of the undertaking, or to testify, according to the principles of the Mahomedan religion, his gratitude to heaven for the fortunate issue of his journey: however this may be, it is asserted that the natives seized on the event for giving the city the appellation of Adshi-Darchan, as expressive of their wishes for the perpetual preservation of their liberty. The Russians, however, derive its name from Ashtar and khan, maintaining that it ought to be pronounced Ashtarkhan, as if there had formerly been in that country a king or khan Ashtar or Astra, of whom, by the way, not the slightest vestige is to be traced in any history.

Astrakhan then had been in the possession of the Russians long before the time when it submitted afresh to the valour of czar Ivan Vassilievitch. Formal proofs of this fact are found in the archives of the city; where it is related that its first Russian sovereign was Mstislaf Vladimirovitch, and that this prince caused a church to be built of stone at Tmutorakan. It was not till the year 1237, when Bathys, whom the Tartars call Bathal, having ravaged all Russia and invested both shores of the Volga with his Tartars, that the Russians lost the kingdom of Astrakhan, and were obliged to pass their lives, for a great number of years, in perpetual wars; which lasted till the Greater Tartary received a decisive blow, which was followed by the wars of Kazan, when Ivan Vassilievitch began to raise his head, at length reconquered the kingdom of Astrakhan, and annexed it to the Russian empire.

ASTRÆA, from *αστρον*, *star*, in *Astronomy*, a name which some give to the sign Virgo, by others called Erigone, and sometimes Isis.

ASTRÆA, in *Mythology*, was the daughter of Astræus and Themis, and regarded as the goddess of justice. She was represented as a virgin with an austere but dignified countenance; holding a balance in one hand, and a sword in the other.

The poets feign that Justice quitted heaven to reside on earth, in the golden age; but, growing weary of the iniquities of mankind, she left the earth, and returned to heaven, where she commenced a constellation of stars, and from her orb still looks down on the ways of men. Ovid. Met. lib. i. ver. 149.

ASTRÆUS, in *Ancient Geography*, a river of Greece, in Macedonia.

ASTRÆUS, in *Mythology*, one of the giants or Titans, who made war with Jupiter. He was enamoured of Aurora, and she became the mother of the winds and stars.

ASTRAGAL, **ASTRAGALUS**, in *Anatomy*, the upper bone of the tarsus, which, by its conjunction with the bones of the leg, forms the ankle-joint. See **SKELETON**, *description of the bones of the lower extremity*.

Some also apply the name astragalus to the vertebrae of the neck.—Homer, in his *Odyssey*, uses the term in this sense.

ASTRAGAL, in *Architecture*, from ἀστράγαλος, the heel-bone, also the vertebrae of the neck. It is a small moulding, having a semicircular profile, used in various parts of buildings. But it is more particularly applied to express the moulding which separates the shaft from the capital of a column, and probably represented the rings or hoops that were put round wooden columns, to prevent them from splitting. See **ARCHITECTURE**, *Plate I*.

In Egyptian architecture we sometimes meet with astragals at the top of the shafts, and sometimes with several between the top and bottom, though frequently there is no moulding between the shaft and capital.

In the earliest examples of Grecian architecture, such as the Doric temples at Corinth, Athens, Sicily, and Paestum, there are no astragals or projecting mouldings separating the shaft from the capital: but instead of these there are grooves, generally three in number, cut into the solid. The original intention of this does not appear to be sufficiently obvious; nor whether it was done for ornament, or to conceal the joint that would otherwise be seen at that place, between the capital and shaft. In the ancient examples of the Ionic order the astragal is never omitted under the capital. In the oldest specimen of the Corinthian order, that of the monument of Lyciscrates at Athens, there is no astragal, but there is a sunk space between the shaft and capital, in which probably was inserted a circular moulding, or ring of metal, or other material.

In Roman architecture we always find astragals at the top of the shaft, whether the order employed be of the Doric, Ionic, or Corinthian kind; though sometimes they were made in the form of square fillets or hoops, instead of that of circular rings.

The astragal was frequently by the ancients cut into the form of beads of various shapes; and many of the moderns, who have been more licentious in their ornaments, have covered it with leaves and flowers. The proportions of the astragal depend entirely upon its application; so that no rules can be given for it.

ASTRAGAL, in *Gunnery*, is a kind of ring or moulding on a piece of ordnance, at about half a foot distance from the muzzle or mouth; serving as an ornament to the piece, as the former does to a column.

ASTRAGAL Tyles. See **TYLE**.

ASTRAGALOIDES, in *Botany*. See **ASTRAGALUS**, and **PHACA**.

ASRTAGALOMANCY, derived from ἀστράγαλος, and μαντεία, *divination*, a species of divination performed by throwing small pieces, with marks corresponding to the letters of the alphabet; the accidental disposition of which formed the answer required. This kind of divination was practised in a temple of Hercules, at Achaia. Hist. de l'Acad. Inscrit. tom. i. p. 102.

ASTRAGALOTE, in *Natural History*, a species of fossil alum, thus called from its resembling a talus, or ankle-bone: whence it is also denominated *talare*.

ASTRAGALUS, in *Botany*, milk-vetch. Lin. gen. 892. Schreb. 1208. Juss. 358. Gært. t. 154. *Tragacantha*, Tournef. Clafs. *diadelphia decandria*. Nat. Ord. *papilionaceæ*, or *leguminoſæ*. Gen. Char. *Cal.* perianth one-leaved, tubular, five-toothed, acute; lower toothlets gradually less. *Cor.* papilionaceous; banner longer than the other petals, reflex on the sides, emarginate, obtuse, straight; wings oblong, shorter than the banner; keel length of the wings, emarginate. *Stam.* filaments diadelphous, simple, nine-cleft, almost straight; anthers roundish. *Pist.* germ nearly columnar; style subulate-ascending; stigma obtuse. *Per.* legume two-celled; cells bent to one side. *Seeds*, kidney-shaped.

Ess. Gen. Char. legume two-celled, gibbous.

Stems leafy, erect; not prostrate.

Species, 1. *A. alopecuroides*, fox-tail milk-vetch. Mill. fig. 58. "Caulescent; spikes, cylindric, subflesile; calyxes and legumes woolly." Stem upright, hairy, about two feet high; leaves pinnate; leaflets ovate, eighteen or twenty pairs; flowers yellow, in close, obtuse, axillary spikes; legumes shut up in woolly calyxes, and have two cells containing three or four square seeds in each. It flowers in June and July. A native of the Alps and Siberia. Cultivated by Miller in 1739. 2. *A. christianus*. "Caulescent, erect; flowers glomerate, subflesile, from all the leafy axillas." Stalks nearly three feet high, broad at bottom, and gradually diminishing upwards; leaves very long, which also diminish upward, and form a sort of pyramid; these are winged, consisting of pairs, of large oval lobes terminated by an odd one; flowers in clusters from the alae of the leaves; they are of a bright yellow, and succeeded by cylindrical pods; seeds yellow, square. It flowers in July. Discovered in the Levant by Tournefort. 3. *A. capitatus*. "Caulescent; heads globular; peduncles very long; leaflets emarginate." Stalks erect; long peduncles from the axils, supporting a head of purple flowers, which appear in July. Discovered in the Levant by Tournefort. 4. *A. pilosus*, pale-flowered milk vetch. "Caulescent, erect, hairy, flowers in spikes; legumes subulate, hairy." Stem more than a foot high, round, hard, branching; leaflets ten or twelve pairs, elliptic, lanceolate, hirsute; flowers on axillary peduncles, about fifteen, yellow; legume nearly cylindric, whitish, silky. A native of the Valais, Siberia, &c. It flowers from June till August. Cultivated by Miller in 1732. 5. *A. sulcatus*, furrowed milk-vetch. "Caulescent, erect, smooth, striated, stiff; leaflets linear, lanceolate, acute; legumes three-sided." Stems three feet high, round, smooth, leaflets about nine pairs, with an odd one, smooth, oblong, entire, on very short petioles; peduncles racemed, axillary, supporting many erect pale violet flowers; legumes smooth, acuminate, triangular: seeds brown, round, kidney-shaped. A native of Siberia. Introduced by Dr. Pitcairn in 1785. 6. *A. galegiformis*, goat's-rue-leaved milk-vetch. "Caulescent, stiff, smooth, flowers in racemes, pendulous; legumes three-sided, mucronate at both ends." Stems more than five feet high; leaflets twelve or fourteen pairs, oval, with an odd one; peduncles axillary, on which are small yellow flowers; legumes smooth, short, pedicelled within the calyx, with

with

with two seeds on each side. Cultivated by Miller in 1739. F. June. 7. *A. chinensis*. "Caulescent, stiff, smooth; flowers in racemes, pendulous; legumes ovate, inflated, mucronate at both ends." This much resembles the last; the legumes however are different, and the flowers of this are variegated. The seeds were sent from China to Sweden in the year 1760. 8. *A. Onobrychis*, purple-spiked milk vetch. "Caulescent, procumbent, diffused; spikes peduncled, banner twice as long as the wings; leaflets linear." Stems procumbent at the base, streaked, branching; leaves lanceolate, spreading, with twelve pair of lobes; peduncles furrowed, stiff, longer than the leaves; bractes lanceolate; corollas red. The whole plant is sprinkled with white and black villose hairs. Haller describes this plant very differently. A native of Austria. Cultivated here in 1640. It flowers in June and July. 9. *A. uliginosus*, violet-coloured milk vetch, Gmel. Sib. 4. 40. t. 17. "Caulescent, almost upright; flowers in spikes; legumes almost upright, naked, tumid, round-flatted, point reflex." This resembles *A. cicer*, N. 13. except in the legumes; the top of the keel is violet-coloured. It was found by Gmelin in the moist meadows of Siberia, and introduced here by Thouin in 1775. 10. *A. carolinianus*, Carolina milk vetch, Dill. Elth. 45. t. 39. f. 45. "Caulescent, upright, even; peduncles in spikes; legumes ovate-cylindric, acuminate by the style." Stems three feet high; leaves composed of eighteen or twenty pairs of oval smooth leaflets; flowers of a greenish yellow on axillary peduncles. A native of Carolina. It flowers in July and August. 11. *A. asper*, rough milk vetch, Jacq. Ic. rar. t. 33. "Caulescent, stiff, even, roughish; flowers in spikes on elongated peduncles; legumes oblong." Stems annual, two feet high, round, streaked, leafy, branched; leaves composed of about ten pairs of lanceolate-linear acute leaflets; spikes long, with pale flowers; legume thickening above, acuminate, upright, roughish. It flowers in June. Cultivated at Vienna from seeds sent from Astracan.

** Stems leafy, diffuse.

12. *A. canadensis*, woolly milk vetch, Dill. Elt. 46. t. 39. f. 45. "Caulescent, diffuse; legumes subcylindric, mucronate; leaflets almost naked." Stems round, about two feet high; leaflets ten pairs, smooth on both sides, rather glaucous underneath; peduncles axillary, streaked; flowers yellow; legume, oblong, concave, flatted. A native of Virginia and Canada. It flowers in July. Cultivated by Dr. Sherard in 1732. 13. *A. Cicer*, bladdered milk vetch, Jacq. Aust. 3. 251. "Caulescent, prostrate; legumes subglobular, inflated, mucronate, hairy." Stem eighteen inches, very branching; leaflets twelve or fifteen pairs, oval, obtuse, hirsute; peduncles axillary, supporting erect spikes of twenty or thirty pale yellow flowers; legumes completely two-celled, with many feeds. Miller, who cultivated this plant in 1739, gives a description of this species, which is somewhat different from the above. 14. *A. microphyllus*, small, round-podded milk vetch. "Caulescent, erect, expanding; leaflets oval; calyxes rather tumid; legumes roundish." Stem a foot high, flexuose, with spreading short branches; leaflets thirteen or fifteen pairs, blunt, sometimes emarginate; peduncles solitary, with horizontal yellow flowers, twice the length of the calyx; legumes inflated, villose. A native of Siberia and Germany, flowering in June. Introduced by Dr. Jacquin. 15. *A. glycyphylus*, sweet milk vetch or wild liquorice, Hudf. With. Smith. Flor. Brit. Eng. Bot. 203. "Caulescent, prostrate; legumes subtriquetrous, bowed; leaves ovate, longer than the peduncles." Stems prostrate, round, flexuose, furrowed, a little hairy; leaflets from four to six pairs, ovate or ellip-

tic; stipules large, ovate, somewhat toothed; peduncles shorter than the leaves, spiked with ten or twenty greenish yellow flowers; calyx bell-shaped, oblique, having the superior segments very short; legumes incurved, triquetrocylindric, smooth, many-feeded. A native of Britain and other parts of Europe. 16. *A. hamifolius*, dwarf-yellow-flowered milk vetch. "Caulescent, procumbent; legumes subulate, recurved, smooth; leaflets obcordate, villose underneath." Root annual, branches striated and trailing on the ground; leaflets about eight pairs; peduncles axillary, terminated with pale yellow flowers in June. A native of Messina and Montpellier. Cultivated here in 1640. 17. *A. contortiplicatus*, wave podded milk vetch. "Caulescent, procumbent; legumes writhed, channelled, villose." An annual, varying greatly in size in different soils. It is a native of Siberia, and was introduced here in 1783, by Thouin. 18. *A. boeticus*, triangular-podded milk vetch. "Caulescent, procumbent, spikes peduncled; legumes prismatic, straight, three-sided, hooked at the top." Annual; branches trailing, near two feet long; leaflets about ten pairs, blunt; peduncles axillary, supporting four or five yellow flowers. It flowers in July. A native of Spain and Portugal. Cultivated by Miller in 1759. 19. *A. Laxmanni*, Jacq. Hort. 3. 22. t. 37. "Caulescent, procumbent; spikes elongated; legumes oblong, three-cornered, marked with a furrow, mucronate, villose." Stems branching, subangular, prostrate, a foot long, produced as are the branches into long rising peduncles, streaked and ending in a close spike; leaflets about twelve pairs, oblong, sessile, entire; bractes setaceous; flowers pale blue. It is a native of Siberia, and flowers in June and July. 20. *A. Stella*. "Caulescent, diffuse; heads peduncled, lateral; legumes straight, subulate, mucronate." Stems spreading, a foot long, striated, hispid with white crowded hairs; branches numerous; leaflets on each side of the midrib nine, ovate, obtuse; stipules ovate, acute; peduncles about the length of the leaves, supporting about fifteen bluish flowers; legumes hairy, grooved on each side, with a reflex point. A native of Montpellier. 21. *A. sesameus*, flarry milk vetch. "Caulescent, diffuse; heads sub-sessile, lateral; legumes subulate, reflected at the point." Annual; stems weak; leaflets ten pairs, hairy; flowers small, axillary, of a copper colour. A native of the south of France. Cultivated by Parkinson, in 1616. 22. *A. austriacus*, Austrian milk vetch, Jacq. Aust. 2. 56. t. 195. "Caulescent, prostrate; smooth, striated, weak; leaflets sub-linear, emarginate; legumes round." From seven inches to a foot high; stipules semiovate, entire; leaflets sublinear, emarginate, about eight pairs; peduncles racemed, with bluish flowers. It flowers in May and June. 23. *A. leontinus*, Jac. Ic. rar. 37. "Caulescent, prostrate; legumes ovate, villose; flowers spiked, erect." Stipules short, ovate-lanceolate, half stem-clasping; leaflets ten pairs, oblong-oval, entire, pubescent; branches with a spike of whitish or pale blue flowers; legumes at the top. 24. *A. pentaglottis*. "Caulescent, procumbent; legumes headed, folded back, compressed, converging, erected, with a reflected point." A. procumbens, Mill. Dict. n. 18. *A. echinatus*, Murr. Prod. 222. *A. cristatus*, Gouan Illust. 50. Leaflets fifteen, oblong, emarginate, pubescent underneath; petioles hairy; stipules ovate, lanceolate; peduncles axillary, decumbent, hairy, terminating in a head of five purplish flowers; legumes bent in, warted, hooked at the top. Linnaeus, Miller, and Murray, have described this species differently. A native of Spain. 25. *A. epigletis*, heart-podded milk vetch. "Caulescent, procumbent; legumes headed, sessile, nodding, cordate, mucronate, folded back, naked." Annual; it sends out from the root three hairy trailing branches;

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branches; leaflets blunt, about twelve pairs; peduncles axillary, naked, terminated by a round head of large deep purple-coloured flowers; legumes rough, and when opened shaped like a heart, ending in a sharp point, and containing three or four seeds. The stem according to Chevalier Murray does not divide, and has hairs closely pressed to it; leaflets six pairs, and not more; corollas purple; Linnæus says white. A native of Provence, Spain, &c. in mountainous woods, flowering in July. Cultivated in 1768, by Miller. 26. *A. hypoglottis*, purple mountain milk vetch. With. 643. Smith Brit. 779. Eng. Bot. 274. *A. arenarius*, Hudf. *A. epiglottis*, Dickf. H. Sicc. fasc. 1. "Cauliscent, prostrate, flowers in heads, legumes ovate, channelled on the back, hairy, hooked at the end." Stems flexuose, prostrate, three or four inches high; leaflets of the pinnae numerous, small, ovate, hairy underneath; peduncles scarcely longer than the leaves, headed; bractes very much shorter than the calyxes; flowers variegated with white purple; calyx tubercular, rough, hairy, black with a little white intermixed; legumes ovate, turgid, hairy. It flowers in June and July. Found in several parts of England, in sandy and chalky pastures. The flowers are sometimes white. 27. *A. syriacus*, Syrian milk vetch. "Cauliscent, procumbent; heads peduncled, flowers reflected, legumes tomentose, ovate-oblong. A native of Siberia. 28. *A. arenarius*. "Subcaulescent, procumbent, flowers subracemed, erect, leaves tomentose." Stem inclining, six inches high, branched, covered with a nap; leaflets of the pinnae linear-lanceolate, entire, complicate; stipules bifid, scariose, tomentose; peduncles supporting about four blue flowers, legumes fickle-shaped, tomentose, acuminate, channelled. A native of Scania, in loose sand. 29. *A. Glaux*, small milk vetch. "Cauliscent, diffuse; heads peduncled, imbricate, ovate, flowers erect, legumes ovate, callous, inflated." Stems seven inches long, villose towards the top; leaflets twenty or twenty-three, small, ovate-oblong, scattered underneath with white hairs. A native of Spain. Cultivated at the Oxford garden in 1658. 30. *A. fnicus*. Phil. Trans. a. 1764. "Cauliscent, prostrate, umbels peduncled, legumes prismatic, subulate at top." Root annual, stems spreading on the ground; leaflets suborbiculate; flowers purplish, wings white, keel purple. A native of China. 31. *A. alpinus*, Alpine milk vetch, Flor. Dan. t. 51. "Cauliscent, procumbent; flowers pendulous, racemed, legumes acute at both ends, hairy." Stems above a foot high; leaflets hirsutish, ovate, often ten pairs; stipules two, ovate, lanceolate, very short, white; flowers in umbels of twelve or fifteen specious white flowers; calyx rough, with black hairs; legume rough, black, inflated, crooked. A native of the mountains of Switzerland and Lapland. Introduced here about the year 1771. 32. *A. Amodytes*. Pallas It. 2. t. 10. "Cauliscent, undershrubby, flowers twins, legumes ovate, twin woolly." Annual. Stems branching, woolly; leaflets from five to eleven, rather oblong, hoary. It grows on the sandy hills of Southern Siberia. 33. *A. trimetris*, Egyptian milk vetch. "Subcaulescent, scapes mostly two-flowered, legumes hooked, subulate, two-keeled." Annual. Stem six or seven inches high, hirsute, reddish. Sometimes a scape appears before the stems; leaflets about eleven pairs, oblong, emarginate; hirsute, entire; stipules fetaccous, hairy; peduncles racemed with three or four spreading, pale-yellow flowers. A native of Egypt, flowering in July. Introduced here before 1777.

*** Scape naked, without a leafy stem.

34. *A. verticillaris*. "Leaflets aggregate, semiverticilled." Leaves pinnate, four or five at each insertion, so as to appear whorled stems. A native of Siberia. 35. *A. monianus*. Jacq. Aust. 2. 164. "Nearly stemless, scapes longer than the

leaf, flowers loosely spiked, erect, legumes ovate, with an inflexed point." The whole plant slightly villose; stipules oblong, imbricate, covering the stem; leaflets lanceolate, pointed, rounded at the base, the lower ones shorter and bent down; flowers blue, from eight to ten, according to Haller, but Linnæus says they are red and erect. A native of the warmer parts of Europe. 36. *A. vesicarius*. "Scapes longer than the leaves, flowers loosely spiked, calyxes and legumes inflated, hirsute." Cauliscent, half a foot high; leaflets six pairs, oval, hoary, entire; peduncles firm, furrowed, higher than the whole plant besides, with a head of from five to eight flowers, having the banner purple, wings yellow, keel white. A native of Dauphiné and Siberia. 37. *A. phytodes*. "Scapes equal to the leaves, legumes subglobular, inflated, naked." Flowers in a spike, yellow, succeeded by swollen pods, containing several greenish seeds; bractes villose. A native of Siberia, flowering in June. 38. *A. capri-nus*. "Scape erect, leaflets ciliate, legumes ovate, tumid, villose." Leaflets from fifteen to twenty pairs, hairy on the edge; peduncles a foot long, spiked, with many pale-yellow flowers; legumes thick, three-sided, mucronate. A native of Barbary and Russia. 39. *A. uralensis*, silky milk vetch. Hudf. Lightf. With. Smith. Brit. Eng. Bot. 466. "Stemless, scape erect, longer than the leaves, legumes oblong, inflated, villose, erect." Radical leaves with many pairs of leaflets, firm, naked; stipules scariose; scapes erect, headed, and finally spiked; bractes the length of the calyx, linear-lanceolate; calyx tubular, rough, with black and white hairs; corolla a violet colour; legumes erect, cylindric, oblong, turgid, beset with black hairs pressed down. It grows on the mountains of Scotland. 40. *A. montepellulanus*, Montpellier milk vetch. "Scapes declining, the length of the leaves, legumes subulate, round, rather bowed, smooth." Scapes procumbent, twice as long as the leaves, leaflets ovate, acute, pubescent, from ten to twenty pairs; scape simple, bearing a raceme of nearly thirty purple flowers; legumes long, slender. A native of the south of France. Introduced in 1776, by Pitcairn. 41. *A. incanus*. "Scapes declining, leaflets tomentose, legumes subulate, rather bowed, hoary, incurved at top." Scapes rough, supporting often twenty flowers; legumes a little bent, turgid. It differs from the 40th in having the leaves rounder and hoary, the legumes almost straight and more turgid. A native of the south of France. 42. *A. campestris*, field milk vetch. "Calyxes and legumes villose, leaflets lanceolate, acute, scape decumbent." Stem none, but procumbent runners half an inch long; leaflets about fifteen pairs, hairy, shining; scape radical, bearing ten or twelve flowers in a loose raceme; bractes lanceolate, shorter than the calyx; corollas a pale-yellow. A native of Switzerland and Germany. Introduced in 1778. 43. *A. depressus*, dwarf white-flowered milk vetch. "Scapes shorter than the leaf, legumes nodding, leaflets subemarginate, naked." Branches very short, pressed close to the ground; scapes with nearly seven flowers, small and white; legumes cylindric, acuminate, the length of the scape, smooth; leaflets numerous, oval, with hoary hairs underneath. Cultivated in 1772, in the Oxford botanic garden. 44. *A. uncatatus*. "Scapeless, legumes subulate, hooked, longer than the leaf, leaflets obcordate." Annual. Stems trailing; leaflets broader at their end, than at their base, and indented so as to be nearly heart-shaped; flowers white, in axillary loose spikes; legumes fickle-shaped. Discovered about Aleppo, by Dr. Ruffel. 45. *A. escapus*, hairy podded milk vetch, Woodv. Med Bot. supp. "Scapeless, legumes woolly, leaves villose." Leaflets twenty-one to thirty-three, ovate, sessile, hairy; flowers numerous, radical, subsessile, yellow; calyx ovate, swelling, white with down, legumes oval, beset with fine hairs, pointed

pointed at both ends. A native of Hungary. Since the year 1786, this plant has been much celebrated as a remedy in syphilitic complaints. Its success in curing old venereal affections was experienced by Quarin, in the general hospital at Vienna, and the efficacy of this plant was afterwards acknowledged over all Germany. Its root is employed in decoction, in the proportion of half an ounce, to a pint of water, and taken warm night and morning.

**** *Stems woody.*

46. *A. tragoides*, Cmel. Sib. 4. 52. n. 67. "Nearly stemless; flowers radical, numerous, subsessile." It has no stem or scape, but has branches from the root, spreading on the ground, with small villose-pinnate leaves; calyxes hirsute, with black teeth; corollas yellow; legumes roundish, smooth. A native of Switzerland, Siberia, and Armenia. 47. *A. Tragacantha*, goat's thorn. Woodv. Med. Bot. 2. t. 98. "Trunk arborescent; petioles becoming spinescent." Stems a foot long, leafy, branching; leaflets about ten pairs, small, ovate; bractes ovate, lanceolate; flowers erect, four or five in a cluster, having a purple keel, and a yellowish white banner and wings. A native of the sea-shore near Marseilles, of Switzerland, mount *Ætna*, Olympus, &c. Cultivated here in 1640. Miller makes four sorts of *tragacantha*. From this species is gathered the gum *tragacantha* used for various purposes, as well as an article in the materia medica. It forces its way through the crevices of the bark to which it adheres and concretes. This gum differs from all others, in giving a thick consilience to a much greater quantity of water, which it slowly imbibes, and but imperfectly dissolves. It is used as a demulcent, and peculiarly well adapted for the formation of troches.

Other species.

48. *A. fatidus*, Villar's Dauph. 3. t. 43. f. 1. "Stemless; leaves prostrate, viscid, sharply linear; scape erect, with few flowers." Leaflets greenish, yellow, subhirsute, viscid, about twenty pairs, much less than those of the *campestris*, which it much resembles; but in this the legumes are more inflated, and put forth a greater number of heads of yellow flowers. A native of Dauphiné, also of mount Cenis, and other high Alps. 49. *A. Halleri*. "Scapes leafless; leaves ovate-lanceolate, smooth; legumes inflated, hirsute, erect." This also approaches to the *campestris*, but differs in the bractes, in the smoothness of the leaves, in having a longer flower, white, and not a violet-coloured keel. A native of the mountains of the Valais and Piedmont. 50. *A. vulnerarioides*, Allion. Ped. t. 19. f. 2. "Stemless, hirsute; scapes longer than the leaves; legumes inflated, ovate, in heads." This has the habit of *anthyllis vulneraria*. The corolla is but little extended beyond the calyx; the keel and wings of a dusky-colour; the banner of a pale yellow, emarginate; legumes short, rather hispid, crooked at the style. A native of mount Cenis. 51. *A. tenuifolius*, upright milk vetch. "Caulescent, erect; spikes peduncled; banner twice as long as the wings; leaflets linear." Leaflets from eleven to thirteen; peduncles long, straight, obtusely triangular. It resembles *A. onobrychis* so as to be thought a variety, but differs in having rather tomentose leaflets, larger flowers, and foliary stipules. A native of Siberia. Introduced here by Pallas, in 1780. 52. *A. virefcens*, green-flowered milk vetch. "Caulescent, erect; legumes bent back; peduncles many-flowered, longer than the leaf; leaflets lanceolate, acute." A native of Siberia, and introduced by P. S. Pallas, in 1780. 53. *A. Garbancillo*, Cavan. Hisp. n. 93. t. 84. "Stem shrubby, upright; pinnules ovate-oblong, somewhat tomentose; peduncles naked, elongated." Stem a foot and a half high, covered with a very short white nap; leaflets numerous, ovate-oblong, one-nerved, subtomentose; stipules stem-clasp-

ing, cowed, bifid at the tip; peduncles naked, elongated; axillary, ending in spikes of pale violet-coloured flowers. A native of Peru. It flowered in the royal garden, Madrid. 54. *A. hispidus*, Billardiere, Ic. Syr. 1. 18. "Caulescent, procumbent; leaflets and legumes ovate, hispid; corollas shorter than the calyx." Stem herbaceous, procumbent, hairy, six inches high; leaflets ovate-oblong, hispid, with oppressed rigid hairs, tubercled at the base; flowers in spikes, yellow, with lanceolate hispid bractes; legume ovate-oblong, compressed, a little hispid; seeds kidney-shaped. 55. *A. emarginatus*, Billard. l. c. "Almost stemless; scapes very long; heads globose; legumes woolly." Leaflets forty-three or fifty-one, ovate-oblong, emarginate, tomentose; stipules ovate, lanceolate, shrivelling; flowers in a globose head, purplish, with lanceolate hairy bractes; legume subovate, acute, depressed at top, wrapped in subrufous wool. 56. *A. lanatus*, Billard. l. c. "Stemless, with a naked scape, the length of the leaves; legumes in close spikes, woolly, half-cordate, three-sided, subulate; leaves villose." Leaves radical; leaflets generally from eleven to twenty-three, ovate, tomentose, sessile; flowers yellow, on a close spike, with filiform hairy bractes. This and the two preceding species are natives of mount Libanus. 57. *A. leucophaeus*, Lin. Trans. 1. 252. "Caulescent, procumbent; legumes subcylindric, straight, smooth; leaflets obcordate, villose underneath." Allied to *A. hamosus*; but differs in having rounder leaves, more flowers on the spike, and especially in having straight pods, which are very short. Native country unknown. Cultivated in the Chelsea garden. 58. *A. deflexus*, L'Herit. Stirp. nov. 6. 167. "Subcaulescent, prostrate; scapes twice as long as the leaf; legumes gaping; leaves pectinate, right angled." A. hians. Jacq. Ic. t. 153. Branches short, round; twigs villose; leaves six inches long; leaflets fifteen to twenty pairs, gradually smaller at the top, lanceolate, entire, acute, concave, villose, hirsute beneath; scapes radical, solitary, naked, terminated in spikes crowded with purple flowers; bractes linear, acute, under each flower; legumes oblong, turgid, having a groove on each side, villose, one-celled, one-valved. A native of the loftiest mountains of Siberia. 59. *A. unifolius*, L'Herit. Stirp. nov. 6. 168. "Suffruticose, procumbent; stipules foliary, stem-clasping, opposite to the leaves, bifid." A native of Peru, where it was found by Dombey. 60. *A. varius*, L'Herit. l. c. 6. 169. "Caulescent, suffruticose, upright; flowers in loose spikes; legume linear; stipules fuliginose downwards." A hoary little shrub, about a cubit in height; leaflets six or seven pairs, linear or narrow-lanceolate, sharp at both ends; stipules half stem-clasping, two-parted, acute, spreading, and rolled back; spikes axillary, solitary, on peduncles longer than the leaves; flowers subsessile, purple, with linear acute villose bractes; legume linear, round, villose. A native of Siberia. 61. *A. aristatus*, L'Herit. l. c. 6. 170. "Suffruticose, prostrate; leaves hairy; petioles spinescent; calyxes awned." It differs from the *tragacantha* in having green leaves, and being smaller; the petioles scarcely spinescent, and not very firm; the flowers purple; the calycine teeth having long awns. A native of Switzerland and Provence. 62. *A. pugniformis*, L'Herit. l. c. 6. 170. *Trag. orientalis*, &c. Tournef. Cor. 30. Poccock. It. 3. 188. t. 88. "Shrubby, procumbent; heads stem-clasping, tomentose; petioles and leaves pungent and smooth." This is remarkable for the heads or balls of flowers, which are purple. A native of the Levant. 63. *A. echinoides*, L'Herit. l. c. T. cretica, &c. Tourn. Cor. 29. The leaves are minute; the flowers small, white, with a purple line on the banner; peduncles axillary, short, two-flowered. A native of Crete or Candia.

Propagation and Culture. All the species may be raised

from seeds. These should be sown in April on an open border of light earth; the annual sorts where they are to remain; the perennials to be transplanted to the places for which they are destined. They are in general hardy, and require no other care than to draw the plants where they come up too thick, leaving them a foot and a half or two feet asunder, and to keep them clear from weeds. Observe only that some (as n. 26. 35. 37.) require a shady situation and strong soil; others (as n. 6. 39.) an open situation and dry soil; n. 2. & 33. must be planted in a warm border: 3. 7. 10. 12. 30. must be raised on a moderate hot-bed, in the spring: and when the plants are fit to be removed, they should be each put into a small pot, filled with light earth, and plunged again into the hot-bed, shading them from the sun, until they have taken root, after which they should have free air admitted to them daily, in proportion to the warmth of the season, and should be frequently, but gently, watered. In May, they should be removed to a sheltered situation, and remain till October, when they ought to be placed under a common frame. In the spring they may be turned out of the pots, and planted in a warm border, where they will flower, and sometimes produce seeds. If the winter prove severe, a little old tan should be laid over the roots. The tragacanth plants, when they are large enough, should be planted into pots, and placed in the shade till they have taken root; after which they are to be removed into an open situation, where they may remain to the end of October, and then placed under a common frame, well secured from the frost. Some of these plants may be set on a warm dry border. These plants may also be increased by slips, which, for want of seeds, is the method commonly used here. The best time for doing this is in April, just as the plants begin to shoot, at which time the tender branches should be slipped off, and the lower part be divested of decayed leaves; then they should be planted in a temperate hot-bed, which must be covered with mats to screen them from the heat of the sun by day, and the cold by night. These slips should be frequently gently watered, until they have taken root; after which they may be exposed to the open air; and, in very dry weather, refreshed with water. On this bed they may remain until the following spring, covering them with mats in very severe weather. In April they may be transplanted either into pots, filled with light sandy earth; or into warm borders, where, if the soil be dry, gravelly, or poor, they will endure almost the severest cold of our climate: but if they are planted in a rich soil, they often decay in winter. See Martyn's Miller's Dict.

ASTRAGALUS. See ANTHYLLIS, BISERRULA, CROTALARIA, GLYCINE, HEDYSARUM, INDIGOFERA, OROBUS, PHACA.

ASTRAL, from *astrum*, of the Greek *αστρον*, *star*, something belonging to the stars, or depending on the stars.

ASTRAL, or fiderial year. See YEAR.

ASTRANTIA, in *Botany*, (from *αστρον*, *astrum*, and *ανθος*, *obvium*, Lin.), master-wort. Lin. gen. 327. Schreb. 459. Gærtn. 20. Clafs, *pentandria digynia*. Nat. Order of *umbellate*. Gen. Char. *Cal.* umbel universal, with very few rays (often three): partial, with very numerous ones; involucre universal, with leaflets doubled to the ray; partial, with leaflets about twenty, lanceolate, spreading, equal, coloured, longer than the umbellule; perianth proper, five-toothed, acute, erect, permanent. *Cor.* universal, uniform; floscules of the ray abortive; proper, with petals five, erect, inflex, bifid. *Stam.* filaments five, simple, the length of the corollule; anthers simple. *Pist.* germ oblong, inferior; styles two, erect, filiform; stigmas simple, spreading. *Per.* fruit ovate, obtuse, crowned, striated, bipartite. *Seeds* two,

ovate-oblong, covered with the crust of the pericarp, wrinkled.

Eff. Gen. Char. Partial involucre lanceolate, spreading, equal, longer, coloured; flowers very many, abortive.

Species, 1. *A. major*, great master-wort, (β) *A. nigra* minor. "Leaves five-lobed; lobes trifid." Stem eighteen inches high, little branched; leaves shining, petioled, deeply five-cleft, lobes trifid, and sharply ferrate; leaves of the involucre veined; all the flowers are peduncled, and the peduncles are shorter than the involucre; the umbels are large, and the calyxes awned; the involucre is either purple or white; hence Miller, following Tournefort, has made of this two species. A native of the south of Europe, flowering in August. Cultivated here by Gerard. 2. *A. carniolica*. Jacq. Aust. 5. 31. "Leaves five or seven-lobed, simple or bifid." The whole plant is smooth. Stem round, erect, slender, from six to twelve inches high, with only one leaf on it; it is divided at top into striated branches, in the form of an umbel; number of the umbels very variable; bractes small, ovate, concave, blunt, pale; leaflets of the universal involucre sessile, acute, entire, or divided into two or three lobes; leaflets of the partial from six to twelve, oblong, lanceolate, entire; male and female florets irregularly mixed; the former on longer peduncles; petals white, appearing heart-shaped, by being bent in at the tip. A native of Carniola, flowering in July and August. 3. *A. minor*, little or Alpine master-wort. "Leaves digitate, ferrate." It seldom attains a foot in height. Petioles four inches long; leaves divided into eight segments, deeply ferrate; universal involucre composed of several very narrow leaflets; peduncles of the partial umbels very large, slender towards the top, often dividing into three, each having a small umbel, with small white involucre. A native of the Alpine vallies of Swisserland. Cultivated by Miller. 4. *A. ciliaris*. "Leaves lanceolate, ferrate-ciliate." A foot high, rushy, erect, streaked, divided at top into a few flowering branches; radicle leaves petioled; stem-leaves four to six, sessile; half stem clasping; umbel elongated, three-rayed; umbellules many-rayed, very short; involucre two or three-leaved resembling the leaves; involucels ten, leaves broad-lanceolate, acute, coloured. A native of the cape of Good Hope. 5. *A. Epipactis*. Jacq. Aust. 5. 32. App. t. 11. "Leaves five-parted, obtuse ferrate." Root black on the outside, producing one leaf and one scape; leaf shorter than the scape, three-parted, on a triangular petiole; scape smooth, angular, naked, one-flowered; involucre five-leaved; flowers in a head, yellow. A native of Idria, Gorizia, and Hungary.

Propagation and Culture. These plants, except the fourth, are very hardy, and may be propagated either by sowing their seeds, or by parting their roots. If from seeds they should be sown in autumn, on a shady border, and at Michaelmas they should be transplanted where they are to remain, observing to give them a moist and shady situation. Every third or fourth year they ought to be taken up at the end of October, and their roots parted and planted again. The fourth requires the protection of a dry stove in winter.

ASTRARI, in *Middle Age Writers*, the same with *mansionarii*, those who live in the house or family, at the time, for instance, when a person dies. Du-Cange.

These are also denominated *astro additi*, q. d. tied to the hearth.

ASTRARIUS *Heres*, is used in our *Old Writers*, where the ancestor, by conveyance, hath set his heir apparent, and his family, in a house in his life-time.

Spelman carries the import of the word farther, as if it denoted

denoted an heir to whom the inheritance was given by his predecessor in his own life, by a writing in form.

The word is formed from *astre*, an ancient French term for the hearth of a chimney.

ASTRASSUS, in *Ancient Geography*, a town of India, on this side of the Ganges. Ptolemy.

ASTRATA, an island of the Arabian gulf, on the coast of Ethiopia. Ptolemy.

ASTREA, in *Entomology*, a species of *PHALÆNA* (*Nictua*), of a brown colour both above and beneath; disk transparent; and thorax snowy-white, dotted with black. This insect inhabits New Holland. Fabricius, &c.

ASTRICTION, from *astringo*, *I bind*, in *Medicine*, a term which, when it refers to the intestinal canal, denotes costiveness; when it refers to the skin, denotes a want of perspiration. It is seldom used by modern physicians.

ASTRICTOR *Toga*. See *Toga*.

ASTRILD, in *Ornithology*, a species of *LOXIA* that inhabits the Canary islands and various other parts of America and Africa. It is larger than the common wren, of a brown colour, undulated with blackish; bill, orbits of the eye, and breast scarlet. Gmel. &c. This is *fringilla undulata*, Pall. *Senegallus striatus*, Briss. *Le Senegali rayé*, Buff. *Wax-bill* of Edwards, and *wax-bill grosbeak* of Latham.

Individuals of this species vary much in colour, and there are in particular two varieties that deserve attention; namely, the red-rumped grosbeak, and white-rumped grosbeak, (β) *Senegallus pectoris exalbido, uropygii fasciæ rubra*; and (γ) *Senegallus corpore subtus ex roseo albo* of Gmelin. Both of these are about the size of the former; the red-rumped kind has the breast and belly of a dirty white, and, besides the upper tail coverts being crimson, has a bar of the same colour across the vent. In some specimens, the under parts incline to yellow; the sides of the rump, and wing coverts spotted with white; and the bill bordered with black; one of this kind was brought by Sonnerat from the isle of France. Buffon calls the red-rumped variety *le severan*, and *moineau du Senegal*. The white-rumped kind also inhabits Senegal; the throat and sides of the neck are bluish white; the rest of the underparts and rump white, tinged with rose colour; top of the head, neck, and back blue, palest on the head; and legs red. The colour of the legs distinctly marks this variety from the former, for in the first-mentioned kind they are brown, and in the second dark grey.

ASTRINGENS, *crocus martis*. See *Crocus*.

ASTRINGENTS, in the *Materia Medica*. This term is applied to a class of substances which, according to Dr. Cullen's accurate definition, when applied to the human body, "produce a contraction and condensation in the soft solids, and thereby increase their density and force of cohesion. If applied to longitudinal fibres, the contraction is made in the length of these; but if applied to circular fibres, they diminish the diameters of the vessels or cavities which the vessels surround."

Astringency in any substance is most accurately detected by the taste, by corrugating the tongue, and giving a sensation of harshness and roughness to the palate.

Astringents appear to act nearly in a similar manner on the simple or dead animal fibre as on the living solid, in either case thickening and hardening; when applied to the living solid, they produce increase of tone and strength, restrain inordinate actions, and check excessive discharges from any of the vessels or cavities; and to the dead fibre occasion that density, toughness, imperviousness to water in a greater or less degree, and insusceptibility to the common causes of putrefaction, in which consists the process of *TANNING*, or preparation of leather.

No single chemical test (except the direct experiment on animal fibre) will always detect the property of astringency, as this is found to reside in many different classes of substances. Acids, especially the stronger mineral, are powerfully astringent; as also are several metallic salts, such as the solutions of iron, zinc, copper, and lead in various acids; likewise a few earthy salts, such as alum and selenite, or sulphate of lime; also alcohol, or any kind of ardent spirit, the operation of which in hardening animal fibre is very remarkable. But the most numerous class of astringents are those taken from the vegetable kingdom, especially from the barks of several trees, and some of the natural gum resins. Modern chemistry has ascertained some highly important facts concerning the nature of the vegetable astringents, which should be noticed here in order to correct some erroneous opinions that are very prevalent in all medical writers. The property of striking an inky blackness with solutions of iron, has been constantly given as one of the surest tests of astringency in vegetables. Of this, the familiar instance of making common writing ink with an infusion of the oak gall-nut, is known to every one; but it should be remembered, that this property is owing to a peculiar acid, the *GALLIC*, and not to the true astringent principle, in modern chemical language called *TANNIN*, to which the acid of galls here happens to be united. Of this we shall treat fully, under these important articles; but the pharmaceutical chemist should now be aware, that the test of blackness with iron is by no means a sure indication of astringency, but only a probable presumption of its presence. Thus one of the strongest of the known astringents, the *terra japonica*, or catechu, will not give the smallest degree of blackness to solutions of iron, as it contains only tannin, the true astringent principle; and not the Gallic acid. The proper test for this substance, besides the effect on the tongue, is a solution of any kind of animal jelly; of which more hereafter.

When the true astringent principle is naturally mixed with any acid, the taste of *acerbness* is given, in which the corrugation of the papillæ of the tongue is most peculiarly remarkable. The juices of several unripe fruits, the gall-nut, and many of those astringents that contain much gallic acid, and give a strong black with iron, are examples of this.

Tannin is itself somewhat bitter, and appears to be also united, in many cases, with some principle which gives it more than its usual bitterness. This is probably the case with most of the astringent bitters employed in medicine, and it is in this combination, that astringents prove so eminently tonic. In some instances the tannin is united with a sweet substance, as in the examples of the catechu, and the *lignum campechense*.

Astringents when employed externally to stop hæmorrhage, are then termed *STYPTICS*.

Astringents are very largely used in medicine, and with the highest advantage. The cases where they are most unequivocally beneficial, and in which the operation may be ascribed purely to the astringent property, are diarrhæas, or ferous evacuations from the intestinal canal. They have also long been thought of use in restraining discharges of different kinds, even when not directly applied to the part, so that astringent medicines are frequently given by the stomach, in order to check profuse fluor albus, gleet, and sometimes hæmoptysis. Their operation in such cases, however, is much more questionable, and the benefit here produced, perhaps, may with more propriety be ascribed to a tonic or stimulant property.

ASTROBII, in *Ancient Geography*, a people of Asia, near the Indus. Arrian.

ASTROBOLISM,

ASTROBOLISM, derived from *αστρο*, *star*, and *βαλλω*, *I strike*, the same with *sphacelus*; though properly applied to plants which are destroyed in the dog-days, as if blasted by that star.

ASTRODICTICUM, an astronomical instrument invented by M. Weighelius, by means of which many persons shall be able at the same time to behold the same star.

ASTROGNOSIA, from *αστρο*, *star*, and *γινωσκω*, *I know*; the art of knowing the fixed stars, their names, ranks, situations in the constellations, and the like.

ASTROITES, in *Natural History*, a species of **MADREPORA**, found in the seas of South America. The stars are numerous, immersed, and have the disk concavo-cylindrical. This is madrepora (radians) aggregata solida, stellis confertis convexusculis, centri poro radiante, stris scabriusculis of Pallas; and aestrea aperturis cavernarum minimis massa inæquali of Brown's Nat. Hist. Jam. It is found in large masses; and is of a whitish colour. The interstices are porous.

ASTROLABE, derived from *αστρο*, *star*, and *λαμβανω*, *I take*, alluding to its use in observing the stars; and by the Arabs called *Astbar-lab*, formed by corruption from the common Greek name; was originally used for a system or assemblage of the several circles of the sphere, in their proper order and situation with respect to each other: and the ancient astrolabes appear to have been much the same with our armillary spheres.

The first and most celebrated of this kind was that of Hipparchus, which he made at Alexandria, the capital of Egypt, and lodged in a secure place, where it served for divers astronomical operations. Ptolemy made the same use of it; but as the instrument had several inconveniences, he contrived to change its figure, though perfectly natural, and agreeable to the doctrine of the sphere; and to reduce the whole astrolabe upon a plain surface, to which he gave the denomination of the planisphere.—Hence

ASTROLABE is used among the moderns for a planisphere; or a stereographic projection of the circles of the sphere upon the plane of some great circle thereof.

The usual planes of projection are that of the equinoctial, the eye being supposed in the pole of the world; that of the meridian, the eye being supposed in the point of intersection of the equinoctial and horizon; and that of the horizon.

Stoffler, Gemma Frisius, and Clavius, have treated at large of the astrolabe.—For a farther account of the nature and kinds thereof, see **PLANISPHERE**.

ASTROLABE, or *Sea Astrolabe*, more particularly denotes an instrument chiefly used for taking the altitude of the pole, the sun, or stars, at sea.

The common astrolabe, represented *Plate NAVIGATION*, fig. 1, consists of a large brass ring about fifteen inches in diameter, whose limb, or a convenient part thereof, is divided into degrees and minutes; fitted with a moveable index or label, which turns upon the centre, and carries two sights.—At the zenith is a ring, A, to hang it by, in time of observation.

To use the astrolabe, turn it so to the sun as that the rays may pass freely through both the sights F and G, in which case the edge of the label cuts the altitude in the divided limb.

The astrolabe, though now disused, is esteemed by many equal to any of the other instruments used for taking the altitude at sea; especially between the tropics, when the sun comes near the zenith.—There are a great many other uses of the astrolabe; on which Clavius, Henrion, &c. have written entire volumes.

ASTROLOGICAL Fate. See **FATE**.

ASTROLOGUE, in *Ichthyology*, the French name of the species of **URANOSCOPUS** called *japonicus* by Gmelin, from its inhabiting the seas about Japan.

ASTROLOGY, the art of foretelling future events, from the aspects, positions, and influences of the heavenly bodies.

The word is compounded of *αστρο*, *star*, and *λογος*, *discourse*; whence, in the literal sense of the term, astrology should signify no more than the doctrine or science of the stars; which, indeed, was its original acceptation, and formed the ancient astrology; though, in course of time, an alteration has arisen; that which the ancients called astrology, being afterwards termed **ASTRONOMY**.

Astrology may be divided into two branches, *natural* and *judiciary*.

To the former belongs the predicting of natural effects; as, the changes of weather, winds, storms, hurricanes, thunder, floods, earthquakes, &c. This art properly belongs to **PHYSIOLOGY**, or *natural philosophy*; and is only to be deduced *à posteriori*, from phenomena and observations. Its foundation and merits the reader may gather from what we have said under **AIR**, **ATMOSPHERE**, and **WEATHER**. For this astrology, Mr. Boyle makes an apology, in his *History of the Air*.

ASTROLOGY, Judiciary or Judicial, which is what we commonly call simple astrology, is that which pretends to foretell moral events; i. e. such as have a dependence on the free will and agency of man; as if they were directed by the stars. This art, which owed its origin to the practice of knavery on credulity, and which the celebrated Mr. Briggs denominated a mere system of groundless conceits (Ward's Lives, p. 126.), is now universally exploded by the intelligent part of mankind. There was a time, however, when this science, frivolous and ridiculous as it may be justly denominated, furnished very powerful incentives to the study of astronomy. Without some knowledge of the motions and aspects of the stars, the astrologers would have been unable to draw their horoscopes, and of course to read the fates of men in the face of the heavens. Accordingly, Kepler observes (Præf. ad Rudolph. Tab. p. 4.), "that astrology is the foolish daughter of a wise mother, and that, for 100 years past, this wise mother could not have lived without the help of her foolish daughter." "I repent bitterly," says Kepler, "having so much decried astrology;" and he conceived that the study of astronomy had been greatly neglected, ever since men ceased to apply themselves to astrology. Of the origin of this absurd and unfounded science, whatever might be the relative estimation in which it was held, it is not difficult to give a plausible account. When heroes, and persons who by extraordinary services had rendered their names venerable and immortal, received divine honours, some particular celestial bodies, of which the sun, moon, and other planets seemed to be the most suitable, were assigned to these divinities; and after this appropriation, folly, which never stops where it begins, proceeded still farther, and ascribed to them the attributes and powers for which the deities, after whom they were named, had been celebrated in the fictions of the mythologists. This, in process of time, laid the foundation of astrology; and hence the planet Mars, for instance, like the deity of that name, was said to cause and to be fond of war, and Venus to preside over love and its pleasures.

The professors of this kind of astrology maintain, "That the heavens are one great volume or book, wherein God has written the history of the world; and in which every man may read his own fortune, and the transactions of his time.—The art, they say, had its rise from the same hands as astronomy

astronomy itself; while the ancient Assyrians, whose serene unclouded sky favoured their celestial observations, were intent on tracing the paths and periods of the heavenly bodies, they discovered a constant settled relation of analogy between them and things below; and hence were led to conclude these to be the *Parca*, the Destinies, so much talked of, which preside at our births, and dispose of our future fate.

"The laws therefore of this relation being ascertained, by a series of observations, and the share each planet has therein; by knowing the precise time of any person's nativity, they were enabled, from their knowledge in astronomy, to erect a scheme or horoscope of the situation of the planets, at that point of time; and hence by considering their degrees of power and influence, and how each was either strengthened or tempered by some other, to compute what must be the result thereof."

Judicial astrology is commonly said to have been invented in Chaldaea, and thence transmitted to the Egyptians, Greeks, and Romans; though some will have it of Egyptian origin, and ascribe the invention to Cham. But it is to the Arabs that we owe it. Of the first invention of a fanciful science which very generally prevailed, it is not very easy to ascertain the original inventors. The principles on which it was founded, were very extensive in their dissemination. The Chaldeans and the Egyptians, and indeed almost all the nations of antiquity, were infatuated with the chimeras of astrology. That of the Chaldeans originated in the notion, that the stars have an influence, either beneficial or malignant, upon the affairs of men, which may be discovered, and made the ground of certain prediction, in particular cases: and the whole art consisted in applying astronomical observations to this fanciful purpose, and by such means imposing upon the credulity of the vulgar. The Egyptian priests would not neglect the cultivation of an art, which together with that of magic, would give them such an irresistible sway over an ignorant and superstitious populace. Diodorus Siculus (l. i. p. 51.) relates, that the Chaldeans learned these arts from the Egyptians; and he would not have made this assertion, if there had not been at least a general tradition that they were practised from the earliest times in Egypt. Among the Arabians, and in the eastern courts, the truths of science could be recommended only by ignorance and folly, and the astronomer would have been disregarded, had he not debased his honesty by the vain predictions of astrology. The truth of this art was allowed by Albumazar (see ALBUMAZAR), and the best of the Arabian astronomers, who draw their most certain predictions, not from Venus and Mercury, but from Jupiter and the sun. Abulpharag. Dynast. p. 161—163.

At Rome, the people were so infatuated with this art, that the astrologers, or, as they were then called, the mathematicians, maintained their ground in spite of all the edicts of the emperors to expel them from the city. Tiberius (A. D. 4.) founded his hopes of the empire to which he aspired, on the predictions of Thrasyllus, who had been with him during his abode at Rhodes. However he would not repose any confidence in his art till he had put him to a trial in which several had miscarried and fallen victims. Accordingly, one of his freedmen conducted the astrologer through steep and difficult paths to a centry-box fixed on the top of a house, erected on a steep rock close to the sea. If Tiberius suspected fraud or falsity in the predictions of those who practised the art, they were thrown into the sea that beat against the rock on which this house of trial stood. Thrasyllus was conducted to this place, and had the good fortune to please Tiberius, by promising him the empire,

and by the ingenious turn he gave to every thing he said. Tiberius asked him, whether he could draw his own horoscope, and whether by comparing the time of his birth with the present state of the heavens, he could tell what he was to dread or hope for at that instant. The astrologer, without doubt apprized of the fate of his predecessor, looked at the stars and shuddered; the more he considered them the more he trembled; and at length exclaimed that he was threatened with great and imminent danger. Tiberius, convinced of his skill by this experiment, embraced him and admitted him into the number of his confidential friends. His answers, when he was consulted, Tiberius regarded as oracular; and he determined to learn the science himself. At Rhodes he had leisure to receive lessons from Thrasyllus, and profited by them to such a degree, that he had the honour in a credulous age of having delivered predictions that were verified by the event. Augustus, however (A. D. 11.), revived the ancient law against astrologers; and to express his contempt for their pretended skill, and to show how much he disregarded any of their predictions, he published and posted up at Rome the theme of his own nativity, or a state of the position of the stars at the instant of his birth. In the year 16, the old ordinances against astrologers were again revived; two of them were capitally punished, and the rest banished from Italy. But Tiberius, who believed in astrology, and frequently resorted to it, prevented the rigorous execution of the decree; and those who promised to renounce their art were permitted to stay at Rome. The old laws against astrologers were again enforced in the year 52, and the senate passed a very severe decree against them; but these measures were ineffectual to their suppression. In the year 69, Vitellius, though he inclined to credit their predictions, issued an edict against them, commanding them to leave Italy within a limited time; but so great was their confidence at this time in their own security, that they posted up a placart against his order, and commanded the emperor to leave the world before the day appointed for their banishment. The emperor Domitian, though he firmly believed in their delusive arts, passed an edict by which they were all banished from Rome. His credulity proved an occasion of distressing terror to him towards the close of his reign, for an astrologer, called Asclitario, is said to have predicted the day and manner of his death. The emperor Adrian was very much addicted to both astrology and divination; and thus, occasionally protected and encouraged, and sometimes proscribed and banished them. The astrologers maintained their influence at Rome to the time of St. Augustin, for the subject of one of his homilies (in Pl. lxi. p. 32. ed. Froben. 1556) is the reconciliation of one of these pretended mathematicians with the church. See GENETHLIACI.

The curious may find farther information concerning this visionary and pernicious art, as it was practised among the ancients, in Sext. Emp. adv. Mathem. l. v. p. 339. Diod. Sic. l. ii. p. 83. Manilius, l. ii. v. 456. Jamblich. de Myth. § 8. c. 4. Fab. Bibl. Græc. v. ii. p. 494. Vossius de Theolog. Gent. l. ii. c. 47. We shall only add in this place the sensible reflection of Horace, lib. 1. od. xi. 1.

"Tu ne quæsieris (scire nefas) quem mihi, quem tibi
Finem Dii dederint, Leuconœ, neu Babylonios
Tentaris numeros: ut melius, quidquid erit, pati."

"Ask not—'tis impious to inquire—what date

The limit of your life is fixed by fate;

Nor vainly Babylonian numbers try,

But wisely wait your lot, to live or die."

The Bramins, who introduce and practised this art among the Indians have hereby made themselves the arbiters

ters of good and evil hours, which gives them great authority: they are consulted as oracles; and they have taken care never to sell their answers but at good rates.

The same superstition has prevailed in more modern ages and nations. The French historians remark, that in the time of queen Catherine de Medicis, astrology was in so much vogue, that the most inconsiderable thing was not to be done without consulting the stars. And in the reigns of king Henry III. and IV. of France, the predictions of astrologers were the common theme of the court conversation.

This predominant humour in that court was well rallied by Barclay, in his *Argenis*, lib. ii. on occasion of an astrologer, who had undertaken to instruct King Henry in the event of a war then threatened by the faction of the Guises.

Judiciary astrology still retains its credit in the east, and pretenders are always found ready to take advantage of the popular credulity. Some of the grandes retain an astrologer among their dependents, and their learned men do not appear to dispute the truth of their science, though the chief dupes of the imposture are found among the populace. The astrologers pretend to foretel future events from inspection of the horoscope, and to predict wars, pestilence, and other public calamities; but they are, in general, very superficially acquainted with the principles of the science which they profess.

ASTROLUS, in *Natural History*, a name given by authors to a white and splendid stone, small in size, and of a roundish figure, resembling the eyes of fishes.

ASTROMETEOROLOGIA, the art of foretelling the weather and its changes, from the aspects and configurations of the moon and planets.

This makes a species of astrology, distinguished by some under the denomination of meteorological astrology.

ASTRON, in *Ancient Geography*, a river of Asia Minor, in the Troade. Pliny.

ASTRONIUM, in *Botany*, (*απο του αστρον*), Jacq. Amer. 261. Linn. 1111. Schreb. 1515. Juss. 427. Class, *diœcia pentandria*. Generic Char. Male. *Cal.* perianth five-leaved, coloured, small; leaflets ovate, concave, obtuse, spreading. *Cor.* petals five, ovate, very obtuse, flat, spreading very much; nectary five, roundish, very small glands in the disk of the flower. *Stam.* filaments five, subulate, spreading, the length of the corolla; anthers oblong, incumbent. Female. *Cal.* perianth five-leaved, coloured; leaflets oblong, concave, obtuse, converging. *Cor.* petals five, sub-ovate, obtuse, concave, erect, less than the calyx, permanent. *Pist.* germ ovate, obtuse; styles three, short, reflex; stigmas subcapitate. *Per.* none. *Calyx.* increased, coloured; its leaflets at first expanded into a pendulous star, at length dropping the seed. *Seed.* one, oval, the length of the calyx, lactescent.

Ess. Gen. Char. Male. *Cal.* five-leaved. *Cor.* five-petalled. Female, *Cal.* five-leaved. *Cor.* five-petalled. *Styles.* three. *Seed.* one.

Species, *A. graveolens*. A tree from twelve to thirty feet in height, abounding with a terebinthinate juice. The leaves are unequally pinnate, with three pair of leaflets, which are oblong, ovate, acuminate, smooth, veined, three inches in length; panicles lax, half a foot long in the females; flowers small, red. A native of the woods about Carthage in New Spain, flowering in May and June.

ASTRONOMICAL, something that relates to astronomy.

ASTRONOMICAL Calendar, Characters, Column, Horizon, Hours, Month, Quadrant, Ring-Dial, Sector, Tables, Telescope Time, Year. See the several substantives.

ASTRONOMICAL Observations. See OBSERVATIONS, OBSERVATORY, and CATALOGUE.

ASTRONOMICAL Place of a star or planet, is its longitude or place in the ecliptic, reckoned from the beginning of Aries, in *consequencia*, or according to the natural order of the signs.

ASTRONOMICALS, a name used by some writers for sexagesimal fractions, on account of their use in astronomical calculations.

ASTRONOMICUS RADIUS. See RADIUS.

ASTRONOMY, formed of *αστρο* star, and *νομος*, law or rule, is a mixed mathematical science, which treats of the heavenly bodies, their motions, periods, eclipses, magnitudes, &c. and of the causes on which they depend.

The early history of this science, like that of many other ancient discoveries, is too much disfigured by fabulous and allegorical representations, to admit of any regular or satisfactory elucidation. It is probable, however, that some knowledge of this kind must have been nearly coeval with the human race; for besides motives of mere curiosity, which are sufficient to have excited men in all ages to examine the magnificent and varying canopy of the heavens, it is evident that some parts of the science are so connected with the common concerns of life, as to render the cultivation of them indispensably necessary.

Many traces of it have accordingly been found among various nations, which show that several of the most remarkable celestial phenomena, at least, must have been observed, and a knowledge of them disseminated at a very remote period. But in what age or country the science first originated, or by whom it was gradually methodized and improved, is extremely uncertain; nothing more being known on this subject than what can be obtained from the scanty and incidental information of ancient writers, whose accounts are often too extravagant and improbable to deserve much attention.

Among other relations of this kind, may be reckoned what is mentioned by Josephus in his *Antiquities*, who, in speaking of the progress that had been made in astronomy by Seth and his posterity, before the deluge, asserts that they engraved the principles of the science on two pillars, one of stone and the other of brick, called the pillars of Seth; and that the former of these was entire in his time. He also ascribes to the Antediluvians a knowledge of the astronomical cycle of 600 years, which Montucla (in his *Histoire des Mathematiques*) thinks, with much greater reason, was an invention of the Chaldeans; and that whatever information was possessed by the Jewish annalist with respect to this remarkable period, was probably obtained either from that people, or from some ancient writings which no longer subsist.

But not to insist upon this and other uncertain testimonies of the ancients, it will be sufficient to observe that, notwithstanding the contrariety of opinions which have prevailed on this subject, the greater part of authors are agreed in fixing the origin of astronomy either in Chaldaea or in Egypt; both of which nations pretended to a very high antiquity, and equally claimed the honour of producing the first cultivators of this science. The Chaldeans, in particular, boasted of their temple, or prodigiously high tower, of Belus, which is thought by some to have been an astronomical observatory, and of their celebrated philosopher and astronomer Zoroaster, whom they placed 500 years before the destruction of Troy: while the Egyptians, with similar ostentation, vaunted of their colleges of priests, which were the depositaries of every species of knowledge; and of the monument of Osymandyas, in which it is said there

there was a golden circle of 365 cubits in circumference, and one cubit thick, divided into 365 equal parts, according to the days of the year, and containing the heliacal risings and settings of the stars for each day, &c. See HELIACAL.

It is evident, indeed, without placing much reliance upon these accounts, that both Chaldæa and Egypt were countries extremely proper for astronomical observations, being almost constantly favoured with a pure atmosphere and a serene sky; and whatever may be thought of the tower of Belus, or the circle of Ofymandyas, we cannot but form a very advantageous opinion of the knowledge of the Egyptians in practical astronomy, from the position which they have given to their pyramids, whose faces are directed with great precision towards the four cardinal points of the compass. For as it is scarcely possible that a situation so exact could have been the effect of chance, we must conclude that they were acquainted with a correct method of drawing a meridian line; which is a matter of more difficulty than is usually thought; it being well known that Tycho Brahe, the most able astronomer of his time, committed an error of several minutes in tracing that of his observatory of Uraniburg. See MERIDIAN.

The Chaldæans also must have made very considerable advances in this science, if we can rely upon the testimony of Simplicius, who informs us that, at the taking of Babylon by Alexander the Great, they cited a regular series of astronomical observations for 1903 years back; and that these, through the means of Callisthenes, were afterwards communicated to the Greeks by Aristotle. But it is much to be wished that the truth of these ancient observations was better established, particularly as their historian Berossus, who appears to have lived but a little before the time of Alexander, makes no mention of any astronomical monument of this people, which was more than about 480 years anterior to that period. And, indeed, the most ancient Chaldæan observations, of which any mention is made by astronomical writers, are those of three eclipses of the moon, employed by Ptolemy in his *Almagest*, which were made in the years 27 and 28 of the æra of Nabonassar, or 721 and 720 years before Christ.

But though Ptolemy, and perhaps Hipparchus, from whom he had probably taken them, made no use of any observations more ancient than those here mentioned, we cannot from thence conclude that the Chaldæans first began to follow the celestial motions at this period. For such as were made in much earlier times might be suspected on several accounts; and it is besides highly probable that most of those which preceded the æra of Nabonassar were not accompanied with dates sufficiently accurate to be employed by these astronomers. The Babylonian calendar, before this æra, was in great confusion, not having been properly regulated; and it is obvious that ancient observations, either of this or any similar kind, can be but of little use, except we are able to ascertain the precise time at which they were made.

Besides these eclipses mentioned by Ptolemy, nothing more now remains of the Chaldæan astronomy, except what is attributed to them by some ancient authors, with respect to certain periods of years, which they seem to have formed for the more ready computation of the places of the heavenly bodies. And though the accounts which have been given us of one of the most remarkable of these cycles, by Suidas and Pliny, are not wholly free from objections, there can be little doubt of its having been first invented by that people. This is the celebrated period called the Chaldæan Saros, which consists of 223 lunar months, or a little more than 18½ years; and which so far agrees with the combined mo-

tions of the sun and moon, as always to bring them again into nearly the same position at the end of each cycle that they had at its commencement.

Both the Chaldæans and Egyptians, indeed, are generally supposed to have possessed a very considerable knowledge of several other branches of this science besides those here mentioned; but for want of proper authorities, this can only be judged of by some just notions which they appear to have had of the system of the world, and by the agreement which has been found among several ancient measures of the circumference of the earth. The Egyptians, in particular, appear to have known, long before the Christian æra, that the year consisted of 365¼ days, and that the planets Mercury and Venus moved round the sun. We are also well assured of the great antiquity of the science among this people, from the recent discoveries which have been made in that country during the late war; and particularly from the figure of a zodiac brought from thence by the French, which Lalande considers as extremely ancient.

But among the various nations which claim the honour of having first cultivated this science, none pretend to possess observations of greater antiquity than the Chinese. The most remarkable of these is a conjunction of five of the planets, which, according to their annals, is said to have taken place in the reign of their emperor Tchuén-hiu, about 2500 years before Christ. They also mention an eclipse of the sun, which happened in the constellation Scorpio, about the year 2150 of the same æra; and which is said to have proved fatal to two Chinese astronomers of the names of Ho and Hi, who were condemned to death by the emperor Tchong-kang, on account of their omitting, through negligence and intoxication, to announce the precise time at which it arrived. And from these data, apparently well attested, several eminent astronomers have endeavoured to discover whether these events could have possibly happened about the time here mentioned; but the subject is attended with too many difficulties to afford any satisfactory result.

All that we know of the Chinese astronomy is from the accounts which have been given of it by the Jesuit missionaries, who are much divided in their opinions with respect to its very great antiquity; some supposing it to have flourished at a more earlier period than others. F. Du Halde, however, asserts, that it was cultivated by their great lawgiver Confucius; and that Tcheou-cong, the most skillful astronomer that China ever produced, lived more than 1000 years before Christ, and passed whole nights in observing the celestial bodies, and arranging them into constellations. But whatever might have been the knowledge of this people in former times, the state of astronomy is very low in that country at present, although it is cultivated at Peking by public authority, in the same manner as in most of the capital cities of Europe.

The inhabitants of Japan, Siam, and the Mogul's empire, also appear to have been acquainted with astronomy from time immemorial; and the famous observatory at Benares (see OBSERVATORY) is a monument both of the great ingenuity of the Indians, and of their skill in that science. A knowledge of this subject is also supposed to have prevailed among the Americans; though, in their divisions of time, they made use of the solar and not of the lunar motions. The Mexicans, in particular, are said to have discovered a singular predilection for the number 13, which they used as a kind of cycle in most of their computations. And the abbé Clavigero asserts it as a remarkable fact, that having discovered the excess of a few hours in the solar above the lunar year, they made use of intercalary days to bring them to an equality, as was done by Julius Cæsar in

the Roman calendar; but with this difference, that, instead of one day every four years, they interposed 13 days every 52 years, which produces the same effect.

But the most interesting account of the rise and progress of this science hitherto given, is that which is detailed by M. Bailly, in his learned and elaborate history of Ancient and Modern Astronomy; in which he endeavours to trace its origin among the Chaldeans, Egyptians, Persians, Indians, and Chinese, to a very early period. And in consequence of the researches he has made on this subject, he is led to maintain, that the knowledge common to the whole of those nations, has been derived from the same original source: namely, a most ancient and highly-cultivated people of Asia, of whose memory every trace is now extinct; but who have been the parent-instructors of all around them.

M. Bailly does not pretend to fix, with certainty, the precise situation of this ancient people; but he offers several reasons for conjecturing that it must have been somewhere about the 49th or 50th degree of north latitude, in the southern regions of Siberia. Among various other coincidences, he observes, that many of the European and Asiatic nations attribute their origin to that quarter, where the civil and religious rites, common to each, were probably first formed; and what he considers as a strong astronomical support of his hypothesis is, that the observations of the stars, collected by Ptolemy, must have been made in a climate where the longest day was 16 hours, which corresponds to the latitude here mentioned. But as that region exhibits no traces of its ever having been inhabited by a polished people, his theory, though highly ingenious, has not sufficient force to draw our assent to his conclusions.

In investigating the antiquity and progress of astronomy among the Indians, M. Bailly examines and compares four different sets of astronomical tables of the Indian philosophers, *viz.* that of the Siamese, explained by M. Cassini, in 1689; that brought from India by M. le Gentil of the Academy of Sciences; and two other manuscript tables found among the papers of the late M. de Lisle; which, he observes, accord together, and all refer to the meridian of Benares. From these tables it appears, that the Indian astronomy has two principal epochs, the first being founded on a conjunction of the sun, moon, and planets, which is said to have taken place 3102 years before Christ; and the other 1491 years before the same æra. These periods are so connected by the mean motions of the sun, moon, and planets, that one of them must necessarily be fictitious; and though the celebrated author above mentioned, has endeavoured to show that the first of them must have been founded on observations, there is great reason for believing that it was rather imagined for the purpose of giving a common origin to the signs of the zodiac, and the motions of the celestial bodies.

It is true, indeed, if, parting from the epoch 1491, we ascend, by means of the Indian tables to the year 3102, before the Christian æra, we shall find a general conjunction of the sun, moon, and planets, as these tables suppose; but this conjunction, which is too different from the result given by the best modern tables to have ever taken place, shows that the epoch to which they refer, is not founded upon observations; and, in fact, some elements of the Indian astronomy, seem to indicate that they were determined even long before this first epoch. The equation of the sun's centre, in particular, which they fix at $2^{\circ} 10' 32''$, could not, according to the calculations of M. de La Place, have been of this magnitude but near the year 4300 before Christ; and besides this, the equations of the centre of Jupiter and

Mars are so different from what they ought to have been at this epoch, that nothing can be concluded from them in favour of their high antiquity.

To conclude, the whole of these tables, and, above all, the conjunction which they suppose at the same epoch, prove, on the contrary, that they must have been constructed, or at least rectified, in much more modern times. The ancient reputation, however, of the Indians, both in this and other sciences, leaves but little doubt, that astronomy was cultivated among them at a very remote period; and of this, the remarkable accuracy with which they have assigned the mean motions of the sun and moon, are sufficient proofs, as such exactitude could only have been obtained from a long series of observations. This opinion has also been ably supported by Mr. Playfair, in a dissertation on the astronomy of the Bramins, published in the second volume of the Transactions of the Royal Society of Edinburgh, where he has, likewise, adduced many instances of their critical knowledge in the other mathematical sciences, employed in their precepts and calculations.

The Greeks did not begin to cultivate astronomy till a long time after the Egyptians, of whom they were the disciples; and it is extremely difficult, amidst the fables which so much abound in the earlier periods of their history, to obtain any very correct information with respect to their knowledge in this science. All that we can learn is, that they had made observations on the celestial bodies, and divided the heavens into constellations, 13 or 14 centuries before the Christian æra; this being the period, according to the opinion of the most eminent chronologer, to which we must refer the sphere of Eudoxus.

The number of their philosophical institutions, however, afford no observer of any note, till much later times; most of their ancient sects having treated astronomy as a science purely speculative, without properly attending either to facts, or their causes. But notwithstanding the reveries in which they often indulged, their knowledge began to be greatly improved by Thales the Milesian, and other Greeks who travelled into Egypt, and brought from thence the chief principles of the science. This philosopher, who died at the age of 96 in the year 548 before Christ, was the founder of the Ionian sect, and appears to have been the first who taught his countrymen the globular figure of the earth, the obliquity of the ecliptic, and the causes of solar and lunar eclipses; which latter phenomena he is also said to have been able to predict.

Thales had for his successors Anaximander, Anaximenes, and Anaxagoras, to the first of whom is attributed the invention of the gnomon, and geographical chart; but for which he was probably indebted to the Egyptians. He is also said to have maintained that the sun was a mass of fire as large as the earth, which, though far below the truth with respect to size, was an opinion, for these early times, that does its author much credit; though to him, as in the case of Galileo, the truths he had discovered were the cause of his persecution. Both himself and his children were proscribed by the Athenians, for his attempting to subject the works of the gods to immutable laws; and his life would have paid the sacrifice of his temerity, but for the care of Pericles, his friend and disciple, who got his sentence of death changed into exile.

Next after the Ionian school was that of Pythagoras, who was born at Samos, about the year 586 before the Christian æra, and who, in the celebrity he acquired, far exceeded his predecessors. Like Thales he visited Egypt, and afterwards the Brachmans of India, from whom he is supposed to have obtained many of the astronomical truths

which he brought with him into Italy, to which country he was obliged to retire on account of the despotism which then prevailed at Athens. Here he first taught the true system of the world, which, many centuries after, was revived by Copernicus; but hid his doctrine from the vulgar, in imitation of the Egyptian priests who had been his instructors. It was even thought, in this school, that the planets were inhabited bodies, like the earth; and that the stars, which are disseminated through infinite space, are suns, and the centres of other planetary systems. They also considered the comets as permanent bodies, moving round the sun; and not as perishing meteors, formed in the atmosphere, as they were thought to be in after times.

From this time to the foundation of the school of Alexandria, the history of astronomy among the Greeks offers nothing remarkable, except some attempts of Eudoxus to explain the celestial phenomena; and the celebrated cycle of 19 years, which had been imagined by Meton, in order to conciliate the solar and lunar motions. This is the most accurate period, for a short interval of time, that could have been devised for embracing an exact number of revolutions of these two luminaries; and is so simple and useful, that, when Meton proposed it to the Greeks, assembled at the Olympic games, as the basis of their calendar, it was received with great approbation, and unanimously adopted by all their colonies.

In the school of Alexandria, we see, for the first time, a combined system of observations, made with instruments proper for measuring angles, and calculated trigonometrically. Astronomy, accordingly, took a new form, which succeeding ages have only brought to greater perfection. The position of the stars began at this time to be determined; they traced the course of the planets with greater care; and the inequalities of the solar and lunar motions became better known. It was, in short, in this celebrated school, that a new system of astronomy arose, which embraced the whole of the celestial motions; and though inferior to that of Pythagoras, and even false in theory, it afforded the means, by the numerous observations which it furnished, of detecting its own fallacy, and of enabling astronomers in later times to discover the true system of nature.

Aristyllus and Timocharis were the first observers in this rising institution. They flourished about the year 290 before Christ; and by their assiduous labours, were the means of greatly improving this science. It was from their observations of the principal zodiacal stars, that Hipparchus was led to discover the precession of the equinoxes; and Ptolemy also founded upon them his theory of the motions of the planets.

Next after these, was Aristarchus of Samos, who made the most delicate elements of the science the objects of his research. Among other things of this kind, he attempted to determine the magnitude and distance of the sun; and though, as may be supposed, the results he obtained were considerably wide of the truth, the methods he employed to resolve these difficult problems, do great honour to his genius. He also endeavoured to revive the opinion of the Pythagorean school, with respect to the motion of the earth; but as his writings upon this subject have not been preserved, we are ignorant to what point he had advanced, by this means, in his explication of the celestial phenomena.

The celebrity of his successor Eratosthenes, arises chiefly from his attempt to measure the earth, and his observations on the obliquity of the ecliptic. Having remarked at Syene, a well which was enlightened to its bottom by the

sun, on the day of the summer solstice, he observed the meridian height of the sun on the same day at Alexandria; and found that the celestial arc, contained between the two places, was the 50th part of the whole circumference; and as their distance was estimated at 500 stadia, he fixed the length of a great circle of the earth at 250,000; but as the length of the stadium employed by this astronomer is not known, we cannot appreciate the exactness of his measurement.

Among others who cultivated and improved this science, we may also mention the celebrated Archimedes, who constructed a kind of planetarium or orrery, for representing the principal phenomena of the heavenly bodies. But of all the astronomers of antiquity, Hipparchus of Bithynia is the one, who, by the number and precision of his observations, as well as by the important results which he derived from them, is the most entitled to our esteem. He flourished at Alexandria about the year 162 before the Christian era; and began his astronomical labours by attempting to determine, with more exactness than had hitherto been done, the length of the tropical year, which he fixed at 365 days, 5 hours, and 55 minutes, being near $4\frac{1}{2}$ minutes too great. Like most of his predecessors, he founded his system upon an uniform circular motion of the sun; but instead of placing the earth in the centre of the solar orbit, he removed it to the distance of $\frac{1}{4}$ th part of the radius, and fixed the apogee to the sixth degree of Gemini. By means of these data, he formed the first solar tables of which any mention is made in the history of astronomy; and though defective and even erroneous in principle, they are a durable monument of his genius, which three centuries afterwards were respected by Ptolemy, without his presuming to alter them.

The great astronomer next considered the motions of the moon, and endeavoured to measure the exact time of her revolution, by a comparison of ancient eclipses. He also determined the eccentricity and inclination of her orbit, as well as the motion of her nodes and apogee; and calculated all the eclipses that were to happen for 600 years to come. We are, besides, indebted to him for the important discovery of the precession of the equinoxes (see PRECESSION), which was the fruit of the long and difficult enterprise he undertook of making a catalogue of the fixed stars, with their latitudes, longitudes, and apparent magnitude. Geography is also indebted to Hipparchus for the method of fixing the situation of places upon the earth, by means of their latitude and longitude; in obtaining the latter of which, he appears to have been the first who employed eclipses of the moon; and as these researches required numerous calculations, they gave birth, under his hands, to spherical trigonometry. Many of his principal works perished with the library of Alexandria; but his catalogue of the stars, and several of his observations, have been preserved by Ptolemy in his *Almagest*.

Between the time of Hipparchus and Ptolemy, the chief observers of any note are Agrippa, Menelaus, and Theon; the two latter of which are better known as geometers than astronomers. We remark, however, in this interval, the reformation of the calendar by Julius Cæsar, and a more exact knowledge of the flux and reflux of the ocean (see TIDES). Posidonius, a celebrated stoic philosopher, who lived about eighty years before Christ, appears to have been the first who observed the relation of these phenomena with the motions of the moon; and of which Pliny, the naturalist, has given a description, remarkable for its accuracy.

Ptolemy, the worthy successor of Hipparchus, was born

at Pelusium in Egypt, in the beginning of the second century of Christianity, and was the first who undertook to reform the whole of this science, by establishing it upon a new foundation. In this enterprise, the system he formed is now well known to be erroneous; but the edifice he erected lasted near 1400 years; and even at this time, though it is entirely destroyed, his *Almagest*, considered as the depository of ancient observations, is one of the most precious monuments of antiquity. See *ALMAGEST*.

One of the most important discoveries of this astronomer is that of the evection of the moon (see *EVECTION*), which he has assigned with so much exactness, that M. La Place, in opposition to the opinion of other writers, thinks it sufficient to entitle him to the character of an accurate observer; and that the charge which has been made against him, of appropriating the discoveries of his predecessors, is not well founded.

It may also be remarked, that Ptolemy has rendered great services to geography, by collecting all the determinations of the latitudes and longitudes of places then known; and by his laying the foundation of the method of projections, for the construction of geographical charts, which was but little known before his time. In short, the various works which he executed, upon a variety of subjects, are strong proofs of a great and enlightened mind, and will always insure him a distinguished rank in the history of the sciences.

With the labours of this great astronomer ended the glory of the Alexandrian school, which had now subsisted for more than five centuries, with as much credit to itself as advantage to the sciences; but the successors of Hipparchus and Ptolemy, contented themselves with commenting on their works, without adding any thing remarkable to their discoveries. The knowledge of nature, which had hitherto been cultivated with so much success, gave way to the desolating irruption of the Saracens, who were led by a ferocious zeal to destroy the celebrated library of Alexandria, which contained so many treasures of learning and genius. By a singular turn, however, of human affairs, this people became afterwards the protectors and cultivators of literature and science, and were then sensible, that this frantic measure had deprived them of the most precious fruits of their victories.

The caliph Almanfor first introduced a taste for the sciences into his empire; and his grandson, Almamon, who ascended the throne in 813, was a great encourager and improver of astronomy. Having constructed proper instruments, he made many accurate observations; and, among others, determined the obliquity of the ecliptic to be $23^{\circ} 35'$. Under his auspices also, a degree of the meridian was measured, a second time, in the plains of Singar, on the borders of the Red Sea. About the same time, or at a somewhat later period, Alfraganus likewise wrote a treatise on astronomy; and hence the science began to be greatly cultivated by the Arabians; particularly by Albategnius, who gave a new and improved theory of the sun, from which he derived results that are much valued for their accuracy; and above all, as they directly confirm the diminution of the eccentricity of the solar orbit, as since demonstrated by the theory of gravity, and by the secular equation of the moon. His work, intitled "The Science of the Stars," is still extant, and was long esteemed by the Arabians. But after his time, though the Saracens had many eminent astronomers, several centuries elapsed without producing any very valuable observations, excepting those of some eclipses, observed by Ibn Junis, astronomer to the caliph of Egypt, which serve to show the acceleration of the mean motion of the moon.

The Persians, who for a long time were of the same reli-

gion, and subjected to the same sovereigns with the Arabs, began about the middle of the eleventh century, to throw off the yoke of the caliphs; and at this period, their calendar received, by the care of their astronomer Omar Cheyam, a new form, founded upon an ingenious intercalation, which consisted in making eight bissextile years at the end of every thirty-three common years. See *BISSEXTILE*. About the same time, also, Holagu Ilcoukan, one of their sovereigns, assembled the most considerable astronomers at Maragha, where he constructed a magnificent observatory, the care of which was confided to Nassir-Eddin. But of all the princes of this nation, the one who distinguished himself the most, by his zeal for astronomy, was Ulugh Beigh, a grandson of the celebrated Tamerlane, who was a great proficient in this science. He formed, from his own observations, at Samarcand, the capital of his empire, a new catalogue of the stars, and the best tables of the sun and planets that had been given before those of Tycho Brahe. He also determined, in 1437, with a quadrant 180 feet high, the obliquity of the ecliptic, which he found equal to $23^{\circ} 31' 57''$.

During this period, the greatest part of Europe was immersed in ignorance and barbarity; which would have probably continued much longer, but for the settlement of the Moors in Spain, who first introduced a taste for literature and the sciences into this part of the world. The Arabs by this means became our instructors, as the Egyptians had been formerly of the Greeks; and, by a singular fatality, the learning which they transmitted to us, has disappeared among this people, as astronomy became neglected in the temples of Egypt and Chaldaea, in proportion to the progress which it made in the school of Alexandria.

One of the first encouragers of learning in Europe was Frederick II., who, about 1230, set about restoring some decayed universities, and founding a new one at Vienna. He also caused the works of Aristotle and Ptolemy's *Almagest*, to be translated into Latin; from which latter circumstance we may date the revival of astronomy in Europe. Two years after this, John of Halifax, commonly known by the name of *Sacro Bosco*, compiled from Ptolemy, Albategnius, Alfraganus, and other Arabic astronomers, his work "*De Sphæra*," which continued in great estimation for more than 300 years afterwards, and was honoured with commentaries by Clavius and other learned men. Alphonsus, king of Castile, may also be reckoned as one of the most zealous encouragers and protectors of this science; though, being but ill seconded by the astronomers of that time, the tables which he published were not found to answer the great expence which attended them.

About the same period also Roger Bacon, an English monk, besides many learned works of various kinds, wrote several treatises on astronomy; after which but little progress was made in this science till the time of Purbach, Regiomontanus, and Walther, who all flourished about the end of the fifteenth century, and by their labours prepared the way for the great discoveries which followed. Regiomontanus, in particular, who was born at Koningberg, a town of Franconia, in 1436, and whose proper name was John Muller, rendered considerable services to astronomy, not only by his observations and writings, but by his trigonometrical tables of sines and tangents, which he computed to a radius of 1,000,000 for every minute of the quadrant, and by this means greatly facilitated astronomical computations, which had now become both numerous and intricate. John Werner, who succeeded Walther as astronomer at Nuremberg, is also deserving of notice, as being the first who proposed the method of finding the longitude

longitude at sea by observing the moon's distance from the sun and certain fixed stars, which is now so successfully practised in the British navy.

Next after these was Nicholaus Copernicus, the celebrated restorer of the old Pythagorean system of the world, which had been now set aside ever since the time of Ptolemy. He was born at Thorn, in Polish Prussia, in 1473, and having gone through a regular course of studies at Cracow, and afterwards at Rome, he was made by the interest of his uncle, who was bishop of Wormia, a canon of Frawenberg; in which peaceful retreat, after 36 years of observations and meditations, he established his theory of the motion of the earth, with such new and demonstrative arguments in its favour, that it has gradually prevailed from that time, and is now universally received by the learned throughout Europe.

This great man, however, had not the satisfaction of witnessing the success of his undertaking, being threatened by the persecution of religious bigots on the one side, and with an obstinate and violent opposition from those who called themselves philosophers on the other: it was not without the greatest sollicitations that he could be prevailed upon to give up his papers to his friends, with permission to make them public; but from continued importunities of this kind, he at length complied, and his book, "*De Revolutionibus Orbium Cœlestium*," after being suppressed for many years, was at length published, and a copy of it brought to him a few hours before his death. His disciple Rheticus, who has rendered great services to the mathematical sciences by his extensive tables of sines, tangents, and secants, to every ten seconds, was the first who adopted his ideas; but they made but little progress till towards the beginning of the 17th century.

In this interval, however, the science was not wholly neglected. Nonius in particular wrote several valuable treatises on Astronomy and Navigation, and invented some useful instruments, more accurate than those before known; one of these being the astronomical quadrant, on which he divided the degrees into minutes, by a number of concentric circles. Apian also, in 1540, wrote a book called the "*Cæsarian Astronomy*," in which he shows how to observe the places of the stars and planets by the astrolabe; to resolve astronomical problems by means of certain instruments, and to predict and calculate eclipses; and at the end of his work are added observations of five comets, one of which has been supposed to be the same with that described by Hevelius; and whose return was accordingly looked for in the year 1789, but it did not appear. Gemma Frisius, who lived about this time, is likewise deserving of notice, as being the first who recommended time-keepers for finding the longitude at sea. See CHRONOMETER.

The history of the science, about this epoch, also offers us a great number of excellent practical astronomers; one of the most illustrious of whom was William IV. landgrave of Hesse-Cassel, who built an observatory in that city, and furnished it with a number of the best instruments that could be obtained at that time, with which he made his own observations. He also attached to himself the celebrated astronomers Rothman, and Justus Byrgius, and with their help formed a catalogue of 400 stars with their latitudes and longitudes, adapted to the beginning of the year 1593. It was also from his pressing sollicitations, that Tycho Brahe, one of the greatest observers that ever existed, procured the advantages that he enjoyed under Frederic II. king of Denmark.

This excellent Danish astronomer, who was born at Knudstorp in the county of Schonen, in 1546, began to mani-

fest his taste for this science at the early age of 14. An eclipse of the sun which happened in 1560, first attracted his attention; and the justness of the calculation which announced this phenomenon, inspired him with a strong desire of understanding the principles upon which it was founded. But meeting with some opposition from his tutor, and a part of his family, to these pursuits, which probably served only to increase his attachment to them, he made a journey into Germany, where he formed connections, and entered into a correspondence with some of the most eminent astronomers of that country; particularly with the landgrave of Hesse, who received him in the most flattering manner, and recommended him to the notice of his sovereign. Becoming by this means better known, on his return to Denmark, Frederic II. gave him the little island of Huen, at the entrance of the Baltic, where he built an observatory, under the name of Uraniburg, and in which, during a course of twenty years, he made a prodigious number of observations.

His tranquillity, however, in this happy retreat, was, at length, interrupted; for soon after the death of Frederic, which happened in 1596, he was deprived, through the aspersions of some envious and malevolent persons, of his pension and establishment, and was not even allowed to follow his pursuits at Copenhagen; a minister of that time, of the name of Walchendorp, having forbidden him to continue his observations. Happily, however, he found a powerful protector in the emperor Rodolphus II., who ordered him to be properly provided for at his own expense, and gave him a commodious house at Prague. After residing in this city till the year 1601, he was taken off by a sudden death, in the midst of his labours, and at an age while he was yet capable of rendering great services to astronomy.

This great man, as is well known, was the inventor of a kind of Semi-Ptolemaic system of astronomy, that was afterwards called by his name, and which he vainly endeavoured to establish instead of the Copernican or true system. But though he was not happy in this respect, he has been of great use to astronomy by his numerous observations and discoveries. Among other things he was well acquainted with the nature of refractions (see REFRACTION); and hence he was able to determine the places of a great number of the fixed stars, with an accuracy unknown to former times. He also proved, against the opinion which then prevailed, that the comets are higher than the moon (see COMET); and from his observations on this and the rest of the planets, the theories of their motions were afterwards corrected and improved, so that for these services he will always be celebrated and esteemed by astronomers.

Tycho Brahe, in the latter part of his life, had for his disciple and assistant the celebrated Kepler, who was born in 1571, at Wiel, in the duchy of Wirtemberg, and was one of those rare characters that appear in the world only at particular times, to prepare the way for new and important discoveries. Like his master Tycho, he appears to have attached himself to the science at a very early age; and if it be the privilege of genius to change received ideas, and to announce truths which had never before been discovered, he may justly be considered as one of the greatest men that had yet appeared. Hipparchus, Ptolemy, Tycho Brahe, and even Copernicus himself, were indebted for a great part of their knowledge to the Egyptians, Chaldeans, and Indians, who were their masters in this science; but Kepler, by his own talents and industry, has made discoveries of which no traces are to be found in the annals of antiquity.

The philosopher, the most useful to the sciences, is one who to a profound imagination unites a scrupulous judgment, and

and though ardently desirous to elevate himself to the cause of the phenomena, is equally apprehensive that he may be mistaken in that which he assigns to them. Kepler owed to nature the first of these advantages, and the second to Tycho Brahe, who perceived his genius, and advised him to abandon his attachment to the mysterious analogies of figures and numbers to which he was then addicted, and to attend more closely to facts and their consequences. This appears to have had its proper effect, and Tycho dying a few years afterwards, Kepler was put in possession of his collection of observations, which he employed to the most useful purposes, having founded upon them three of the most important discoveries that have ever been made in natural philosophy.

It was an opposition of Mars, which determined him to occupy himself, in preference, upon the motion of this planet; and being then strongly attached to the Ptolemaic system as modified by Tycho Brahe, as well as to the opinion which had hitherto been generally received, that all the celestial motions must be perfectly circular and uniform, he endeavoured, for a long time, to represent those of Mars according to this hypothesis. At length, however, after many trials of this kind which he has given in detail, in his treatise called "*Stella Martis*," he discovered that the orbit of Mars is an ellipsis of which the sun is placed in one of the foci, and that the planet moves in it in such a manner, that the radius vector, or a line drawn from the centre of the sun to that of the planet, describes areas proportional to the times. This law he also soon afterwards extended to all the planets; and in 1626, he published, according to this theory, his Rudolphine tables, which will be for ever memorable in astronomy, as being the first that were founded on the true laws of the planetary motions.

It is here worthy of remark, that without the speculations of the Greek mathematicians, upon the curves formed by the sections of a cone, it is highly probable that we should yet have remained ignorant of some of the most curious and important laws of nature. The ellipse being one of these curves, its lengthened figure suggested to the mind of Kepler the idea that the planet Mars, whose orbit he had found to be more oval than circular, might possibly move in it; and soon after, by means of the numerous properties which the ancient geometers had discovered of the conic sections, he assured himself of the truth of this hypothesis. The history of the sciences affords many examples of this kind of application of pure geometry, and of the advantages attending it; for every thing, in the immense chain of truths, is connected; and frequently a single observation of apparently trifling consequence, has led to a more intimate knowledge of nature, of which the phenomena are the mathematical results of a small number of invariable laws.

The perception of this truth was probably what first gave rise to the mysterious analogies of the Pythagoreans; and Kepler, who had indulged himself in researches of this kind, was indebted to it for one of his most brilliant discoveries. Being persuaded that the mean distances of the planets from the sun ought to be conformable to these analogies, he compared them, for a long time, both with the properties of the five regular bodies, and with the notes of music. At length, after seventeen years of meditation and calculation, having had the idea of comparing them with the powers of the numbers by which they are expressed, he found that the squares of the times of the revolutions of the planets are to each other as the cubes of their mean distances from the sun; and that the same law applies equally to their satellites.

Astronomy is likewise indebted to Kepler for several other discoveries; which, though not equal to the former, are

still of considerable importance. He believed that it was the attraction of the moon which caused the flux and reflux of the ocean; and he had so far an insight into the general law of gravitation, as to suspect, that the irregularities of the lunar motions were occasioned by the combined actions of the earth and the sun. In his work on Optics, he has also explained the mechanism of vision, which was before unknown; and in another performance, called "*Stereometria Doliorum*," he has presented several views on the nature of infinites, which had considerable influence on the revolution that geometry underwent about the end of the last century.

It is afflicting to relate, that this great man, who may be considered as the founder of modern astronomy, had his last days embittered by the horrors of poverty and distress. A small pension, which was scarcely sufficient for his subsistence, was frequently withheld or unpaid; and the trouble and vexation which this occasioned him, obscured his genius, and shortened his existence. He died on the 15th of November 1631, in the fifty-ninth year of his age, leaving nothing for his wife and family, but the glory of his name, and the fame he had so justly acquired; but as these were insufficient to relieve his own wants, they could afford but little comfort to a helpless wife, and her wretched offspring, whose indigence is said to have been such that they had not even the common necessaries of life.

In the time of Kepler, there were not wanting several other considerable proficients in astronomy. Edward Wright, an Englishman, made several good meridian observations of the sun, with a quadrant of six feet radius, in the years 1594, 1595, and 1596, from which he improved the theory of the sun's motion, and computed his declination more accurately than had been done before. He also published, in 1599, an excellent work, entitled, "*Certain Errors in Navigation discovered and detected*;" containing a new method of projecting maps and charts, which has commonly, though erroneously, been ascribed to Mercator. The science is also greatly indebted to baron Napier of Scotland, not only for his ever memorable invention of logarithms, which has so wonderfully facilitated the business of calculation, but for some excellent theorems and improvements in spherics. About this time, likewise, Bayer, a German, published his "*Uranometria*," or complete Celestial Atlas, containing the figures of all the constellations visible in Europe; into which he introduced the highly useful invention of marking the stars by their names, or the letters of the Greek alphabet, which renders them so easy to be referred to with distinctness and precision.

At the same time also, that Kepler, in Germany, was tracing the orbits of the planets, and settling the laws of their motions, Galileo (who was born at Pisa, in Italy, in 1564) was meditating upon the doctrine of motion in general, and investigating its principles; and from the admirable discoveries which he made in this branch of the physico-mechanical sciences, Newton and Huygens were afterwards enabled to derive the most brilliant and complete theories of all the planetary motions. About this period also, a fortunate accident produced the most marvellous instrument that human industry and sagacity could have ever hoped to discover; and which, by giving a far greater extension and precision to astronomical observations, shewed many irregularities and new phenomena, which had hitherto remained unknown.

This invention was that of the telescope, which was no sooner known to Galileo, than he set himself to improve it; and the discoveries he was by this means enabled to make, were as new as they were surprising. The face of the moon appeared full of cavities and asperities, resembling vallies

vallies and mountains. The sun, which had generally been considered as a globe of pure fire, was observed to be sullied by a number of dark spots, which appeared on various parts of his surface. A great number of new stars were discovered in every part of the heavens; the planet Jupiter was found to be attended with four moons, which moved round him in the same manner that our moon moves round the earth; the phases of Venus appeared like those of the moon, as had before been concluded by Copernicus from his theory; and, in short, most of the observations he made furnished new proofs of the truth of the Copernican system.

In publishing the discoveries which he had made with this new instrument, Galileo showed in the most incontestible manner, the annual and diurnal motion of the earth; which doctrine, however, was thought so alarming, that it was immediately declared heretical by a congregation of cardinals, who were assembled upon the occasion; and its venerable author, one of the most virtuous and enlightened men of his age, was obliged to abjure, upon his knees, and in the most solemn manner, a truth, which nature and his own understanding had shown him to be incontrovertible. After this, he was condemned to perpetual imprisonment; from which, however, at the end of a year he was enlarged, by the solicitations of the grand duke; but, that he might not withdraw himself from the power of the inquisition, he was forbidden to quit the territory of Florence, where he died in 1642; carrying with him the regrets of Europe, enlightened by his labours, and their indignation against the odious tribunal which had treated him so unworthily. For the oath of abjuration, and further particulars of this transaction, see Bonnycastle's *Astronomy*, p. 101. 3d ed. and the article GALILEO in this work.

The celebrated Harriot also, who has hitherto been known only as an algebraist, made, much about the same time, similar discoveries with those of Galileo, as appears by his papers not yet printed, which are in the possession of the earl of Egremont. Mr. Horrox, likewise, a young astronomer of great merit, about this time, deserves to be mentioned, on account of his observation of the transit of Venus over the sun's disk (see TRANSIT), on the 24th of November 1639; which event he announced to his friend Mr. Crabtree; and these two together had the singular satisfaction of witnessing, for the first time, a phenomenon which had never before been seen by human eyes. Horrox had even formed a new theory of the moon, which is taken notice of by Newton; but his early death, which happened in the beginning of the year 1640, put a stop to his useful labours.

The discoveries of Huygens succeeded those of Kepler and Galileo; and few men have, perhaps, merited more of the sciences, by the importance and sublimity of his researches. Among other things, his happy application of the pendulum to clocks, is one of the most advantageous presents that was ever made to astronomy. He was also the first who found that the singular appearances of Saturn, are produced by a ring, by which the planet is surrounded; and his assiduity in observing it, led him to the discovery of one of its satellites. Geometry, mechanics, and optics, are also indebted to him for a great number of discoveries, and if this rare genius had had the idea of combining his theorems on centrifugal forces, with his inquiries into the development of curves, and the laws of Kepler, he would have ravished from Newton his theory of curvilinear motions, and that of gravitation; but these are the things in which discoveries generally consist.

Next to Huygens, may be mentioned Hevelius, a burgo-master of Dantzic, who rendered himself highly useful to

astronomy by his numerous and immense labours; few observers having ever existed who were more indefatigable. It is to be lamented, however, that he refused to make use of instruments with telescopic sights, an invention introduced about that time by the celebrated Dr. Hook, and which gave a precision to observations unknown to former astronomers. He even contended their utility, and a warm dispute having arisen between him and Dr. Hook upon this subject, Dr. Halley, then a young man rising fast into fame and eminence, was sent to examine his instruments, which were found to be excellent of their kind. The two astronomers made several observations together, much to their satisfaction; and among them was one of an occultation of Jupiter by the moon, by which they determined the diameter of the latter to be $30' 33''$.

About this epoch, astronomy began to be more generally cultivated and improved, in consequence of the establishment of several learned societies, which, by exciting a spirit of emulation and enterprise among their members, greatly contributed to the advancement of every branch of the mathematical and physical sciences. The chief of these were the Royal Society of London, and that of the Academy of Sciences of Paris; both of which have rendered great services to astronomy, as well by the eminent men they have produced, as by the zeal and ardour with which the science has constantly been promoted by them. One of the first effects produced by these establishments, was the great improvement of telescopes and other instruments, which had hitherto been too much neglected for want of proper encouragement. Huygens constructed a telescope of 123 feet; with which he long observed the moon and planets, and was the first that discovered Saturn's ring. The celebrated Cassini also employed instruments of this kind, of 200 and 300 feet focus, with which he saw the five satellites of Saturn, with his zones or belts, as well as the shadows of Jupiter's satellites passing over his body.

The length of refracting telescopes, however, was still a great inconvenience; to remedy which, as well as the great aberration of their rays, Merseus is said to have first started the idea of making telescopes with reflectors, instead of lenses, in a letter to Descartes; and in 1663, James Gregory of Aberdeen, showed how such an instrument might be constructed. Newton, also, after spending some time on the construction of both these sorts of telescopes, discovered the great inconvenience which arises to refractors, from the different refrangibility of the rays of light, and therefore pursuing the other kind, he presented in the year 1672, to the Royal Society, two reflectors, with spherical specula, as he could not then contrive the means of giving them a parabolic figure. It is proper to observe, however, that the defects of refracting telescopes, arising from the different refrangibility of the rays of light, have since been completely obviated by the ingenious Mr. Dollond. See ACHROMATIC TELESCOPE.

Towards the latter part of the seventeenth century, and the beginning of the eighteenth, practical astronomy seems rather to have languished; but at the same time, the theoretical part was carried to the highest degree of perfection, by the immortal Newton in his "Principia," and by the astronomy of David Gregory. (See NEWTONIAN PHILOSOPHY.) About this time also, clock and watch-work was greatly improved by Mr. Graham, who likewise constructed the old eight feet mural arch at the Royal Observatory at Greenwich, and the zenith-sector of twenty-four feet radius, with which Dr. Bradley discovered the aberration of the fixed stars. (See ABERRATION.) The reflecting telescope of Gregory and Newton, was also greatly improved by Mr. Hadley;

Hadley ; but who is still better known for his admirable invention of the reflecting quadrant or sector, now called by his name, and which is universally used at sea, and in all nice observations. Mr. Bird also, about the middle of the eighteenth century, rendered great services to astronomy, by his method of constructing and dividing large astronomical instruments ; which has since been carried to the greatest degree of perfection by that admirable artist Mr. John Ramsden, whose recent death will be long regretted by astronomers and men of science in general. Reflecting telescopes were likewise not less improved by Mr. Short, who also first executed the divided object-glass micrometer, which had been proposed and described by M. Louville and others.

Thus the astronomical improvements in the last century, have been chiefly owing to the greater perfection of instruments, and to the establishment of regular observatories in various parts of Europe. Roemer, a celebrated Danish astronomer, first made use of a meridian telescope ; and by observing the eclipses of Jupiter's satellites, was led to his discovery of the motion of light, which he communicated to the Academy of Sciences at Paris, in 1675. Mr. Flamsteed was also appointed the first astronomer royal at Greenwich, about the same time, where he observed all the celestial phenomena for more than forty-four years ; and as the fruits of his labours, published a catalogue of 3000 stars, with their places, to the year 1688, as also new solar tables, and a theory of the moon according to Horrox. Cassini, also, the first French astronomer royal, greatly distinguished himself by his numerous observations on the sun, moon, and planets, and by the improvements he made in the elements of their motions.

In 1719, Mr. Flamsteed was succeeded by Dr. Halley, the friend of Newton, and a man of the first eminence in all the departments of literature and science ; who had been sent at the early age of twenty-one, to the island of St. Helena, to observe the southern stars, a catalogue of which he published in 1679 ; and a few years afterwards he gave to the public, his "*Synopsis Astronomiæ Cometicæ*," in which he ventured to predict the return of a comet in 1758, or 1759. He was the first who discovered the acceleration of the moon's mean motion ; and is the author of a very ingenious method for finding her parallax, by three observed places of a solar eclipse ; he also showed the use that might be made of the approaching transit of Venus, in 1761, in determining the distance of the sun from the earth ; and recommended the method of determining the longitude by the moon's distance from the sun and certain fixed stars, which has since been carried into execution at the instance of the present astronomer royal. Dr. Halley also composed tables of the sun, moon, and planets, with which he compared the observations he made of the moon at Greenwich, amounting to near 1500, and noticed the differences. About this time, an attempt was made in France to measure a degree of the earth, which was the occasion of a warm dispute concerning its figure. M. Cassini concluded, from the measurement of Picart, that it was an oblong spheroid ; but Newton, from a consideration of the laws of gravity, and the diurnal motion of the earth, had determined its figure to be that of an oblate spheroid, flattened at the poles, and protuberant at the equator. To determine this point, Louis XV. ordered two degrees of the meridian to be measured, one under or near the equator ; and the other as near as possible to the pole, the result of which arduous undertaking was a confirmation of Newton's investigation. Messrs. Maupertuis, Clairaut, &c. were employed on the northern expedition ; and Condamine, Bouguer, Don Ulloa of Spain, &c. on the southern ; who all fulfilled their commissions with great credit to themselves,

and advantage to the sciences, making many observations besides those immediately connected with this subject. Among others, it was found, by those who went to the south, that the attraction of the great mountains of Peru had a sensible effect on the plumb-lines of their large instruments, which afforded an experimental proof of the Newtonian doctrine of gravitation, that has since been completely verified by the observations of Dr. Maskelyne, made on the mountain Schehallien in Scotland. See *Attraction of Mountains*.

On the death of Dr. Halley, in 1742, he was succeeded by Dr. Bradley, who has rendered himself highly celebrated by two of the finest discoveries that have ever been made in astronomy, the aberration of light and the nutation of the earth's axis. Among other things, he also formed new and accurate tables of the motions of Jupiter's satellites, as well as the most correct table of refractions yet extant. Also, with a large transit instrument, and a new mural quadrant of eight feet radius, constructed by Bird, in 1750, he made an immense number of observations, for settling the places of all the stars in the British catalogue, together with near 150 places of the moon, the greater part of which he compared with Mayer's tables.

Dr. Bradley was succeeded in 1762, in his office of astronomer royal, by Mr. Bliss, but who, being in a declining state of health, died in 1765, and was succeeded by Nevil Maskelyne, D. D. the present astronomer royal, who has rendered considerable services to this science, by his publication of the "*Nautical Almanac*," the "*Requisite Tables*," &c. and more particularly by the great assiduity and zeal he has displayed in bringing the lunar method of determining the longitude at sea into general practice.

In the mean time, many other eminent mathematicians, both of our own, and other countries, were assiduously employed in endeavouring to promote the science of astronomy. The theory of the moon was particularly considered by Messrs. Clairaut, d'Alembert, Euler, Simpson, Walmley, and Mayer ; the latter of whom computed a set of lunar tables, for which, on account of their superior accuracy, he was rewarded with a premium of 3000*l.* by the Board of Longitude, who brought them into use in the computation of the nautical ephemeris which was published by their order. Some very accurate tables of the satellites of Jupiter, were also composed from observations by Mr. Wargentin, an excellent Swedish astronomer, and which have since been corrected by the author, so as to render them superior to any yet published.

Among the French astronomers who have also contributed to the advancement of this science, we are particularly indebted to M. de la Caille for an excellent set of solar tables, in which he has made allowances for the attractions of Jupiter, Venus, and the moon, as well as for the observations which he made at the Cape of Good Hope, in concert with the most celebrated astronomers in Europe, in order to determine the parallax of the sun, moon, and the planet Mars ; and for adjusting the places of the stars in the southern hemisphere, which he has done with great accuracy. In Italy also the science was cultivated with great success by S. Bianchini, Boscovich, Frisi, Manfredi, Zanotti, and others ; and in Germany, by Euler, Mayer, Lambert, &c.

Such was the state of astronomy when Dr. Herschel, by augmenting the powers of telescopes beyond the most sanguine expectations, opened a scene altogether unlooked for. By this indefatigable observer we are made acquainted with a new primary planet belonging to our system, called the Georgium Sidus, attended by six satellites, which he discovered on the 13th of March 1781, and which being at twice
the

the distance of Saturn from the sun, has doubled the bounds formerly assigned to the solar system. We are also indebted to him for a variety of observations on several other interesting astronomical subjects; such as the discovery of two additional satellites to Saturn, of which the number is now seven; a new method of measuring the lunar mountains; the rotation of the planets on their axes; on the parallax of the fixed stars; catalogues of double, triple stars, &c.; of nebulae; and of the proper motion of the sun and solar system; the accounts of which, together with many other valuable papers, he has communicated from time to time in different parts of the Philosophical Transactions. Within this last year also another new planet has been discovered by M. Piazzi of Palermo, between Mars and Jupiter, to which he has given the name of Ceres Ferdinandia; and even the discovery of a third has been announced in some of the foreign journals; but for any regular account of this we must wait for further information. See GEORGIUM SIDUS, CERES Ferdinandia, and PALLAS.

It is with great pleasure we observe that at no former period has this science been cultivated with more ardour than it is at present, both in this and every other country in Europe. In France, the physico-mathematical part of the science has been greatly improved and extended by the celebrated M. la Place, who, in his elaborate work, the "Mécanique Céleste," has investigated all the phenomena, which the attraction or universal gravitation of matter can produce on the forms and motions of the celestial bodies, by their mutual actions on each other. M. Lalande, the patriarch of astronomers, is also still indefatigable in his pursuits, and by the zeal he constantly manifests for the interests of this science, has greatly promoted the study of it in almost every quarter of the globe; but particularly in Germany, where M. von Zach is equally assiduous in forwarding its improvement. In all its collateral branches also we observe a degree of activity that has never been exceeded. New admeasurements of the earth have been undertaken both in this country and in France, which, from the great improvements of instruments, and the skill and industry of the observers, promise a greater accuracy in the results than could have been obtained by those who were formerly engaged in this undertaking. From the zeal and abilities of major Mudge, in particular, who is now employed by our government to make a trigonometrical survey of the country, we may expect the most accurate details on this subject that have ever yet been presented to the public.

We shall conclude by observing that there still remains a number of discoveries to be made in this science. We have not yet determined the times of rotation and the proper figures of some of the planets and their satellites; nor do we know with sufficient precision the masses of those bodies. The theory of their motions also consists in a series of approximations, of which the convergence depends both upon the perfection of instruments, and the progress of analysis, and which for that reason ought to acquire continually new degrees of exactness. Observations on the return of comets already observed, as well as on those which may hereafter appear, should likewise be made with great care, and particularly on such as may entirely change their orbits, as it has been conjectured was the case, by the action of Jupiter on the one which appeared in 1770; as also such accidents which the proximity, and even the shock of these bodies, may occasion to the planets and their satellites; such are the principal objects which should engage the attention of future astronomers.

For more particular accounts of the writings and authors on this science, the reader may consult Weidler's "History
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of Astronomy," which is brought down to the year 1733, as also "Baillie's History of Ancient and Modern Astronomy," Montucla's "Histoire des Mathématiques," and the first volume of Lalande's Astronomy. The more modern and popular works on the subject are numerous and well known; as those of Emerson, Ferguson, Long, Bonnycastle, &c.; in the latter of which, in particular, the elementary parts, and general outline of the science, are described with great perspicuity and elegance.

ASTRONOMY is sometimes divided with respect to its different states, into *new* and *old*.

ASTRONOMY, *Ancient*, is such as the art stood under Ptolemy and his followers, with all the apparatus of solid orbs, epicycles, excentrics, deferents, trepidations, &c.

ASTRONOMY, *New*, is such as the art has been since Copernicus, by whom those fictitious machines were thrown out, and the constitution of the heavens reduced to more simple, natural, and certain principles.

In Ricciolus's *Almagestum Novum*, published in 1651, we have the several hypotheses of all the astronomers, ancient as well as modern.—And in Dr. Gregory's *Elementa Astronomiæ Physicæ & Geometricæ*, in 1702, the whole modern astronomy, as founded on the discoveries of Copernicus, Kepler, and sir Isaac Newton.—The substance of the old astronomy is given by Tacquet; and of the new astronomy by Whiston, in his *Prælectiones Astronomicæ*, in 1707. Mercator's *Institutiones Astronomicæ*, published in 1676, contains the whole doctrine, both according to the ancients and moderns; and Dr. Keill's *Introductio ad veram Astronomiam*, in 1718, comprehends the modern; to which might be added Vince's *Astronomy*, in 2 vols. 4to. 1800; and his *Practical Astronomy*, 4to.

ASTROPECTEN, in *Natural History*, a name given by some authors to a species of star-fish, composed of a body, or central nucleus, furrowed in the manner of the shells of the common scallop, and parting into five principal rays, from each of which there issue several transverse processes, covered with a hairy down.

ASTROPODIA. See ASTERIA, and STAR-stone.

ASTROSCOPE, in *Astronomy*, a kind of astronomical instrument, composed of two cones, on whose surface the constellations, with the stars, are delineated, by means of which the stars may easily be known.

The astrocope is the invention of Wil. Schukhard, formerly professor of mathematics at Tubingen, who published a treatise expressly on it, in 1698.

ASTROSCOPIA, from *αστρος* star, and *σκοπεω*, I consider, the art of observing and examining the stars by means of telescopes, in order to discover their natures and properties.

Huygens improved this art considerably in his "Astroscopia Compendiaria Tubi Optici molimine liberata," where he shows how to manage the largest glasses without help of a tube. See TELESCOPE.

ASTROTHERMATA, in *Astronomy*, the places or positions of the stars in a theme of the heavens. Vital. Lex. Math.

ASTROTHERSIA, from *αστρος*, and *θηρσις*, I place, is used by some for a constellation or image in the heavens, composed of several stars.

ASTRUA, GIOVANNA, in *Biography*. See GIOVANNA.

ASTRUC, JOHN, M. D. a learned physician, and author of numerous medical and philosophical works, was borne at Sauve, a considerable town in Lower Languedoc, on the 19th of March 1684. He was early initiated into the knowledge of the classics by his father, and was sent to complete his education to the university at Montpellier, where in 1700 he commenced master of arts, and

and in 1702, bachelor of medicine. In the same year he published his dissertation "De motu fermentativi causa," which was soon followed by several controversial pieces on the manner in which the food is digested in the stomach, which he contended was effected by a peculiar leaven, exciting fermentations; contrary to the opinion of Pitcairne and other mechanical physicians, who attempted to prove that our food was triturated or ground to a pulp in the stomach by the action of the abdominal and other muscles, to which they gave a power equal to several thousand pounds weight. In 1710, he was made professor of anatomy and medicine at Toulouse. In 1716, he returned to Montpellier, where he was called to the professor's chair vacant by the death of Chatelain. In 1720, he published his treatise "De Hydrophobia," and in 1721, "Sur l'Origine des Maladies Epidemiques, principalement de la Peste," in which he strongly supports the opinion that the plague is a contagious disease, in opposition to Chicanen and other writers, who then, as now, attempted to establish a contrary doctrine. He supposed there was some analogy between the poison of the plague and the venereal disease. He took an early and active part in the dispute between the faculty of medicine and the surgeons at Paris; and as he was well versed in the history of medicine, he showed that in early times the chirurgeons were examined by physicians previous to their being allowed to practise. In 1729, he was invited to Poland, and made Physician to the king, Augustus the second; but finding this place less favourable to his studies, he returned to France, and fixed himself at Paris; and in 1730, was appointed consulting physician to the king, and soon after, on the death of Geoffroy, professor of medicine in the Royal College at Paris, where the reputation he had previously acquired procured him a numerous and respectable auditory; pupils flocking to him from all parts of Europe. In 1737, he published "Memoires pour l'Histoire naturelle de Languedoc," in which a particular account is given of the mineral waters of Balaruc. In 1745, he published "Tractatus Pathologicus;" and 1748, "Tractatus Therapeuticus," both in 8vo.; which were in their time well received, but are superseded now by the adoption of new theories, in their turn to give way to subsequent speculations. In 1736, he published his principal work "De Morbis Venereis," which soon, and deservedly, raised his fame to the highest pitch of eminence. The work was eagerly received, and translated into all the modern languages; the learned in every country being desirous of naturalising a production, containing the completest history, description, and mode of treating the disease that had appeared. In the first part, the author labours to show, that the disease was new, and of a nature distinct from all others; that it was first imported into Europe by the Spaniards who attended Columbus in the discovery of America. This part has lately been controverted, and passages from various early writers have been produced, that are supposed to point out the disease; a single symptom or two resembling some of those attending the lues venerea being obscurely noticed in them. He considers mercury as the sole specific in the cure of the lues venerea, and of the different ways of administering it, prefers that by inunction. The author soon after published "Doutes sur l'Inoculation de la petite verole proposé a la Faculté de Paris," but without his name; and in 1759, "Traité des Tumeurs et des Ulceres, avec deux Lettres, 1. sur la composition des quelques remèdes; et 2. sur la nature et le succès des nouveaux remèdes qu'on propose pour la guérison des maladies venerieues." In this work, which has considerable merit, the author treats largely of hydatids passed off by stool and by vomiting, or

found in the livers of persons who have died tabid. He is one of the first writers who denies his assent to the opinion that marks, distortions, and mutilations of the bodies of infants, are occasioned by the imaginations of the mothers. In 1761, he published "Traité des Maladies des Femmes," 6 vols. 12mo.; this has been translated into English, as well as his "Art d'Accoucher, réduit a ses principes;" the last work he lived to finish. The author had tried the effect of cicuta, he tells us, in cancer, but without advantage; and thinks its reputation for resolving scirrhi had arisen from indurated glands of the breast which were taken for them, but were not scirrhus, having disappeared under its use. This opinion has been confirmed by later experience. On the whole, we find in this writer great marks of genius, as well as of labour and research, and he will be deservedly handed down to posterity as one who has contributed considerably to the improvement of the art of medicine. As early as the year 1743, he was admitted member of the faculty of medicine at Paris: he was a constant attendant at their meetings, and a zealous protector of their privileges. With an active mind, he had the good fortune to enjoy a strong and vigorous constitution, which enabled him to continue his professional exertions until within a very small time of his death, which happened on the 5th of May 1766, at the age of 82 years. In the second volume of the author's treatise "De Morbis Venereis," he has given a catalogue of all the writers who had treated on the subject before him, with brief sketches of their lives, and analyses of their works. This part appears to have been executed with fidelity, and has afforded us useful and valuable materials in our labours, as has likewise a posthumous work of the author, his "Memoires pour servir a l'Histoire de la Faculté de Medicine de Montpellier," published by Lorry in 1767, in 4to., and enriched with a beautiful coloured portrait of the author, and an account of his life. Hall. Bib. Med. & Chirur. Lorry Eloge Hist. de M. Astruc. One very singular work little noticed, and perhaps little deserving notice, as founded solely on speculation and conjecture, was his "Conjectures sur les memoires originaux dont il paroît que Moïse se servi pour composer le livre de Genèse," Bruxelles, 1759. It does not appear that the works of this celebrated writer were ever collected and published together; but they are certainly deserving that attention.

ASTRUM, or ASTRON, in *Astronomy*, a constellation or assemblage of stars. In which sense it is distinguished from *aster*, which denotes a single star.

Some apply the term, in a more particular sense, to the Great Dog; or rather to the great bright star in his mouth. Vital.

ASTRUM, in *Ancient Geography*, the name of a large town of the Peloponnesus, in the Argolide.

ASTRUNO, in *Geography*, a mountain of Italy, famous for its baths.

ASTRUP, a town of Germany, in the circle of Westphalia, and bishopric of Osnaburgh, four miles north of Osnaburgh.

ASTURA, in *Ancient Geography*, a river of Italy, and also an island, according to Pliny.—Cicero had a villa of this name near the sea, within view of Circæum and Antium, whither he retired, with his brother and nephew, when he first received at his Tusculan villa the news of the proscription in which they were included, and whence they proposed to transport themselves directly out of the reach of their enemies. Here Cicero found a vessel ready for him, in which he immediately embarked; but the winds being adverse, he was obliged to land at Circæum, near which he spent a night, in great anxiety and irresolution. The question

question upon which he deliberated was, what course he should take; and whether he should fly to Brutus or to Cassius, or to S. Pompeius; but, after all his deliberations, none of them pleased him so much as the expedient of dying; so that, as Plutarch says, he had some thoughts of returning to the city, and killing himself in Cæsar's house; in order to leave the guilt and curse of his blood upon Cæsar's perfidy and ingratitude: but the importunity of his servants induced him to sail forwards to Cajeta, where he landed to repose himself in his Formian villa, about a mile from the coast; "weary of life and the sea, and declaring that he would die in that country which he had often saved." Hither he was pursued by the soldiers that were sent in quest of him; and though he fled into the woods, he was overtaken and put to death. Middleton's Cicero, vol. ii. p. 495.

ASTURA, in *Geography*, a good harbour on the south-west coast of Italy, about twelve or fourteen leagues south-east from the mouth of the Tiber; at the bottom of a bay east from port Neptune, and nearly east from mount Cerulli.

ASTURAGAMICOSK, a lake of Lower Canada, eighty-one leagues north-east of Quebec. N. lat. 50° 25'. W. long. 67° 25'.

ASTURIA, in *Ancient Geography*, a kingdom of Spain, subdued by the Roman emperor Augustus, after the people had long resisted, in connection with the Cantabrians, repeated attempts to reduce them under the Roman yoke. But at length the distress of famine was so great, that they determined to surrender; upon which the Cantabrians, who, desperate as their situation was, were resolved to renew their efforts, fell upon them, and compelled 10,000 of them to seek an asylum in the Roman intrenchments. Tiberius, however, refused to admit them into the camp; so that despairing of relief, some fell upon their own swords, others threw themselves into the flames which they had kindled for this purpose, and others dispatched themselves by poison. The surviving Asturians collected all their strength against the next campaign; but the utmost efforts of their valour and despair proved fruitless. Weakened by repeated defeats, they were under the necessity of submitting to the Roman power, till the subversion of that empire by the Goths. In the beginning of the eighth century Don Palayo restored the Spanish monarchy in the Asturias. Asturia, the capital of the Asturians, was, in ancient times, the famous "Colonia Augusta," mentioned by Pliny. This place divided the Astures into *Augustani* and *Transmontani*. The seventh Roman legion, intitled "Augusta Gemina," was settled between the Asturian sea and the capital of this district, called "Asturia Augusta," now **ASTORGA**. The country derives its name from the river Astura, and is now denominated "Asturias." It was formerly celebrated by the poets for the gold it produced.

ASTURIAS, in *Geography*, the ancient *Asturia*, a province of Spain, about forty-eight leagues long, and eighteen broad; bounded on the east by Biscay, on the south by Old Castile and Leon, on the west by Galicia, and on the north by the bay of Biscay. It is usually divided into two parts or districts called Asturia of Oviedo, and Asturia of Santillane; and hence it derives its plural name Asturias. The country is generally mountainous and rugged; and towards the south are the mountains which branch from the Pyrenées, and separate it from Old Castile and Leon; these are covered with extensive forests. The soil, however, produces a sufficiency of corn, great quantities of fruit, and excellent wine. Its horses are in great esteem, and maintain their reputation from the time of the Romans, who preferred them to all the other horses in Spain. The inhabitants,

who value themselves even at this day on the purity of their blood, and their descent from the ancient Goths, are poor, but honest, generous, brave, and laborious. The principal towns are Oviedo, Santillane, and San Andero. The eldest son of the king of Spain takes the title of the prince of Asturias, and bears the arms of the country.

ASTURICANI, in *Ancient Geography*, a people of Asiatic Sarmatia. Ptolemy.

ASTURASPES, a name formerly given to a river of Abyssinia, now called **MAREB**. It is one of the rivers represented by the ancients as forming the island of Meroe.

ASTY, a village of Egypt, mentioned by Diodorus Siculus; in the vicinity of Canopus, according to Steph. Byz.

ASTYAGES, in *Biography*, king of the Medes, was the son of Cyaxares, according to Herodotus (l. i. c. 74.) and Pausanias (l. v. c. 10. p. 398.); and began his reign, according to Blair's tables, in the year 585 B.C. Sir Isaac Newton (Chron. apud Oper. t. v. p. 222.) says that, Herodotus, followed by Pausanias, has inverted the order of the kings Astyages and Cyaxares; making Cyaxares to be the son and successor of Phraortes, and the father and predecessor of Astyages, the father of Mandane, and grandfather of Cyrus. Considering, he adds, that Cyaxares reigned long, and that no author mentions more kings of Media than one, called Astyages; and that Æschylus, who lived in those days, knew but of two great monarchs of Media and Persia, the father and the son, older than Cyrus, he concludes, that Astyages, the father of Mandane, and grandfather of Cyrus, was the father and predecessor of Cyaxares; and that the son and successor of Cyaxares, was called Darius. Accordingly, he says, that Astyages began his reign at the death of Phraortes, who was slain by the Assyrians in the year of Nabonassar 111., or 637 B.C., and reigned 26 years. According to Herodotus, Astyages married his daughter to a Persian nobleman named Cambyses. During her pregnancy he had a dream, signifying that the child that was to be born should rule over all Asia. This prediction alarmed him; and he determined to destroy the child. Harpagus, who was employed for this purpose, disobeyed the royal command, and intrusted the nurture and education of the infant Cyrus with one of the king's herdsmen. When Cyrus was ten years old, Astyages discovered the fraud, and caused the only son of Harpagus to be killed, and his flesh to be served up to him in a banquet. Harpagus for some time dissembled his indignation at this act of barbarity, but waiting a favourable opportunity of revenge, he called Cyrus, arrived at manhood, from Persia, whither he had been sent to his real parents, and assisted him to revolt against his grandfather. Astyages was defeated; and caused the Magi, who had led him to imagine that the danger apprehended from his son's revolt was at an end, to be all impaled. In a second engagement he was defeated and made prisoner; upon which he was deposed by Cyrus, after having reigned 35 years, and the Medes were subjected to the Persians. Astyages was confined to his palace, but suffered to close his life by a natural death. Xenophon, in his "Cyropædia," a work which the best critics have considered more as a fiction than a true history, represents Cyrus as having been openly educated at the court of his grandfather Astyages, who retained the crown till his death, and was succeeded by his son Cyaxares II. Astyages has been reckoned by some the "Ahasuerus" of scripture. Anc. Un. Hist. vol. iv. p. 23. See **MEDIA**, and **PERSIA**.

ASTYANAX, in *Ancient History*, the only son of Hector and Andromache. Calchas, the soothsayer, predicted,

dicted, that if he lived to manhood, he would be more valiant than his father, and avenge his death. It was therefore determined to dispatch him in his minority. Andromache took pains for concealing him; but, it is said, that Ulysses discovered him, and precipitated him from the top of the Trojan walls. The death of Astyanax is the principal subject of Euripides's tragedy of the Trojans.

ASTYNOMI, in *Antiquity*, were magistrates at Athens who had the inspection of the streets, and also of players on instruments and buffoons. They were ten in number, and corresponded to the plebeian ædiles of Rome. See AGORANOMUS.

ASTYPALÆA, in *Ancient Geography*, an island of Asia, in the Cretan sea, where, according to Cicero (*De Nat. Deor.* l. iii. c. 18.), divine honours were rendered to Achilles. Steph. Byz. says, that this island, one of the Cyclades, was called Pyrrha when the Carians possessed it, and afterwards Pylæa. Its name Astypalæa, in its proper signification, means the "ancient city," and is said to be derived from that of the daughter of Phœnix and Pirame, sister of Europa, and beloved by Neptune, by whom he had Ancæus, who reigned over the people named Lelegi. Pausan. l. vii. c. 4. It was also called "Theontrapeza," i. e. the table of the gods, because its soil is fertile, and almost enamelled with flowers. It now bears the name of STAMPALIA.—Also, a town of the island of Cos. Strabo.—Also, a promontory of Asia Minor, in Caria, in the territory of Mindus. Strabo.—Also, a town of the island of Samos.

ASTYRA, or ASTYRÆ, a town of Æolis; but it no longer subsisted in the time of Pliny.—Also, a village of Asia Minor, in the Troade, near mount Ida, in the vicinity of which was a grove consecrated to Diana Astyræné.—Also, a town of Phœnicia, in the neighbourhood of the isle of Rhodes. Steph. Byz.

ASTYRON, a town of Illyria, built by the Argonauts.

ASUADA, a town of Palestine. Not. Imp.

ASUCA BAY, in *Geography*, lies on the south part of the gulf of Sofala, on the S. E. coast of Africa, in the Indian ocean.

ASUM, in *Ancient Geography*, a town of the island of Crete (Pliny), the Asos of Steph. Byz. whence Jupiter derived the appellation of Asius.

ASUM, *Ossion*, in *Geography*, a town of Africa, on the sea-coast of the kingdom of Adel.

ASUMATZ, a town of Wallachia, eight miles east of Bucharest.

ASWAD, a town of Arabia, 28 miles south of Saade.

ASYLA, in *Ancient Geography*, a town of Spain, in the country of the Turdetani. Ptolemy.

ASYLUM, a sanctuary or place of refuge, where a criminal who shelters himself is deemed inviolable, and not to be touched by any officer of justice.

The word is compounded of the privative particle *α*, and *αυλα*, *I hurt*; because no person could be taken out of an asylum without sacrilege.

The first asylum was established at Athens, by the descendants of Hercules, to shelter themselves from the fury of his enemies; to serve as a refuge for children who fled from the ill treatment of their parents, and, as some have said, to be a sanctuary for suppliants in general. This is said by Statius, *Theb.* xii. and Servius, in *Æneid* viii. to have been the first asylum; others suppose that it was first built at Thebes by Cadmus, for the reception of all criminals. Pausan. l. vii. *Æn.* l. ii. v. 112. Eurip. *Hecuba*,

v. 146. In imitation of the asylum of Cadmus, Romulus established one between the two groves on the Capitoline mount, which was free of access to all criminals. The oracle of Delphos, according to Plutarch, sanctioned this political establishment of Romulus with its approbation. When Romulus enlarged his new city, which by this policy was stocked with inhabitants, the asylum was inclosed within the walls, and those who had fled to it, being brought under some regulations, became citizens of Rome. Plut. in *Rom.* l. v. c. 19. Dion. Hal. l. ii.

The temples, altars, statues, and tombs of heroes, were, anciently, the ordinary retreat of those who found themselves aggrieved by the rigour of the laws, or oppressed by the violence of tyrants: but temples were held the most sacred and inviolable refuge. It was supposed, that the gods took upon them to punish the criminal who thus threw himself upon them; and that it would be a great impiety in man to take vengeance out of the hands of the immortals.

The Israelites had their cities of refuge, which were of God's own appointment; where the guilty, who had not committed any deliberate crime, found safety and protection. As to the heathens, they allowed refuge and impunity even to the vilest and most flagrant offenders, some out of superstition, and others for the sake of peopling their cities; and it was by this means, and with such inhabitants, that Thebes, Athens, and Rome, were first stocked. We even read of asylums at Lyons and Vienne, among the ancient Gauls; and there are some cities in Germany which still preserve the ancient right of asylum.

Hence, on the medals of several ancient cities, particularly in Syria, we meet with the inscription ΑΣΥΛΟΙ, to which is added, ΙΕΡΑΙ. This quality of asylum was given them, according to M. Spanheim, in regard to their temples, and of the gods revered by them.

The same qualities have also been given to deities: thus Diana of Ephesus is called *ασυλῶς*. Add, that the camp, formed by Romulus and Remus, was called asylum, and afterwards became a city, in which was a temple erected to the god Asylæus, *Θεὸς Ἀσυλαίου*. It appears from Plautus (*Moltell.* v. 1.), that slaves had particular asylums: such was the temple at Athens; or the tomb of Theseus; because he never refused to avenge the oppressed, and to succour the wretched. The temple of Diana at Ephesus was an asylum for debtors. In process of time, asylums were so multiplied, that it became necessary to regulate and reform them, in the reign of Tiberius, as we are informed by Tacitus (*Annal.* l. iii. c. 60.); and Suetonius (*Tiberii.* c. 37.) says, they were utterly abolished.

The emperors Honorius and Theodosius granting the like immunities to churches, the bishops and monks laid hold of a certain tract or territory, without which they fixed the bounds of the secular jurisdiction: and so well did they manage their privileges, that convents, in a little time, became next akin to fortresses, where the most notorious villains were in safety, and braved the power of the magistrate.

These privileges, at length, were extended not only to the churches and church-yards, but also to the bishops' houses, whence the criminal could not be removed without a legal assurance of life, and an entire remission of the crime. The reason of the extension was, that they might not be obliged to live altogether in the churches, &c. where several of the occasions of life could not be decently performed.

But, at length, these asylums, or sanctuaries, were also stripped of most of their immunities, because they served to make guilt and libertinism more bold and daring. In England,

land; particularly, they were entirely abolished. See SANC-TUARY.

ASYMMETRY, derived from the primitive α . $\sigma\upsilon\nu$, *with*, and $\mu\eta\tau\epsilon\omicron\nu$, *measure*, q. d. *without measure*, a want of proportion, or correspondence between the parts of a thing. See SYMMETRY.

In Mathematics, the word is more particularly used for what we more usually call incommensurability; which is when between two quantities there is no common measure: as between the side and diagonal of a square. In number, surd roots, as $\sqrt{2}$, &c. are incommensurable to rational numbers.

ASYMPTOTE, in *Geometry*, a line which continually approaches nearer and nearer to another; yet will never meet with it, though indefinitely produced.

The word is compounded of the privative α , $\sigma\upsilon\nu$, *with*, and $\omega\pi\iota\omega$, *I fall*; q. d. *incoincident*, or which never meet. Some latin authors call these lines *intæle*.

Bertinus enumerates divers sorts of asymptotes; some straight, others curve; some concave, others convex, &c. and farther, proposes an instrument for describing them. Though, in strictness, the term asymptotes seems appropriated to right lines. Asymptotes, then, are properly right lines, which approach nearer and nearer to some curve of which they are said to be the asymptotes; but which, though they and their curve were indefinitely continued, would never meet: consequently asymptotes may be conceived as tangents to their curves at an infinite distance. Two curves are also said to be asymptotical, when they thus continually approach, without a possibility of meeting.

Of lines of the second kind, or curves of the first kind, that is, the conic sections, only the hyperbola has asymptotes, which are two in number, the properties of which have been long ago demonstrated by Apollonius Pergæus.

All curves of the second kind have at least one asymptote; but they may have three; and all curves of the fourth kind may have four asymptotes.

The conchoid, cissoid, and logarithmic curve, though not reputed geometrical curves, have each also one asymptote.

The nature of asymptotes will be easily conceived from the instance of the asymptote of a conchoid. Suppose MMAM, &c. (*Plate ANALYSIS, fig. 2.*) to be a part of a conchoid, C its pole, and the right line BD, so drawn that the parts, QA, EA, OM, &c. of right lines drawn from the pole C, are equal to each other; then will the line, BD, be an asymptote of the curve; because the perpendicular, MI, &c. is shorter than MO, and MR than MQ, &c. so that the two lines continually approach; yet the points, M, &c. and R, &c. can never coincide, since there still is a portion of a line to keep them asunder; which portion of a line is infinitely divisible, and consequently must be diminished infinitely before it becomes nothing.

ASYMPTOTES of the HYPERBOLA are thus described. Suppose a right line DE (*Plate I. CONICS, fig. 2.*) drawn through the vertex, A, of the hyperbola, parallel to the ordinate Mm, and equal to the conjugate axis, viz. the part DA, or AE, equal to the semi-axis: then, two right lines drawn from the centre C of the hyperbola through the points D and E, viz. the right lines, CF and CG, are asymptotes of the curve. The parts of any right line, lying between the curve of the common hyperbola and its asymptotes, are equal to one another on both sides, that is $vm = MR$. Thus also, in hyperbolas of the second kind, if a right line be drawn, intersecting the curve and its three asymptotes in three points, the sum of the two parts of that right line extended in the same direction from any two of the asymptotes

to two points of the curve, is equal to the third part which extends in the contrary direction from the third asymptote to the third point of the curve.

If the hyperbola GMR (*fig. 3.*) be of any kind whose nature with regard to the curve, and its asymptote, is expressed by this general equation, $x^n y^n = a^{n+m}$; and the right line PM be drawn any where parallel to the asymptote CS, and the parallelogram, PCOM, be completed; this parallelogram is to the hyperbolic space PMGB, contained under the determinate line PM, the curve of the hyperbola, GM, indefinitely continued towards G, and the part, PB, of the asymptote indefinitely continued the same way, as $m-n$ is to n : and so if m be greater than n , the said space is finite and quadrable; but when $m=n$, as it will be in the common hyperbola, the ratio of the foregoing parallelogram to that space is as 0 to 2: that is infinitely greater than the parallelogram, and so cannot be obtained; and when m is less than n , $m-n$ will be negative, and the parallelogram will be to the space as a negative number to a positive one, and the said space is called by Dr. Wallis more than infinite. See HYPERBOLA.

ASYMPTOTE of a *Logarithmic Curve*. If MS (*Pl. Analysis, fig. 3.*) be the logarithmic curve, PR an asymptote, PT the subtangent, and MP an ordinate; then will the intermediate space RPMS = PM + PT; and the solid, generated by the rotation of this curve about the asymptote, VP, rated by half of a cylinder whose altitude is equal to the length of the subtangent, and the semidiameter of the base equal to the ordinate QV. See LOGARITHMIC.

ASYMPTOTES, are by some distinguished into various orders. An asymptote is said to be of the first order, when it coincides with the base of the curvilinear figure: of the second order, when it is a right line parallel to the base: of the third order, when it is a right line oblique to the base: of the fourth order, when it is a common parabola, that has its axis perpendicular to the base: and, in general, of the order $n+2$, when it is a parabola, the ordinate of which is always as a power of the base, whose exponent is n . The asymptote is oblique to the base, when the ratio of the first fluxion of the ordinate to the fluxion of the base, approaches to an assignable ratio, as its limit; but it is parallel to the base, or coincides with it, when this limit is not assignable.

The determination of the asymptotes of curves, is a curious part of the higher geometry. M. de Fontenelle has given several theorems relating to this subject, in his "Geometrie de l'infini." See also Stirling's "Lineæ tertii Ordinis," Prop. vi. where the subject of asymptotes is elaborately discussed; and Cramer, "Introduction à l'Analyse des Lignes courbes," art. 147, &c. in which is given an excellent theory of geometrical curves and their branches. This subject is also treated accurately by Mr. Maclaurin, in his *Fluxions*, book i. chap. 10, where he has been careful to avoid the modern paradoxes concerning infinites and infinitesimals. The areas bounded by curves, and their asymptotes, tho' indefinitely extended, sometimes have limits to which they may approach, so as to differ less from those limits than by any given quantity. This happens in hyperbolas of all kinds, except the first, or Apollonian. The same is also true of the area, comprised between the logarithmic curve and its asymptote. See LOGARITHMIC CURVE. Those who do not scruple to suppose the curve and its asymptote to be infinitely produced, say, that the infinitely extended area becomes equal to its limit.

The asymptotical area in the common or Apollonian hyperbola, and in many other curves, has no limit; and it is usual to say, these areas are infinitely great; by which, however, no more is meant, than that the curve, and its asymptote,

asymptote, may be extended, till the space comprehended between them exceeds any given magnitude. Some authors, and Dr. Wallis among the rest, have talked of some of these areas, as if they were more than infinite. This happened from an analogy they imagined between positive, nothing, and negative, and what is finite, infinite, and more than infinite. See *HYPERBOLA*.

Solids generated by hyperbolic areas, revolving about their asymptotes, have sometimes also their limits; and sometimes they may be produced, till they exceed any given solid. See art. 307. 309. of the above mentioned author. When a curve, and its asymptote, are supposed to be produced infinitely, and the area comprised between them, to revolve about the asymptote, the surface generated will be finite or infinite, according as the area of the generating figure is finite or infinite.

For the asymptotes of curves, described by the intersections of right lines revolving about given poles, see Mr. MacLaurin's *Fluxions*, art. 313. seq.

ASYMPTOTE, *Parabolic*. See *PARABOLIC Asymptote*.

ASYMPTOTIC Spaces. See *HYPERBOLA*.

ASYNDETON, derived from the privative *α*, and *συνδew*, *I bind together*, a figure in *Grammar*, implying an omission of words, or a defect of those particles that connect the members of a sentence with one another. The want of such particles represents either the celerity of an action, or the haste and eagerness of the speaker. As, in the instance, "veni, vidi, vici," "I came, I saw, I conquered;" in which Cæsar expresses his conquest of Pharnaces (Suet. in vit. c. 37.); where the copulative *et*, *and*, is omitted: or in that of Cicero concerning Catiline, "abiit, excessit, evasit, erupit;" "he is gone, departed, escaped, broke out:" or in that verse of Virgil,

"Ferte citò flammas, date vela, impellite remos."

This concise mode of speaking adds a considerable emphasis to an expression; and, by bringing the several parts of a subject nearer together, affects the mind with greater force. Thus Cicero (pro Muræna. c. 29.) sets Cato's character in a very strong and beautiful light by the use of this figure. "Nature itself has made you a great and excellent man for integrity, gravity, temperance, magnanimity, justice, in a word, for all virtues."

Asyndeton stands opposed to *polyasyndeton*, where the copulatives are multiplied.

ASYNT POINT, or *Row Stoir*, in *Geography*, a cape on the west coast of Scotland, in the county of Sutherland. N. lat. 58° 13'. long. 1° 58' W. Edinburgh.

ASYPHUS, in *Ancient Geography*, a mountain of Africa, in the *Marmarica*. Ptolemy.

ATA, or *ATATSCHAI*, in *Geography*, a rivulet of Persia, in the province of Schirwan, serving as a boundary to some of the districts into which it was divided.

ATABULI, in *Ancient Geography*, a people of Africa, placed by Pliny in the small island of Meroe.

ATABULUS, in *Physiology*, a kind of wind in *Apulia*, of a dry, pinching quality, and very noxious in its effects.

The ancient naturalists speak of the atabulus in terms of horror, on account of the ravage it made among the fruits of the earth, which it scorched or withered up.

ATABYRON, in *Geography*, the name of a mountain in the island of Rhodes, whence the island itself was denominated *Atabyria*. The name is supposed to have been derived from Phœnicia, where Atabyr denoted a place of good pasture, and it was applied to the *Tabor* of scripture, belonging to the tribe of Zabulon. On this mountain was situated a temple of Jupiter, hence called *Atabyrius*, much celebrated by heathen historians and poets. Here, fabulous report

says brazen oxen announced by their bellowings any approaching calamity. The fable is explained by supposing that the priests of this temple pretended to be endowed with the spirit of prophecy.—Also, a mountain of Sicily, so called on account of a temple of Jupiter Atabyrius, and of Minerva, that was erected on its summit.—Also, a town of Phœnicia, according to Steph. Byz.: or of Cœlesyria, according to Polybius.

ATACAMA, in *Geography*. See *ATTACAMA*.

ATACINI, in *Ancient Geography*, a people of Europe, in Gaul, who inhabited the banks of the Atax (Aude), whence their name, near the Volææ Tectofages, and north of the Sardonii. Their capital was Narbo.

ATÆA, a town of Laconia. Steph. Byz.

ATAHUALPA, in *Biography*, the son of Huana Capac, by the daughter of the sovereign of Quito; was appointed by his father, when he died in 1529, his successor in the kingdom of Quito; the rest of his dominions being bequeathed by him to Huascar, his eldest son by a mother of the royal race. The destination of Huana Capac concerning the succession, excited general disgust at Cusco; and Huascar, encouraged by his subjects, required his brother to renounce the government of Quito, and to acknowledge him as his lawful superior. Atahualpa, having secured in his interest a large body of troops which had accompanied his father to Quito, and which formed the flower of the Peruvian warriors, first eluded his brother's demand, and then marched against him in hostile array. This contest between the brothers involved Peru in a civil war, which terminated in the defeat and captivity of Huascar, and in the extermination of the royal race by the murder of all the children of the sun, as the descendants of Manco Capac were denominated, whom Atahualpa could seize either by force or stratagem. At this time Pizarro, the Spanish adventurer, arrived in Peru; and being solicited by messengers deputed by Huascar, to assist him in subduing his brother, who was represented as a rebel and an usurper, he directed his course towards Caxamalca, a small town at the distance of twelve days march from St. Michael, where Atahualpa was encamped, with a considerable body of troops. The reigning inca dispatched a messenger to Pizarro, as he was advancing, with a valuable present, offering his alliance, and assuring him a friendly reception at Caxamalca. Pizarro, on his part, returned professions of regard, and a declaration that he was now advancing, as the ambassador of a very powerful monarch, with an intention to offer Atahualpa aid against those enemies who disputed his title to the throne. This pacific and friendly declaration removed the inca's fears; and Pizarro was allowed to march, without interruption, to Caxamalca; in his approaches to which he received renewed professions of friendship from Atahualpa, and additional presents. The perfidious Spaniard determined to avail himself of the unsuspecting simplicity with which Atahualpa relied on his professions, and to seize his person during the interview to which he had invited him. Accordingly he made preparations for this purpose; and as the inca drew near the Spanish quarters, with a numerous and splendid train, the friar Valverde advanced to meet him, with a crucifix in one hand, and a breviary in the other; and in a long discourse explained to him the doctrines of religion, and the authority of the pope, closing his harangue with a requisition, that the inca would embrace the Christian faith, acknowledge the supreme jurisdiction of the pope, and submit to the king of Castile as his lawful sovereign. This requisition was enforced by promises of protection, if he complied, and by threats of vengeance if he refused to obey the summons. The inca hesitated and demurred; he pleaded his

his right to empire by hereditary succession; he expressed his surprise that a foreign priest should dispose of territories which did not belong to him, and without the consent of the rightful possessor; and he professed that he had no inclination to renounce the religious institutions established by his ancestors, and that he could not abandon the service of the sun, the immortal divinity whom he and his people revered, in order to worship the god of the Spaniards, who was subject to death. As to other matters, which he had never heard before, and the meaning of which he did not now understand, he desired to know where the priest had learned such extraordinary things: "in this book," replied Valverde, reaching out to him his breviary. The inca eagerly opened it, and turning over the leaves, lifted it to his ear: "this," says he, "is silent; it tells me nothing;" and he threw it with disdain to the ground. The enraged monk exclaimed to his countrymen: "to arms, Christians, to arms; the word of God is insulted; avenge this profanation on those impious dogs." The farce being now completed, the Spaniards rushed upon the innocent Peruvians, massacred many of them without mercy, and seized the person of the inca himself, who was detained in captivity. The dejected prince, anxious to regain his liberty, proposed a ransom, and such was the amount of it, that the Spaniards themselves were astonished, even after all they knew concerning the opulence of his kingdom. The apartment in which he was confined was twenty-two feet long, and sixteen broad; and the captive monarch proposed to fill it with vessels of gold as high as he could reach. Pizarro closed with the alluring proposal, and a line was drawn upon the walls of the chamber to mark the stipulated height to which the treasure was to rise. When this immense mass was nearly collected by the faithful attachment and active zeal of his subjects, the inca was allowed to sacrifice to his own safety the life of his captive brother Huascar: but though the Spaniards divided among them the rich spoil of Peru, the inca was continued in confinement. He now became an object of contention between the soldiers of Pizarro, and those that were newly arrived under Almagro; and the latter demanded his life, that there might be no pretext of inequality in sharing the future plunder of Peru, under the notion of its being the inca's ransom. Pizarro at length consented to sacrifice the inca; and after a mock trial, Atahualpa was found guilty, and condemned to be burnt alive. Friar Valverde prostituted the authority of his sacred function to confirm this sentence, and by his signature warranted it to be just. Astonished at his fate, Atahualpa endeavoured to avert it by tears, by promises, and by entreaties that he might be sent to Spain, where a monarch would be the arbiter of his life. Pizarro was unrelenting; and the inca was led to execution. Valverde attended him, and attempted to convert him to embrace the Christian faith, by a promise of procuring a mitigation of his punishment. The dread of a cruel death, at length, extorted from the trembling victim a desire of receiving baptism. The ceremony was performed; and Atahualpa, instead of being burnt, was strangled at the stake. This event happened A. D. 1533; and thus terminated the life and reign of the last inca of Peru. Robertson's Hist. Amer. vol. iii. p. 29—57.

ATAJA, in *Ichthyology*, a name given by some writers to a species of *Sciæna*, observed by Forskal. It is an inhabitant of the Red Sea.

ATAIR, in *Astronomy*. See ALCAIR.

ATAKKENI, in *Geography*, a town of Asiatic Turkey, in the province of Natolia, forty-four miles north-west of Eregrî.

ATALA, a small town of Sicily, in the valley of De-

mona, agreeably situate on the strait of Messina, between Messina and Taormina.

ATALANTA, in *Entomology*, a species of *PAPILIO* that inhabits Europe, and of which a variety is found in America. The wings are black, indented, and spotted with white; a red band across the anterior pair; border of the posterior pair of the same colour. This is *PAPILIO Atalanta* of most authors: English Aurelians call it the *red admirable butterfly*, and the French *Atalante*.

ATALANTA, in *Ancient Geography*, *Tutendi*, a small island in a canal formed by the sea between the island of Eubœa to the east, and the coast of Locris to the west. The ancients, as Pliny, Eusebius, and Diodorus Siculus, have suggested that this tract of land was detached from the adjoining country.—Also, another island in the Saronic gulf.

ATALAYA, or ATALAVA, in *Geography*, a small town of Portugal, in the province of Estremadura, consisting of one parish with about 200 inhabitants. It is defended by a fortress on an eminence of difficult access; two leagues south of Tomar.

ATALENUM, in *Ancient Geography*, a town of Asia, in Armenia Major.

ATAMARAM, in *Botany*. See ANNONA.

ATAMASCO LILY. See AMARYLLIS.

AT-ANCHOR, in *Sea Language*, expresses the situation of a ship riding by her anchor.

ATANTA, in *Botany*, a name given by the people of Guinea to a kind of sumach, called by Petiver *Rhus Guineense trifoliatum serratum scabium*, from its being trifoliate, and having rough and serrated leaves. This somewhat resembles the hoary trifoliate African *sumach* of Plukenet; but it differs in this, that its leaves are edged with prickles, whereas those of Plukenet's kind are only deeply sinuated. The people of Guinea are very fond of this for its medicinal virtues; they give it as a restorative, boiled in water. Phil. Transf. No. 232.

ATAPHYNI, in *Ancient Geography*, a people of Arabia. Steph. Byz.

ATARAXY, a term much used by the *Sceptics* and *Stoics*, to denote that calmness and tranquillity of mind, and that firmness of judgment, which sets us free from any agitations or emotions arising from self-opinion, and the knowledge we imagine ourselves possessed of.

The word is compounded of *αταρ*, *but*, and *ταξις*, *order*. In this ataraxy, they supposed the sovereign good, or highest bliss in this life to consist.

ATARNA, in *Ancient Geography*, a town of Mysia upon the Hellespont, over against the isle of Lesbos. In the time of Pliny it was no more than a village; he calls it Aterna; and in D'Anville's chart it is Atarneüs.

ATAVILLOS, in *Geography*, a people of South America, in Peru, at the source of the river Xauca, at some distance from the Pacific ocean and from Lima.

ATAXIA, *ἀταξία* in *Medicine*, a term which signifies irregularity or disturbance of action, from *α*, privative and *τάξις*, *ordo*. This term is applied to fevers, when they are irregular in their type; to the pulse, when it is fluttering and unequal; and to the operations of the sensorium commune, when they are hurried and confused. An atactic condition of the pulse and spirits, in acute diseases, is generally a sign of malignancy.

ATAXORA, in *Geography*, a town of Spain, in Navarre, four leagues from Olita.

ATBARA, a province of Abyssinia, the capital of which is Teawa, thirty-three miles north from Rashid, in N. lat. 14° 2' 4". The ancient river Astaboras is now called Atbara, and the province is, according to Bruce, the

the ancient peninsula Meroe. The Daveina Arabs, who constantly live in tents, bear a mortal enmity to all who inhabit villages, and, as occasion offered, have laid waste the greatest part of Athara. The strength of Teawa, says Bruce, was about twenty-five horse, of which about ten were armed with coats of mail; and they had about a dozen firelocks. The rest of the inhabitants might amount to 1200 men, naked, miserable, and despicable Arabs, like the rest of those that live in villages, who are much inferior to the Arabs that dwell in tents. In this desert and poor country, it is not to be expected that trade of any kind should flourish; but there is a miserable manufacture of coarse woollen cloths, of the size of large towels, sufficient to go round the middle, which pass current, like specie, all over Athara; they are called "Dimoor," and are used instead of silver money. The mahalac, a very bad copper coin, passes for smaller matters; so that the currency of Teawa stands thus:

20 mahalac,	1 crush,
12 crush,	1 metical,
4 metical,	1 vakia.

The vakia of gold is worth about forty-five shillings; but the only commerce of Teawa is carried on by exchange, as salt for grain, camels for salt; the value of goods varying according to the scarcity or plenty of one sort of commodities with respect to the other. Bruce's Trav. vol. 4. p. 406.

ATCHAIKSKOI, a fortress of Siberia, on the Irtysh, twenty-eight miles south-east of Omsk.

ATCHAK, one of the Fox islands, about 800 versts distant from the Aleutian isles; lying in 56° N. lat. and extending from W. S. W. towards E. N. E. It resembles Copper island, and has a convenient harbour on the north.

ATCHE, in *Commerce*, a small silver coin, current in the states of the Grand Seigneur, equal to about a third part of the English penny. The atche is the smallest coin used in Turkey; where there is no copper money current, except in the province of Babylon. Some call the atche the little asper: it is stamped like the para, with Arabic characters. Three or four atches are commonly given in exchange for the para.

ATCHIEVEMENT, in *Heraldry*, signifies the arms, crests, and supporters, which a person has a lawful right to bear, with all the exterior ornaments, as helmet, mantle, motto, &c. &c. See FUNERAL Achievements.

ATCHEIN, in *Geography*. See ACHEEN.

ATCHI KOUNIPI, a lake of America, in Labrador, which conveys its water southerly, through a connected chain of small lakes, into the river St. Lawrence.

ATCHINSK, one of the six districts of the province of Tomsk, in Russia, situate on the river Tchulym, falling into the Ob. The Town is 424 miles E. S. E. of Tobolsk. N. lat. 5. 56°, 20'. E. long. 124°. 36'.

ATE, derived from *αἰώω*, to hurt, in *Mythology*, the daughter of Jupiter, and the goddess of mischief. She was cast down from heaven by Jupiter, who, deceived by Juno in causing Euristheus to be born before Hercules, was incensed, and manifested his resentment against Ate, as the cause of the offence, by precipitating her from heaven, and swearing that she should never return thither. Homer, II. xix. 125. Mythologists explain the fable thus: Ate is the daughter of Jupiter, because evil happens by the permission of providence; and her banishment from heaven to earth signifies the dreadful effects of divine justice among men.

ATECA, in *Geography*, a town of Spain, in Arragon, upon the river Xalon, two leagues above Calatiau: sup-

posed by Clusius to be the Ancient "Attacum" of the Celtiberians, placed by others at Daroca.

ATEGAR, a weapon among the Saxons, which seems to have been a hand-dart. The word comes from the Saxon *acton*, to sling, or throw, and *gar*, a weapon.

ATEGUA, in *Ancient Geography*, a town of Spain, situate near the river named "Flumen Salsum," or "Salsufa." Pompey having passed this river, encamped between Ucubis and Ategua, to oblige Cæsar to raise the siege of the latter place; but it was taken in his presence. It occurs in the route from Anticaria to Hispalis.

ATEIA, a town of Asia Minor, in the Palmyrene. Ptolemy.

ATELEIA, in *Antiquity*, denotes an exemption from tribute, taxes, or other burdens.

Ἀτελεία λειτεργημάτων, is particularly used, in some *Ancient Laws*, for an exemption from offices, granted to the Egyptian clergy by Constantius.

ATELLA, in *Ancient Geography*, a town of Italy, in the Campania, south-west of Capua. It was first declared municipal, and afterwards became a colony. The ruins of this ancient city of the Oscans may be now seen two miles to the south of Averfa, at a place called "S. Aspino di Atella."

ATELLA, in *Geography*, a town of Italy, in the kingdom of Naples, at the foot of the Apennines, in the Basilicata, two leagues from Melphi.

ATELLANÆ, in *Antiquity*, a kind of comic and satiric pieces presented on the Roman theatre; somewhat less ludicrous than the farces on the English stage, and yet less grave and serious than the Greek and Latin comedies and tragedies. The atellanæ, or fabulæ atellanæ of the Romans, answered to the satyræ among the Greeks. They were thus called from *Atella*, a city of Tuscany, where they were first represented; and from whence, on account of their mirth and humour, they were introduced into Rome. But they became at length so licentious and impudent, that the senate was obliged to suppress them.

ATELLARA, or ATELLARI, in *Geography*, a river of Sicily, which runs into the sea between Syracuse and cape Passaro.

ATELLUM, in *Ancient Geography*, a town of Italy, in Magna Græcia, north-west of Venulia.

A-TEMPO GIUSTO, in *Music*, implies a steady, just time; not very quick, but firm and exact. *A-tempo*, after recitative, a pause, or *ralentando*, implies a return to the first time.

ATENA, in *Geography*, a small town of Italy, in the kingdom of Naples, situate on the river Negro, in the Principato Citra, ten miles west of Marfico Novo.

ATER, in *Ancient Geography*, a mountain of Africa, in the Syrtis Mior, which, according to Pliny, extended itself to a considerable distance from the east to the west, and was called by the Romans, "Mons Ater," because it was scorched by the heat of the sun. The mountainous tract, known to the ancients by the name of Mons Ater, is now denominated the "Black Harutch."

ATER, in *Conchology*, a species of MYTILUS, described in *Molin. Hist. Chili*. p. 177. and said to be frequent on the shores of that country. It is fulcated or grooved, with the posterior part scaly. Gmel. This shell is rough like some species of pinnæ; dull blue; fish black, and not eatable.

ATER, a species of STROMBUS found in the boggy parts of the island of Amboyna. This shell is smooth, and has the lip separated before and behind. The length is about two inches; colour black, brown, or bay, and white within; very finely striated transversely; aperture ovate; spire subulate,

ulate, and consisting of twelve contiguous flattish whorls. Gmelin, Lister, &c.—Müll. in his Hist. Verm. Fluv. et Terr. describes it as *Nerita testa subulata lævi*, apertura antice posticeque sinuata.

ATER, in *Entomology*, a species of *DERMESTES* found in the neighbourhood of Upsal, and described by Dr. Thunberg, in Nov. Act. Upf. 4. p. 4. n. 4. It is glossy black, with the wing-cases thinly punctured. This is a small insect.

ATER, a species of *HYDROPHILUS*, a native of Europe. This is black and glabrous; antennæ and shanks reddish. Gmel.

ATER, a species of *BYRRHUS* that inhabits Germany, and in shape and size resembles *byrrhus pilula*. It is black and without spots. Fabr. This is *cistela nigra nitens glabra* of Geoffroy.

ATER, a species of *TENERIO* found in Europe. This is of a black colour, with ferruginous antennæ. Linn.

ATER, a species of *CARABUS* that inhabits Denmark. Black; wing-cases striated; claws somewhat ferruginous. Müll. Zool. Dan.

ATER, a species of *CERAMBYX* (*Callidium* Fabr.) found in the environs of Venice. It is black, with truncated wing-cases, and moderate antennæ. Scopoli, Gmel. &c.

ATER, a species of *GRYLLUS* (*Acheta* Fab.) that inhabits Surinam. The colour is dark brown, and the tail of the female is unarmed. Degeer Inf. 3.—Gmel.

ATER, a species of *CIMEX* (*Coleoptratus* Sec.). This insect is glossy-black, with the apex of the wing-cases very pale. Fabr. Mant. Inhabits Germany, and is about half the size of *cimex zosteræ*.

ATER, is also a species of *CIMEX* in the Linnæan Fn. Sv. 944. The body is entire, and in Gmelin's arrangement it belongs to the section *oblongus*. Geoffroy describes it as being black and oblong, and the antennæ terminating each in a bristle or hair. Inhabits the north of Europe and Calabria.

ATER, a species of *CYNIPS*, described by Schrank among the insects of Germany, and which form and inhabit very large excrecences on the stems of plants. It is black, with elevated dots; tarsi of the legs paler.

ATER, a species of *BOMBYLIUS* described by Scopoli, Schæffer, &c. It inhabits Germany. The colour is black; base of the wings half-black; abdomen spotted with white, Fabr. Spec. Inf.—Front of the head and thorax downy, and a white dot before each eye.

ATER, a species of *ASILUS* found in Europe. It is black and hairy, with a white beard. Fn. Sv. Scopoli calls it *erax prostratus*.

ATER, a minute species of *IP*s found in England by Mr. Kirby, and described by Mr. Marsham, Ent. Brit. It is subcylindrical and black; thorax dotted with impressed points, and carinated along the middle; wing-cases with crenate striæ; soles of the feet pitchy black.—General colour black.

ATER, in *Natural History*, a species of *ANGUIS* or snake. It inhabits Ceylon; black, fasciated with white, and the scales tipped with black. Laur. Amp. This is *amphisbæna ceilonica* fœmina of Seba; and *anguis ater*, black-banded slow-worm of Dr. Shaw.

ATER, a species of *LIMAX*, (slug or snail), the body of which is black and rugged. Müll. Gmel. Of this kind there are several varieties; the first (α) is black, and pale beneath; it is figured by Lister, exerc. anat. tab. iii. f. 1—5., and is probably *cochlea nuda* of Gess. The second variety (β) is black, with a pale greenish dorsal ridge. The third (γ) is described by Swammerdam; it is

black above, white beneath, and the mouth yellowish. The fourth (δ) is *limax fulvifusus* of Lister; the colour of which is chestnut-brown above, white beneath, and mouth yellowish. The fifth kind is of an obscure brown, with a yellowish mouth and streak on each side.

These are found in woods, meadows, and gardens. The length is from an inch and four lines to five inches. The feelers are black in all; the shield rough, with many punctures; back and belly deeply furrowed or wrinkled.

ATER, in *Ornithology*, a species of *FALCO* that inhabits Europe. The cere and legs are yellow, body above brownish black; and the head, whitish; tail forked. Gmel. This is a kind of kite, and is somewhat smaller than the common species, *milvus*. Briss. calls it *milvus niger*; Buff. *milan noir*; and Cramer, *braunermaldygeyer*. It is also the black gled of Sibbald, and black kite of Latham.

ATER, a species of *PSITTACUS*, of a black colour, glossed with green, with bill and eyes red, and yellow legs. This is the black macaw of English writers; *ara noir* of Buff.; and *ararauna ou machao* of de Laët, &c. It lives about the summits of the dry mountains and rocky places in the interior parts of Guiana, and in that respect differs from the other kinds of macaws found in that country. Buffon speaks of it as a species well known to the inhabitants of Guiana, but had never seen it; and observes, that though the plumage is black, it is so blended with green, that in the sunshine it has a most splendid appearance.

ATER, the Gmelinian specific name of the crested black cuckoo of Latham; a kind of *CUCULUS*, with a wedge-formed tail; body shining, black; feathers of the head elongated into a crest; and the first five quill-feathers white at the base. This bird is a native of Africa, being found at the cape of Good Hope, and it is conjectured may be only a variety of *cuculus ferratus*.

The length of this kind is twelve inches; the bill an inch and a quarter in length, and rather incurved. Buffon says in his specimen, the tail feathers are not regularly cuneated. The same author supposes his Jacobin huppé de Coromandel, or Coromandel crested cuckoo, to vary only through the difference of climate.

ATER, a species of *PARUS*, that inhabits the woods of Europe and North America, and is known in England by the name of the colemouse. The head is black; back cinereous; back of the head and breast white. Gmel. &c. The bill and chin of this bird are black; vent, reddish; quill and tail feathers brownish-ash; legs and claws lead-coloured.

ATER, a species of *PARUS*, called in England the Colemouse. It is smaller than the blue titmouse, and is pretty common in woods, orchards, and gardens; feeds on insects, and lays a number of eggs. This bird is found throughout Europe, and inhabits likewise Siberia, and some parts of North America. Linnæus (Fn. Suec.) describes it specifically as having the head black; back cinereous; hind-part of the head and breast white. Scop. Cram. Gmel. &c. This is *parus atricapillus*, la mésange à tête noire of Brisson. av. et la petite charbonnière of Buffon; Frisch calls it *kohlmeise*.—General description. Length four inches; weight two drachms; bill black; throat, as well as the head, of the same colour; from the bill, on each side, a broad band of white passing just under the eye to the sides of the neck; between the breast and vent, rufous white; wing-coverts grey, tipped with white, forming two bands of that colour; quill and tail feathers brownish-ash, bordered with grey; tail rather forked; legs and claws lead colour.

ATERGATIS or *ATARGATIS*, called also *Dorceto*, in

Mythology, a goddess of the Syrians, supposed to be the mother of Semiramis. She was represented with the face and breasts of a woman, but the rest of her body resembled a fish. Vossius says the term signifies *without fish*, and conjectures that the votaries of this deity abstained from fish. According to Antipater, the stoic philosopher of Tarsus, in his treatise on superstition, Atergatis is compounded of *ater*, *without*, and *Gatis*, the name of a Syrian queen, who being very fond of fish, forbade the use of it to her subjects; and the Syrians, it is said, did not eat fish. Fabulous report says, that Atergatis was taken with her son Ichthys, by Mopsus king of Lydia, who drowned them both in a lake near Ascalon, where they were devoured by fishes; and hence, it is added, proceeded the horror of the Syrians against this sort of aliment. Atergatis, styled Dercetus, says Bryant (*Anal. An. Myth.* vol. ii. p. 298.), is a compound of *Atar* or *Atbar*, the same as On and Ofliris, an Egyptian deity, and of *gatus* or *catus*, rendered *ῥῖος* by the Ionians, a fish. Dagon, Sidon, and Dercetus, were all names of the same hieroglyphic, and related to the person called Oanes by Derosus and others, and also to the machine wherein he was preserved. He lived both before and after the flood; he was represented at Babylon with two heads and in other places he was differently exhibited. The meaning of which, according to this writer, was this, that though Oanes was really a man, yet he was typically esteemed an animal of the sea; and on that account they represented him with the skin and scales of a cetus or fish. All these characters were originally taken from hieroglyphics in Babylonia; they relate to the same history, and to one particular person who had escaped the waters when the earth was overflowed; and through whom arts and sciences were supposed to have been renewed in the world. Semiramis, whom the generality of historians have represented as a great princess who reigned in Babylon, is described by other writers as a deity. Thus Athenagoras (*Legatio*, p. 307.) says, that "the Syrians worship Semiramis;" and he adds, "that she was esteemed the daughter of Dercetus, and the same as the Suria Dea." Diodorus also, (*l. ii. p. 92.*) makes her the daughter of Dercetus by Surus; but Surus, says Bryant, was the sun, and the Dea Suria was Dea solaris. Hence many have considered Rhea, Isis, Astarte, Atergatis, and Semiramis, as one deity. Lucian, (*De Suria Dea*, vol. ii. p. 885.) tells us, that they were so esteemed by the Syrians of Hieropolis. According to Bryant, they were all different symbols relating to the same object. See SEMIRAMIS. It has been also supposed, that the Atergatis, or Derceto, of the proper Palestine in general, or of Ascalon in particular, was the Babylonian or Assyrian Venus. To this purpose Strabo (*l. xvi. p. 748.*) says, that Atergatis was worshipped at Hieropolis, and he makes her the same with the Syrian goddess. Others are of the same opinion (*Plin. H. N. l. v. c. 23.*); and among them Macrobius (*in Saturn. i. c. 23.*), who styles her the mother of the gods, Astarte, and the Hierapolitan or Assyrian goddess. Upon the whole, we may observe, that Atergatis was Venus, Juno, Minerva, Astarte the Syrian goddess, and consequently the celestial Venus of the Assyrians. So that we see her the same goddess transported from the banks of the Euphrates, into which she is said first to have plunged herself, in order to escape the inexorable Typhon (*Man. Astron. iv.*); and but just varied so far as to leave room for each particular country to claim her origin. The Syrians, who seem to have received her first, and who were nearest to the place of her native abode, preserved her, it is likely, in the most genuine form; the Phœnicians, who were next, altered her no farther than to make her a Phœnician; and

the Philistines, or Ascalonites, who were a little farther off, that they too might make her their own, converted her into a monster, woman upwards and fish downwards; they allowing her to have been in subordination to some other goddess, who had such power over her as to chastise her by a metamorphosis from her just shape. It appears, then, that the worship paid to this goddess was originally derived from Assyria and Babylonia, and was established in other countries by the prevailing power of these two empires. We may also conclude, that the celestial Venus of the Assyrians, Astarte of the Phœnicians, and the Derceto or Atergatis of the later Philistines, were all derived from Semiramis, the first real or reputed foundress of Babylon; who seems to have been translated into the queen of heaven, the moon, as Belus or Pul, the first Assyrian monarch, was changed into the sun; that all the Jupiters and Junos, and the rest who are supposed to have been once mortal, or conversant on earth, are derived from this source; and that, on this Assyrian or Babylonian foundation, the whole superstructure of the Greek polytheism and idolatry was erected. For the Greeks had their religion from the Phœnicians partly, and partly from the Egyptians, who derived theirs originally from the banks of the Euphrates and Tigris, as may be gathered from the religious state of the countries on either side of the Euphrates in the days of Abraham. The Egyptians, indeed, seem in process of time to have erected a system of their own, though not very widely different from the Babylonians; and the Phœnicians, who had equally communication with the two nations, seem to have mixed both systems. See IDOLATRY, and POLYTHEISM.

ATERION, in *Ancient Geography*, a town of Sicily. Steph. Byz.

ATERIUS, a town of Italy, in Samnium, belonging to the Marrucini, situate on the sea coast at the mouth of a river of the same name, now called *Pescara*.

ATERRIMA, in *Conchology*, a species of *NERITA*, figured by Chemnitz. The shell is thick, opaque, globose, very black, with coloured lines; within white; exterior lip glabrous, inner one tuberculated. Gmel. &c. This kind is very minutely striated, and its habitat unknown.

ATERRIMA, in *Entomology*, a species of *BLATTA*, of a black colour, and destitute of spots; the tarsi of the legs are white, knees brown, shanks spinous. Herbst. This inhabits India.

ATERRIMA, a new British species of *CHRYSOMELA*, described by M. Marsham, *Ent. Brit.* It is black and shining; thorax highly glossy; wing-cases striated; legs rather ferruginous.

ATERRIMUS, a species of *CURCULIO*, very common in Europe. This is black, with the wing-cases shining. Linn. Fn. Sv. Fabr. &c. Gmelin has also another species of *Curculio* under the same name; this is of an oblong form, and black colour, with rufous antennæ. It inhabits Europe, and it is presumed may be only a variety of *Curculio chloropus*.

ATERRIMUS, a species of *CARABUS*, entirely of shining black, with a roundish thorax; wing-cases faintly striated, with four excavated dots near the suture. Herbst. About half an inch in length.

ATERRIMUS, a species of *ELATER*, found in the north of Europe. The thorax is glossy black; wing-cases black and striated. Fabr. This is elater ater, thorace opaco punctato elytris striatis of Linn. Faun. Suec.; and elater totus niger nitidus of Geoffroy.

ATERRIMUS, a species of *CIMEX*, (*Rotundatus* Sec.) that inhabits Spain. This insect is deep black, with half the wing-cases transparent. Forst. Nov. Inf.

ATERRIMS, U

ATERRIMUS, a species of *SCARABÆUS* (*Cetonia*). It is of a dull black, with obscure rufous spots on the wing-cases. Fabricius. It inhabits the cape of Good Hope.

ATERRIMUS, in *Ornithology*, the specific name of the great black Cockatoo of New Holland, a bird of a black colour, with a large and paler crest, and red naked cheeks. Gmel. This kind of *Pittacus* is called by Buffon *kakatoë noir*; and is the great black Cockatoo of Edwards, *Clean*. t. 316.

ATESTE, ESTE, in *Ancient Geography*, a Roman colony settled to the south-west of Patavium in the Venetian territory.

ATFIEH, or **ETFIEH**, in *Geography*, a burgh of Egypt, on the east coast of the Nile, 35 miles south of Cairo. It is situated at the foot of a mountain, upon a narrow canal, formed by a pretty large island. Some geographers have supposed that this town or village occupies the site of the ancient city of Venus, or *Aphrodisopolis*. N. lat. 29° 28'. E. long. 31° 8'.

ATFLOW, EDWARD, in *Biography*, studied at New College Oxford, where he took his degree of Doctor in Medicine in 1566, and was in much repute as a physician, particularly among those of the Romish persuasion. He was imprisoned several months, Ant. Wood says, for corresponding with Mary queen of Scotland. The time of his death is not known.

ATH, ΑΘΑ, or ΑΘΗ, among our *Anglo-Saxon Anteflors*, signifies an *oath*, especially that taken by way of purgation. In this sense we meet with breaking of *ath*, privilege of *oth*, *atha*, and *ordela*.

ATH, in *Geography*, a town in the department of Jemmappe, or chief place of a canton in the district of Tournay; the place contains 7634, and the canton 14,828 inhabitants; the territory includes 115 kilometres, and 11 communes. See **AETH**.

ATHABASCA, RIVER, LAKE, and COUNTRY, lie in the north-west part of North-America, in about N. lat. 58° 40' and W. long. 111° 40'. The Elk river is commonly called by the white people the Athabasca river, in N. lat. 56° 42'. In the territory that lies between the Peace river and the lake of the hills, as far as the Elk river, which is formed by the quantity of earth and mud that is carried down by the stream of these two great rivers, there are several lakes; the lake Clear Water, which is the deepest, lake Vassieu, and the Athabasca lake, which is the largest of the three, and whose denomination in the Kniistineaux language implies a flat, low, swampy country, subject to inundations. The two last lakes are now so shallow, that, from the cause just mentioned, there is every reason to expect, that in a few years they will have exchanged their character, and become extensive forests. This country is so level, that at some seasons it is entirely overflowed; and this circumstance accounts for the periodical influx and reflux of the waters between the Lake of the Hills and the Peace river. Till the year 1782, the people of Athabasca sent or carried their furs regularly to Fort Churchill, Hudson's Bay; and some of them have since that time repaired thither. The present trading establishment is situated on an high bank on the north side of the river La Pluie, in N. lat. 48° 37', where the people from Montreal meet those from the Athabasca country, and exchange lading with them. The traffic to fort Churchill is now in a great measure discontinued, as the Chepewyans were obliged to expend in the course of their journey that ammunition which was its most alluring object. See **CHEPEWYAN**. Mackenzie's Voyages, *Intro.* p. 56—91.

ATHABASCA is by some called **ARATHAPES**cow, and **ATHAPES**cow, and **ATHAPUS**cow.

ATHABOLI, or **AGATOPOLI**, a town of European Turkey, in the province of Romania, 68 miles north-east of Adrianople.

ATHAMADULET, or **ATHEMADAULET**, the prime or chief minister in the Persian empire.

The athamadulet is much the same with the grand vizier in Turkey, except that he has not the command of the army, which the vizier has.

The athamadulet is great chancellor of the kingdom, president of the council, superintendent of the finances; and has the charge of all foreign affairs. He is in effect viceroy or administrator of the kingdom: he issues the king's mandates, or orders, in this style; "Bende derga ali il alia etmadulet," that is, "I, who am the support of the power, the creature of this port, the highest of all ports, &c."

ATHAMANIA, in *Ancient Geography*, a country of Greece, at the source of the river Achelous, in Ætolia, according to Pliny; but in Illyria, according to Steph. Byz. Some have made it a part of Thessaly, and others of Epirus. According to Ptolemy, it was divided from Epirus by the bay of Ambracia; and according to Strabo, from Ætolia, by the river Achelous, M. D'Anville places Athamania between the chain of the Pindus to the east, and a parallel chain to the west. In the midst of this valley ran the river Avas. To the south of this country were the Molossi and Aperantes, to the east the Perrhæbi, and its capital was Argythæa. At their commencement the Athamanians were a very inconsiderable people; but they appeared with distinction in the wars of the Romans and Ætolians against Macedonia, towards the year 197, B. C. Livy relates that the Ætolians chose Aminander, king of the Athamanians, for their mediator in their contests with Philip, and that the Romans solicited his succour against this same Philip. Their dominion extended over the whole chain of the mountains of Epirus; and they seem to have subsisted at least a century before the war of Troy.

ATHAMANTA, in *Botany* (named from Athamas in Thessaly). Lin. Gen. 338. Schreb. 471. Juss. 223. *Oreocelinum*, Tournef. *Clas*, *pentandria digynia*. Nat. Order of *umbellata*. Generic Char. *Cal.* umbel universal, manifold, spreading; partial has fewer rays; involucre universal, many-leaved, linear, a little shorter than the rays; partial, linear, equal with the rays; perianth proper, obscure. *Cor.* universal, uniform; floscules all fertile; proper with five petals, inflex-emarginate, a little unequal. *Stam.* filaments five, capillary, the length of the corolla; anthers roundish. *Pist.* germ inferior; styles two, distant; stigmas obtuse. *Per.* none; fruit ovate-oblong, striated, bipartite. *Seeds*, two, ovate, convex on one side, striated; on the other flat.

Ess. Gen. Char. Fruit ovate-oblong, striated. *Pet.* inflex, emarginate.

Species, 1. *A. Libanotis*, mountain spignel, or stone-parley. With. Smith. Brit. Relh. Cantab. f. 113. Eng. Bot. 138. *A. Oreocel.* Hudf. "Leaves bipinnate, flat; umbel hemispherical; seeds hirsute." Root perennial, spindle-shaped, woody; stem about two feet high, erect, rather branched, smooth, angular and furrowed, leafy; leaves bipinnate, alternate; leaflets sessile, opposite, pinnatifid, flat, acute, veined, pale on the under side, a little hirsute; petioles dilated at the base with a membranous margin; umbels erect, hemispherical, close, and sometimes proliferous; involucre and involucels patent-deflex, beset with hairy leaves; flowers white, small, uniform, and regular; fruit pubescent; styles persistent, purple, divaricate. It grows on Gogmagog hills, Cambridgeshire, and flowers in August. It is

common in many parts of Sweden, Denmark, &c. 2. *A. cervaria*, broad-leaved spiguel, or black hart-root. Jacq. *Aust.* 1. t. 69. "Leaves pinnate, decussated, gash-angled; seeds naked." Root perennial; stem five feet high, firm branching; leaves glaucous, smooth, with black veins underneath, and six pairs of pinnae. Most of the leaves are sessile, elliptical, acuminate, toothed; corolla white, with a purple outside. A native of the mountains of France, Switzerland, Germany, &c. 3. *A. sibirica*, Siberian spiguel. Gmel. *Sib.* 1. 186. n. 3. t. 40. f. 1, 2. "Leaves pinnate, gash-angled." The descriptions of this plant by Linnaeus, Gouan, and Scopoli, are so widely different, that we cannot suppose they mean the same plant. 4. *A. condensata*, close-headed spiguel. "Leaves subbipinnate; leaflets imbricate downwards; umbel lens-form." Root perennial; stem simple, a foot high, angular, furrowed; leaflets alternately pinnatifid; umbel very close, convex on both sides, placed on branches arising at the axils. A native of Siberia. Introduced in 1773, by the earl of Bute. 5. *A. Oreofelinum*, Divaricated spiguel; "leaflets divaricate." Root perennial; leaves very large, firm, smooth, triply pinnate, divided at right and even obtuse angles; divisions broadish, not toothed, but two or three-lobed; stem two feet high; petals white, with a blush of rose colour. A native of Germany, Sweden, France, &c. 6. *A. sicula*, flax-weed-leaved spiguel. "Lower leaves shining, primordial umbels subsessile; seeds hairy." Root perennial; stems nearly three feet high. The umbels at their first appearance are very compact, but afterwards spread open and divide into several small umbels. The flowers are white, and succeeded by oblong woolly fruit. A native of Sicily. Cultivated in England in 1713. 7. *A. cretensis*, Cretan spiguel or candy carrot, Jacq. *Aust.* 1. 62. "Leaflets linear, flat, hirsute; petals two-parted; seeds oblong, hirsute." The whole plant in its wild state is villose; when cultivated it becomes succulent, brittle, and very shining; stem streaked; leaves tripinnate; pinnules deeply two or three-parted. The universal involucre consists of five, the partial of from four to seven leaflets; petals white. A native of the south of Europe, flowering in June. The seeds have been medicinally employed for the same purposes as those of wild carrot (see *DAUCUS*). 8. *A. annua*, annual spiguel. "Leaves many-parted, divisions linear, roundish, acuminate." It is a native of Candia or Crete, and was introduced in 1770, by Mons. Richard. 9. *A. chinensis*. "Seeds membranaceous, striated; leaves superdecapound, polished, multifid." Stem angular, smooth; leaves like those of chærophyllum, and smooth; umbel not much expanded. A native of China. 10. *A. rupestris*, Villars Dauph. 2. 648. "Leaflets bristle-shaped, recurved, smooth; all the flowers fertile." Stem eighteen inches high; branching, finely streaked; leaves bipinnate; universal involucre two, partial many-leaved; petals white; seeds downy. A native of Carniola and Dauphiné. Villars supposes this to be a variety of the seventh species.

Propagation and Culture. All these plants are propagated by seeds, which should be sown in a bed of light dry ground in autumn, and in the following autumn planted at a foot distance in a bed of light sandy earth, where the roots will continue several years, except the eighth species, which is an annual. The ninth has not yet been cultivated in England, and will probably require shelter.

ATHAMANTA Meum. See *ÆTHUSA Meum*.

ATHAMAS, in *Entomology*, the name given to a species of *PAPILIO* in Drury's *Inf.* that inhabits India and South America. It is *PAPILIO Pyrrhus* of Linnaeus and Fabricius. See *PYRRHUS*.

ATHAMAS, in *Ancient Geography*, a mountain of Greece, in Thessaly. Pliny.—Also a plain of Bœotia, between Acropolis and the lake Cephissus. Pausan. 1. ix. Bœotic. c. 24.

ATHANÆ, a town of Arabia Felix. Pliny.

ATHANAGIA, a town of Hispania citerior, and the capital of the Hergeti, according to Livy, who relates the manner in which this town was subdued by Scipio.

ATHANASIA, among the *Ancient Physicians*, an epithet given to a kind of antidotes supposed to have the power of prolonging life, even to immortality.

In the Augustan dispensatory we still find a medicine under the appellation of *athanasia magna*, commended against dysenteries and hæmorrhages.

ATHANASIA, in *Botany*. Lin. g. 943. Schreb. 1279. Juss. 185. Gært. t. 165. Class, *syngenesia polygamia equalis*. Nat. Order, *compositæ discoides*. Gen. Char. *Cal.* common, imbricate, ovate; scales lanceolate, pressed close. *Cor.* compound, uniform, longer than the calyx; corollules hermaphrodite, equal, numerous; proper funnel-form; border five-cleft, acute, erectish. *Stam.* filaments five, capillary, short; anthers cylindric, tubular. *Pist.* germ oblongish; style filiform, a little longer than the stamens; stigma bifid, obtuse. *Per.* none; calyx unchanged. *Seeds*, solitary, oblong; down chaffy, of very short bristles. *Rec.* chaffy; chaffs lanceolate, longer than the seed.

Ess. Gen. Char. *Cal.* imbricate; down chaffy, very short; recept. chaffy.

Species, 1. *A. squarrosa*, cross-leaved athanasia, rehania squarrosa, L'Herit. *Angl.* n. 1. t. 29. "Peduncles one-flowered, lateral; leaves ovate, recurved." An undershrub. Leaves alternate, sessile, pointed, smooth; peduncles axillary, longer than the leaves; chaffs linear, the length of the florets. Introduced in 1774, by Masson. 2. *A. sessiliflora*, sessile-flowered athanasia, Rel. lateriflora, L'Herit. 60. "Peduncles one-flowered, shorter than the leaf; leaves linear, hairy." A very small plant, found at the Cape by Thunberg. 3. *A. pumila*, dwarf athanasia; Rel. pedunculata, L'Herit. 1. c. "Peduncles one-flowered, longer than the leaf; leaves linear, hairy." This is also a small cape plant, discovered by Thunberg. 4. *A. crenata*, notch-leaved athanasia; "flowers solitary, terminal; leaves linear." Stem shrubby; leaves alternate, obscurely three-cornered; one terminal flower. 5. *A. uniflora*, one-flowered athanasia; Rel. cuneata, L'Herit. 1. c. "Flowers solitary, terminal, sessile; leaves obovate, imbricate, smooth." A native of the Cape, discovered by Thunberg. 6. *A. capitata*, hairy athanasia; "flowers terminal, subsessile; leaves lanceolate, hirsute." This has the appearance of euphthalmum capense, but the leaves are alternate; the flowers are discoid and flosculose. A native of the Cape, and introduced in 1774, by Masson. 7. *A. maritima*. (See *SANTOLINA Maritima*.) 8. *A. genistifolia*, broom-leaved athanasia; Rel. genist. L'Herit. 60. "Corymbs simple; leaves lanceolate, undivided, naked, crowded." Stem undershrubby; leaves sessile, marked with very short lines, smooth, somewhat keeled, bluntish; corymbs small, with three or four subsessile flowers. 9. *A. pubescens*, villose-leaved athanasia; "corymbs simple; leaves lanceolate, undivided, villose." This rises six or seven feet high. Flowers yellow. 10. *A. annua*, annual athanasia; "corymbs simple, contracted; leaves pinnatifid, toothed." Root annual; stem about nine inches high, branched at the top; leaves smooth, cut into segments like those of buck's horn plantain; flowers of a bright yellow, large. Cultivated by Miller in 1768. (β.) *Achillea inodora*, Lin. Sp. Pl. 11. *A. trifurcata*, trifid-leaved athanasia; "corymbs simple; leaves three-lobed, cuneiform." Shrubby; five or six feet high; leaves

leaves flat, glaucous, cut at the extremity into three segments; flowers of a bright yellow colour. Cultivated here in 1714. 12. *A. crithmifolia*, samphire-leaved athanasia; fantolina, Mill. fig. t. 227. f. 2. "Corymbs simple; leaves semitrifid, linear," divided, more than half their length into three or five narrow segments; flowers yellow. Cultivated in 1726 by Miller. 13. *A. linifolia*, flax-leaved athanasia; "corymb simple; leaves linear." Stem round, smooth, like that of flax; leaves alternate, perfectly simple, linear, or subulate, flowers in a terminal corymb ovate and smooth. Found at the Cape by Masson, and introduced in 1774. 14. *A. dentata*, tooth-leaved athanasia. (*β*) *A. lævigata*, Lin. Spec. 1181. "Corymbs compound; leaves recurved, the lower linear, toothed, the upper ovate-ferrate." Shrubby, three feet high, with pale yellow flowers. Introduced in 1786, by the countess of Strathmore. 15. *A. parviflora*, small-flowered athanasia; tanacetum crithmifol. Lin. Spec. 1182. Mill. Dict. N 6. "Corymbs compound; leaves pinnate, linear." Stem thick, shrubby, seven or eight feet high. The leaves sit close to the branches, which are terminated by roundish bunches of bright yellow flowers. It was introduced in 1774 by Masson. 16. *A. pinnata*. "Corymbs dense, compound; leaves pinnate, linear, tomentose." Stem proliferous, shrubby, tomentose; leaves crowded with five or seven pinnae; calyxes villose. 17. *A. p. sinata*. "Corymb compound; leaves pinnate, smooth." Found at the Cape by Thunberg. 18. *A. dentata*. "Corymb compound; leaves lanceolate toothed, ferrate." Found at the Cape by Thunberg. This differs from the 14th, though it has the same name. 19. *A. filiformis*. "Corymb compound; leaves linear, smooth, spreading." This also was discovered at the Cape by Thunberg. 20. *A. cinerea*, lavender-leaved athanasia. "Corymb compound; leaves linear, tomentose, entire." Introduced by Masson in 1774. All the above species are natives of the Cape of Good Hope, except the seventh, and they are all perennial except the tenth.

Propagation and Culture. These plants, with the exception of the annual sort only, may be propagated by cuttings or slips during the summer months, and planted in pots or upon an old hot-bed closely covered with glasses, shading them during the heat of the day, and occasionally refreshing them with water; they will put out roots in five or six weeks, and in two months they may be taken up and planted in pots filled with light earth, and placed in a shady situation until they have taken new root. After this they should be removed to a sheltered situation, mixing them with other exotic plants, where they may remain to the middle or end of October, when they are to be placed in a dry stove or glass case, where they are to be allowed as much free air as possible, but secured from frost. The annual species is to be propagated by seeds sown on a moderate hot-bed the latter end of March, and as soon as they are advanced enough to remove, they should be transplanted to another gentle hot-bed, at the distance of three inches from each other, observing to shade them till they have taken new root. About the end of May they will be strong enough to be transplanted into the open air, and some may be planted in pots to place among other exotics. The British species should be protected from the cold in severe winters. See Martyn's Miller's Dict.

ATHANASIAN CREED. See CREED.

ATHANASIUS, SAINT, in *Biography*, a celebrated Christian bishop, flourished in the fourth century, and was a native of Egypt, probably of Alexandria. History has transmitted to us no records of his parentage, nor of the precise time and place of his birth. The attention of his early years seems to have been principally devoted to theo-

logy; and having engaged in the service of the church, he was ordained a deacon by Alexander, bishop of Alexandria, whom he served as secretary, and accompanied to the council of Nice, and whom he succeeded in the year 326, in consequence of his special nomination, and by the general suffrage of the people. At this time he was probably about 30 years of age, for he speaks of the persecution of Maximian as an event which he had been informed of by his fathers, and he lived 46 years after his episcopal ordination. Having distinguished himself at the Nicene council, though then only a deacon, by a violent speech against Arius, he was no sooner advanced to the prelacy than he became a more zealous and powerful advocate in the cause of the Catholics against the Arians. Not content with reviling them and their opinions in the most opprobrious terms (See ARIANS), he employed his talents and influence in restraining and suppressing them. The Arians, on the other hand, were equally assiduous and active in counteracting the hostile efforts of the orthodox prelate, in reproaching his character, and in subverting his episcopal authority. As Athanasius could be induced, neither by the requisition of the emperor Constantine, nor by the menaces of Eusebius bishop of Nicomedia, to acquiesce in the re-admission of Arius to the communion of the catholic church, from which he had been excluded, the friends of the latter used all the means they could devise for disgracing and removing their adversary. Accordingly, in the year 331, they brought several accusations against him before the emperor. The prelate, after much hesitation and reluctance, was at length obliged to obey the emperor's peremptory commands, and to appear before a council of 60 bishops summoned at Tyre, in 335. Some of the charges that had been alleged against him were satisfactorily confuted; but others were confirmed. During the progress of the inquiry and trial, some members of the synod received Arius into communion at Jerusalem; and Athanasius himself seized an opportunity that occurred of sailing for Constantinople, to intreat an audience of the emperor. In consequence of this audience, the members of the council were summoned to appear before Constantine, that the cause might be fairly examined; but when they arrived, instead of renewing their former accusations, they produced a new charge, alleging that Athanasius had attempted to detain at Alexandria the ships which supplied Constantinople with corn, of which they were then in want. Upon this the emperor, from resentment, conviction, or policy, consented to his degradation; and the council pronounced against him a sentence of deposition and banishment. The place of his exile was Treves in Gaul; and here he remained, according to the most probable account, about 18 months. Upon the death of Constantine, Athanasius was restored by an honourable edict of Constantius to his country and to his episcopal see. This proceeding was represented by the Arians as an offence against synodical authority; and a council of 90 bishops was held at Antioch in 341, by whom the former deposition of Athanasius was confirmed, and Gregory of Cappadocia, one of their own party, placed in the see of Alexandria. The young emperor confirmed the nomination, and Athanasius was constrained to fly for protection and support to Julius, bishop of Rome. At the end of three years he was sent to Milan by the emperor Constans, who was disposed to favour the Catholic party. A new council was appointed to be held at Sardica in Illyricum in the year 347, to settle the subjects in dispute. The eastern and western bishops disagreed and separated; the latter, who were the partisans of Athanasius, remained at Sardica; and the former assembled at Philippopolis. One party

party regarded him as a faint; and the other represented him as a wicked disturber of the peace of the church. Constantius, however, was intent upon restoring him, and peremptorily demanded it of his brother Constantius, threatening him with war in case of non-compliance. Constantius submitted, and solicited the return of the exiled prelate to take possession of the Alexandrian see, which was now become vacant by the death of Gregory. The bishop's zeal for the catholic doctrine of the trinity was not in the least abated by all the reverses of his condition; for in his progress through the various cities that lay in his way to Alexandria, he admonished the people to avoid the Arians, and to admit into their communion none but those who adopted in their creed the word "consubstantial." In the year 350, he arrived at Alexandria, and was welcomed by his old friends and adherents with every expression of joy; and from this time he enjoyed a short interval of repose. The death of the emperor Constantius, and of pope Julius, to whom he was chiefly indebted for his restoration, threatened him with new dangers. Constantius was his determined enemy, and he summoned a general council at Arles, in the year 353; and in this council the Arian party prevailed, and all the bishops present, with one exception, signed the condemnation of Athanasius. As Liberius, the successor of pope Julius, was dissatisfied with the proceedings of this council, another was held at Milan in the year 355. Here the emperor exercised his utmost influence, and at length a majority of 300 bishops concurred in the condemnation of Athanasius, and those who refused were exiled by the authority of the emperor. The sentence of these councils, however, was cautiously executed by Constantius. The prelate was persuaded voluntarily to abdicate his see; but he remained inflexible, notwithstanding all the measures that were used for this purpose. During this suspension a body of soldiers appeared in the midst of Alexandria, and at midnight they invested the church in which the bishop and his attendants were performing their devotions preparatory for the communion. In this moment of confusion and terror, the prelate remained firm and intrepid, calmly expecting death, and animating the piety of his flock by ordering a psalm of praise to be sung. At length the congregation dispersed, and the bishop was conveyed through the tumultuous crowd to a place of safety. The see of Alexandria was bestowed by the emperor upon George of Cappadocia, a strenuous supporter of the Arian cause; and Athanasius was proscribed, with the promise of a large reward to any one who should produce him dead or alive. The persecuted prelate disappeared, and remained for six years in impenetrable obscurity. The place of his retreat was the desert of Thebais; and among monks or hermits anxious to preserve him from the search of his enemies, he found an unmolested asylum. From this reclusive abode he is said to have sometimes extended his excursions in disguise to visit his confidential friends at Alexandria. Hence he also addressed his enemies with invectives and his friends with consolatory admonitions by his writings. The accession of Julian, who succeeded Constantius in 361, and the death of George, bishop of Alexandria, who was in the same year killed in a tumult, opened the way for a third return of Athanasius to the see of Alexandria. With unabated zeal for the Catholic faith, and particularly for the doctrine of the trinity, he summoned a council at Alexandria, at which it was determined, that Arian bishops, who recanted their errors, and signed the Nicene creed, might be admitted to the communion of the church, and restored to their sees. However, Athanasius's repose and influence were of short duration. The emperor Julian regarded him

with peculiar aversion; and in order to avoid the threatened tokens of his displeasure, the prelate was obliged again to seek an asylum in the monasteries of the desert. Whilst with this view he was sailing up the Nile, his enemies followed him; but as soon as the prelate was informed that they had orders to apprehend him, and knowing that he must soon be overtaken, he instructed the mariners to turn about the boat and meet his pursuers. Having no suspicion that Athanasius was on board, they profected their voyage, and the prelate escaped to Alexandria, and concealed himself till the death of Julian in the year 363. Upon the accession of Jovian, Athanasius once more resumed his episcopal function, and under the patronage of the emperor, the Nicene creed became the general formula of the churches. After the short reign of Jovian, Valens succeeded to the eastern division of the empire; and as he had adopted Arian principles, he issued edicts for banishing the bishops who had regained their sees under Jovian; and Athanasius was again in the number of those who were proscribed. The efforts of his friends at Alexandria were exerted in his favour; but whilst they were preparing to defend him by force, he thought it most prudent to retire; and on this occasion, which has been denominated his fifth exile, he concealed himself for four months in the monument belonging to his family. The emperor relinquished the contest; and the venerable prelate closed his days in tranquillity in the 46th, or as some say in the 48th year of his prelacy, and in the year of Christ 373.

It is not easy to form a just estimate of the talents, learning, and character of Athanasius, amidst the adulation of his friends, and the reproaches of his enemies. "The immortal name of Athanasius," says Mr. Gibbon, "will never be separated from the Catholic doctrine of the trinity, to whose defence he consecrated every moment and every faculty of his being."—"Amidst the storms of persecution, he was patient of labour, jealous of fame, careless of safety; and though his mind was tainted by the contagion of fanaticism, Athanasius displayed a superiority of character and abilities which would have qualified him, far better than the degenerate sons of Constantine, for the government of a great monarchy. His learning was much less profound and extensive than that of Eusebius of Cæsarea, and his rude eloquence could not be compared with the polished oratory of Gregory or Basil; but whenever the primate of Egypt was called upon to justify his sentiments or his conduct, his unpremeditated style, either of speaking or of writing, was clear, forcible, and persuasive. He has always been received in the orthodox school as one of the most accurate masters of the Christian theology; and he was supposed to possess two profane sciences less adapted to the episcopal character, the knowledge of jurisprudence, and that of divination. Some fortunate conjectures of future events, which impartial reasoners might ascribe to the experience and judgment of Athanasius, were attributed by his friends to heavenly inspiration, and imputed by his enemies to infernal magic. But as Athanasius was continually engaged with the prejudices and passions of every order of men from the monk to the emperor, the knowledge of human nature was his first and most important science."—"Athanasius was capable of distinguishing how far he might boldly command, and where he must dexterously insinuate, how long he might contend with power, and when he must withdraw from persecution; and while he directed the thunders of the church against heresy and rebellion, he could assume, in the bosom of his own party, the flexible and indulgent temper of a prudent leader. The election of Athanasius has not escaped the reproach of irregularity and precipitation; but the propriety of

of his behaviour conciliated the affections both of the clergy and of the people. The Alexandrians were impatient to rise in arms for the defence of an eloquent and liberal pastor. In his distress he always derived support, or at least consolation, from the faithful attachment of his parochial clergy; and the hundred bishops of Egypt adhered with unshaken zeal to the cause of Athanasius. In the modest equipage which pride and policy would affect, he frequently performed the episcopal visitation of his provinces, from the mouth of the Nile to the confines of Ethiopia; familiarly conversing with the meanest of the populace, and humbly saluting the saints and hermits of the desert. Nor was it only in ecclesiastical assemblies among men whose education and manners were similar to his own, that Athanasius displayed the ascendancy of his genius; he appeared with easy and respectful firmness in the courts of princes; and on the various turns of his prosperous and adverse fortune, he never lost the confidence of his friends, or the esteem of his enemies."

The works of Athanasius were numerous, and consisted chiefly of apologies for himself, or invectives against his enemies, or controversial treatises against Arianism. His style is clear, easy, and not destitute of dignity and ornament. In his reasonings he is sufficiently copious; and in his attacks upon the Arians more than sufficiently acrimonious. The more valuable of his genuine writings are his first book "Against the Gentiles;" "Apologies;" "Letter to those that lead a Monastic Life;" "Letters to Serapion;" "Two books on the Incarnation;" "Conference with the Arians;" "The life of St. Antony;" and "The abridgment of the Holy Scriptures." The latter of these pieces contains an enumeration of all the canonical books of the Old and New Testament, with a summary of their contents, and an account of their respective authors; and it treats particularly of the four gospels. This "Abridgment or Synopsis of the Holy Scriptures" has been reckoned genuine by some; but it is supposed by others to have been falsely ascribed to him, and in the Benedictine edition of his works, it is rejected. His "Festal or Paschal Epistle," which is generally allowed to be genuine, contains several valuable testimonies in favour of the sacred books now received as canonical. Dupin, and also Cave, have distinctly enumerated both the genuine and spurious works of Athanasius. For an account of the creed that has been called Athanasius's, see CREED. The works of Athanasius were first printed only in a Latin translation, and in an imperfect state by Calsinius, at Vicenza, in 1482; and enlarged editions appeared at Paris, in 1520; at Rome, in 1523; at Cologne, in 1532; at Basil, in 1558; and at Paris, in 1608. The Greek text was first published in 2 vols. fol. by Commelinus, at Heidelberg, in 1601; and at Paris, in 1627. The best edition was printed in 3 vols. fol. by a learned Benedictine, Bernard de Montfaucon, at Paris, in 1698. This was reprinted with improvements, and an additional volume, at Padua, in 1774, 4 vols. fol. Socrates, E. H. Sozomen, E. H. Cave Hist. t. i. p. 138. &c. Dupin. Fabr. Bib. Græc. l. v. c. 2. Gibbon's Hist. vol. iii. p. 322—356. vol. iv. p. 131—228—267. Lardner's Works, vol. iv. p. 280, &c.

ATHANATI, an order of soldiers among the ancient Persians.

The word is Greek, and signifies *immortal*; being compounded of the privative *a* and *θανος*, death.

The athanati were a body of cavalry, consisting of ten thousand men, always complete, because when any one of them died another was immediately put into his place.—It was for this reason that they were called "athanati" by the Greeks, by the Latins "immortales."

ATHANOR, sometimes corruptly written ACANOR, is a term derived from the Greek *ἀθανάτος*, *undying*, and was applied by the ancient chemists to a species of furnace provided with a magazine of fuel, by which a long-continued heat might be kept up without the necessity of constant attendance. Some say that the word athanor is borrowed from the Arabs, who call an oven *tanneron*, from the Hebrew *תנור*, *tannour*, an oven or furnace: whence with the additional particle *al*, *אלתנור*, *altanour*, &c. This apparatus was particularly used in those tedious alchemical processes which were deemed necessary, in order to convert the inferior metals into gold: hence it is not unfrequently described by the name *piger henricus*. The patience of modern chemists being inferior to that of their predecessors, or rather being no longer upheld by the hope of riches, the most powerful, and at the same time, the basest of all motives, revolts from the idea of commencing experiments that demand weeks, and even whole months for their completion. Hence it is, that perpetual lamps and furnaces are now become obsolete.

The body of the athanor may be varied at pleasure, according to the particular purpose which it is intended to serve, but it is connected by the top, or one of the sides, with a hollow perpendicular tower communicating freely by one or more openings at its base, with the fire place. This tower is furnished with a moveable cover, which fits accurately, so as to be nearly air tight, into the top.

When the athanor is to be used, the fire place must be filled with the proper quantity of lighted charcoal, and then as much unlighted charcoal, in moderate sized pieces, as the tower will hold, is to be poured in by the top, which is afterwards to be carefully closed by its cover. In proportion as the fuel in the grate is consumed, the deficiency is supplied by that of the tower, which falls through the holes at the base, which while in the tower, having no communication with the external air, can only burn when it arrives at the grate below. The combustion is thus kept up till all the charcoal in the tower or magazine is consumed.

Although this furnace might still be advantageously applied in certain cases which require a long and moderate, rather than a short and violent heat, yet it is not without some inconveniences: the charcoal often sticks fast in the tower, and the fire goes out for want of a regular supply, or it falls irregularly, and by large quantities at a time, and beats the lighted charcoal through the grate into the ash-pit.

ATHAPUSCOW, in *Geography*, a large lake in the north-west parts of North America. Mr. Hearne, who traversed these parts in 1770, describes it as full of islands covered with tall trees, which appeared like masts. According to the report of the natives, it was 120 leagues long from east to west, and twenty wide. It is stored with a great number of fish, as pike, trout, perch, barbel, and two sorts called by the natives tillameg and methy. The northern shore consists of confused rocks and hills, but the southern is level and beautiful: and there are many wild cattle and moose deer; the former, particularly the bulls, being larger than the English black cattle. The centre of this lake is placed by Mr. Hearne in N. lat. 62° and W. long. 125°. It is probably the same with the Slave Lake of Mackenzie, in the same latitude, but in longitude 115°. The Athapuscow River, which Mr. Hearne found about two miles in breadth, is the Slave River of Mackenzie. See SLAVE Lake and River.

ATHAR, in *Scripture Geography*, a city of Palestine, in the tribe of Simeon. Josh. xix. 7.

ATHAROTH, a town of Judæa, in the tribe of Gad, given

given by Moses to the Israelites, on account of its excellent pasturage. Numb. xxxii. 34.—Also, a town of Samaria, in the tribe of Ephraim, four miles north of Sebasie or the city of Samaria; called by Jerome, Atharus;—and another on the frontiers of Ephraim, between Janohah and Jericho, Josh. xvi. 7. probably the same with Ataroth-Addar, mentioned, Josh. xvi. 5. xviii. 13.

ATHARRHABIS, a town of Egypt. Steph. Byz.

ATHBOY, in *Geography*, a market and post-town in the county of Meath, and province of Leinster, in Ireland, which, before the union, sent two members to the Irish parliament. At its weekly market, there has been a good deal of corn fold of late years; some yarn and merchandise for the peasantry. It has also four fairs, chiefly for cattle. It is situate twenty-eight Irish miles N. W. of Dublin. Thomson's Statistical Account of Meath.

ATHEE, in *Geography*, a town of France in the department of the Mayenne, and chief place of a canton in the district of Craon, three miles north of Craon.

ATHEIST, derived from the privative *a*, and *Θεός*, *God*, a person who does not believe the existence of a God, nor a Providence; and who has no religion, true or false.

In general a man is said to be an atheist, who owns no being, superior to nature; that is, to men, and the other sensible beings in the world.

In this sense, Spinoza may be said to be an atheist, and it is an impropriety to rank him, as the learned commonly do, among deists; since he allows of no other God beside nature, or the universe, of which mankind makes a part; and there is no atheist but allows of the existence of the world, and of his own existence in particular. See SPINOZA.

Plato distinguishes three kinds of atheists. Some, who deny, absolutely, that there are any gods; others who allow the existence of gods, but maintain that they do not concern themselves with human affairs, and so deny a Providence; and others, who believe there are gods, but think they are easily appeased, and that they may remit the greatest crimes for the smallest supplication.

The learned Cudworth (*Intellectual System*, b. i. c. 3. vol. i. p. 104—178.) reduces the ancient atheism of the Greek philosophers into four different forms, comprehending the two classes of hylozoics or hylopathii, and atomici or atomists, under the denominations of Anaximandrian, Democritical, Stratonical, and Stoical. The Anaximandrians attempted to solve the phenomena of nature by having recourse to the unmeaning language of qualities and forms. These were contained actually or potentially in that infinite chaos of matter, destitute of all understanding and life, which was the first principle or only real numen of Anaximander; and by their fortuitous secretion and segregation, they produced, first, the elements of earth, water, air, and fire, and then the bodies of the sun, moon, and stars, and both the bodies and souls of men and other animals; and, lastly, innumerable or infinite such worlds as these, as so many secondary or native gods. (Plato *De Leg.* l. x. p. 666. See ANAXIMANDER, and ANAXIMANDRIANS. Some have called this scheme of atheism, which deduces all things from matter by means of qualities and forms, Peripatetic or Aristotelic, because Aristotle used this kind of language in his physiology. But as Aristotle cannot be justly denominated an atheist, Cudworth distinguishes this form of atheism by the appellation of Anaximandrian. Democritus and Leucippus new-modelled atheism from the Anaximandrian and Hylopathian into the atomic form, and derived the origin and production of all things from atoms, devoid of all forms and qualities, and possessing only,

as first principles, magnitude, figure, site, and motion; and as they conceived that life and understanding, and other qualities, could be only accidental and secondary results from certain fortuitous concretions and contextures of atoms, they excluded a deity, and every thing like counsel and design from the formation of the universe. The Epicureans borrowed many of their notions from Democritus, and framed a system very much resembling the atomical, or Democritical. See DEMOCRITUS, and EPICURUS. The Stratonical atheism was of the hylozoic kind; and was so called from Strato Lampfacenus, who acknowledged no other deity than a certain stupid and plastic life, belonging to all the parts of matter, by means of which they arranged and framed themselves, without reflection. See STRATO. The Stoical, or Pseudo-Stoical, or cosmoplastic atheism, adopted by several of the Stoics, supposed a certain kind of plastic and spermatic, or methodical and artificial nature, without sense or conscious understanding, to preside over the whole world, and to dispose and preserve all things in that regular order which they assume and maintain. Some of the Stoics conceived that this plastic nature, or spermatic principle, was subordinate to a sentient and intellectual nature, or corporeal soul and mind of the universe, that presided over it; and this seems to have been the genuine doctrine of Heraclitus and Zeno; whilst others rejected the latter principle, and maintained, that the plastic or spermatic nature, devoid of all animality or conscious intelligence, was the highest principle in the universe. All the ancient atheists agreed in this, viz. that there was nothing but matter or body in the universe; whilst some thought it animate, and were called hylozoics; and others thought it inanimate, and were denominated atomici. Hobbes seems to have inclined to the opinion of the Stratonici; for he supposes (*Phys. c. 25. § 5.*) that all matter, as matter, is endued not only with figure and a capacity of motion, but also with an actual sense or perception, and wants only the organs and memory of animals to express its sensation. Sir William Temple, according to the account given of him by bishop Burnet (*Hist. Time. vol. i. p. 531, 8vo.*) thought that the present system of things is necessary and eternal. The Chinese have been represented as a nation of atheists. Accordingly Burnet (*ubi supra*) states it as the opinion of sir W. Temple, that Confucius and his followers are to be reckoned among those who were atheists themselves, and left religion to the people. But Couplet maintains, that Confucius and the earlier teachers among the Chinese, were votaries to pure religion. Confucius, however, says little of those duties that relate immediately to God; and though he speaks of the great spirits in heaven and earth, what he says coincides merely with the notion of a plastic power, similar to that maintained by some of the Grecian philosophers.

Some distinguish *speculative* atheists, or those who are so from principle and theory—from *practical* atheists, whose wicked lives lead them to believe, or rather to wish, that there were no God.

Dr. Clarke (*Demonstration of the Being of a God*, p. 2. 8vo.) says, that atheism arises either from stupid ignorance, or from corruption of principles and manners, or from the reasonings of false philosophy; and he adds, that the latter, who are the only atheistical persons capable of being reasoned with at all, must of necessity own, that, supposing it cannot be proved to be true, yet it is a thing very desirable, and which any wise man would wish to be true, for the great benefit and happiness of man, that there was a God, an intelligent and wise, a just and good being, to govern the world. Whatever hypothesis these men can possibly frame,

whatever

whatever argument they can invent, by which they would exclude God and Providence out of the world; that very argument, or hypothesis, will of necessity lead them to this confession. If they argue, that our notion of God arises not from nature and reason, but from the art and contrivance of politicians: that argument itself forces them to confess, that it is manifestly for the interest of human society, that it should be believed there is a God. If they suppose that the world was made by chance, and is every moment subject to be destroyed by chance again; no man can be so absurd as to contend, that it is as comfortable and desirable to live in such an uncertain state of things, and so continually liable to ruin, without any hope of renovation; as in a world that were under the preservation and conduct of a powerful, wise, and good God. If they argue against the being of God, from the faults and defects which they imagine they can find in the frame and constitution of the visible and material world; this supposition obliges them to acknowledge, that it would have been better the world had been made by an intelligent and wise Being, who might have prevented all faults and imperfections. If they argue against Providence, from the faultiness and inequality which they think they discover in the management of the moral world; this is a plain confession, that it is a thing more fit and desirable in itself, that the world should be governed by a just and good Being, than by mere chance or unintelligent necessity. Lastly, if they suppose the world to be eternally and necessarily self-existent, and consequently that every thing in it is established by a blind and eternal fatality; no rational man can at the same time deny, but that liberty and choice, or a free power of acting, is a more eligible state, than to be determined thus in all our actions, as a stone is to move downward, by an absolute and inevitable fate. In a word, which way soever they turn themselves, and whatever hypothesis they make, concerning the original and frame of things, nothing is so certain and undeniable, as that man, considered without the protection and conduct of a superior Being, is in a far worse case; than upon supposition of the being and government of God, and of men's being under his peculiar conduct, protection, and favour. Nevertheless, absurd and joyless as is the system of atheism, Diagoras and Theodorus among the ancients, and Vanini among the moderns, have been reckoned martyrs for it. Mr. Bayle has pretended to prove, that it is better to be an atheist than an idolater; or in other words, that it is less dangerous to have no religion at all than a bad one. "I had rather," said he, "it should be said of me, that I had no existence, than that I am a villain." This, as Montesquieu (*Sp. of Laws*, vol. ii. p. 145.) justly observes, is only a sophism, founded on this, that it is of no importance to the human race to believe that a certain man exists, whereas it is extremely useful for them to believe the existence of a God. From the idea of his non-existence, immediately follows that of our independence; but if we cannot conceive this idea, that of disobedience. To say that religion is not a restraining motive, because it does not always restrain, is equally absurd as to say that the civil laws are not a restraining motive. It is a false way of reasoning against religion, to collect in a large work a long detail of the evils it has produced, if we do not give at the same time an enumeration of the advantages which have flowed from it. Was it of no advantage for subjects to have religion, it would still be of some if princes had it, and if they whitened with foam the only rein which can restrain those who fear not human laws. A prince who loves and fears religion is a lion, who stoops to the hand that strokes, or the voice that appeases him. He who fears and hates religion is like the

savage beast that growls and bites the chain which prevents his flying on the passenger. He who has no religion at all is that terrible animal, who perceives his liberty only when he tears in pieces, and when he devours. The question is not to know, whether it would be better that a certain man or a certain people had no religion, than to abuse what they have; but to know which is the least evil, that religion be sometimes abused, or that there be no such restraint as religion on mankind.

Cicero represents it as a probable opinion, that they who apply themselves to the study of philosophy believe there are no gods.—This must, doubtless, be meant of the academic philosophy, to which Cicero himself was attached, and which doubted of every thing: on the contrary, the Newtonian philosophers are continually recurring to a Deity, whom they always find at the end of their chain in natural causes. Some foreigners have even charged them with making too much use of the notion of a God in philosophy, contrary to the rule of Horace—

"Nec Deus interit, nisi dignus vindice nodus."

Among us, the philosophers have been the principal advocates for the existence of a Deity. Witness the writings of sir Isaac Newton, Boyle, Ray, Cheyne, Nieuwentijt, &c. To which may be added divers others, who, though of the clergy (as was also Ray), yet have distinguished themselves by their philosophical pieces, in behalf of the existence of a God; e.g. Derham, Bentley, Whiston, Samuel and John Clarke, Fenelon, &c. So true is that saying of lord Bacon, that though a smattering of philosophy may lead a man into atheism, a deep draught will certainly bring him back again to the belief of a God and Providence. See GOD, PROVIDENCE, and RELIGION.

ATHELING, among our Saxon ancestors, was a title of honour properly belonging to the eldest son of the reigning prince, or the presumptive heir of the crown.

The word is formed from the Saxon *atheling*, of *athel*, noble. It is sometimes also written, *adeling*, *edling*, *ethling*, and *etheling*.

King Edward the Confessor, being without issue, and intending to make Edgar, to whom he was great uncle by the mother's side, his heir, first gave him the honourable appellation of *atheling*.

Antiquaries observe, that it was frequent among the Saxons to annex the word *ling*, or *ing*, to a Christian name, to denote the son or younger; as *Edmundling*, for the son of Edmund; *Edgaring*, for the son of Edgar; and, accordingly, some have thought *atheling* might primarily import the son of a nobleman, or prince: and sir Henry Spelman observes, that all noblemen had anciently been called *Adelings*: however, from a passage in the laws ascribed to Edward the Confessor, it appears, that in his times, and for at least a century afterwards, this word was appropriated to the royal family by the English. In reality, *atheling*, when applied to the heir of the crown, seems rather to denote a person endowed with nobler qualities than the son of a nobleman; and corresponds to the *nobilis Caesar* among the Romans.

ATHELNEY, *Isle of*, in *Geography*, a spot of rising ground, on the north side of Stanmore, in the county of Somerset, about one mile E.N.E. of Taunton bounded on the north-west by the river Tone; over which is a wooden bridge, still called Athelney bridge. The name given by the Saxons to this island was *Æþelinga iȝge*, or the isle of nobles, whence was derived, by contraction, Athelney. It was formerly surrounded by almost impassable marshes and morasses, and will be for ever memorable for the retreat of king Alfred from the fury of the Danes, when they had overrun the eastern part of his dominions. Having bravely

encountered his enemies for nine successive years, according to the statement of the register of Athelney, he was at length reduced to the necessity of seeking refuge from their violence in this little island. After he had left this retirement, and his enemies were totally defeated, he founded a monastery for Benedictine monks, on the spot which had given him shelter, and dedicated it to the honour of St. Saviour and St. Peter the apostle, and endowed the establishment with the whole isle of Athelney (amounting to about two acres of firm land), exempt from taxes and all other burdens. In process of time other privileges and benefactions were conferred on the monks, and confirmed by different kings and nobles.

ATHELSTAN, in *Biography*, king of England, was of illegitimate birth, and yet, being of mature age and capacity, succeeded his father Edward the elder, in preference to his lawful children, in the year 925. Soon after his accession, he marched to Northumberland in order to quell some commotions among the Danes, and conferred the title of king on Sithric, a Danish nobleman: but, upon the death of Sithric, when his two sons Anlaf and Godfrid, or Guthfert, assumed the regal authority without his consent, he expelled them both; one taking refuge in Ireland, and the other in Scotland. The protection afforded to the latter by Constantine, king of Scotland, brought on a war, which terminated so much to the disadvantage of Constantine, that he was obliged, for the preservation of his crown, to do homage to Athelstan. Hostilities, however, were renewed: and a confederacy was formed by Constantine, Anlaf, and some Welch princes, whose united forces were totally defeated by Athelstan, at Brunanburgh in Northumberland, A.D. 938. In consequence of this victory, the king of England enjoyed his crown without molestation; and having governed the kingdom with great ability, he died at Gloucester in 941, after a reign of sixteen years, and was succeeded by his brother Edmund. In this reign commerce was greatly encouraged, and a law was passed, conferring the rank ofthane on every merchant who had made three sea-voyages on his own account. Athelstan, with a view of further facilitating and promoting commerce, established a mint, or mints, in every town in England that had any considerable foreign trade, so that the merchants might have an opportunity of converting the bullion which they brought home for their goods into current coin, without much expence or trouble. These towns were London, Canterbury, Winchester, Rochester, Exeter, Lewes, Hastings, Chichester, Southampton, Wareham, and Shaftesbury. By these and similar regulations the shipping and seamen of England were so much increased, that Athelstan maintained the dominion of the sea, and obliged the Danish and Norwegian princes to court his friendship. Hume's Hist. vol. i. p. 102, &c. Henry's Hist. vol. iii. p. 94, &c. vol. iv. p. 225, &c.

ATHEMON, in *Entomology*, a species of PAPILIO. (*Plat. rur.* Lin.; *Hesperia* Fabr.) The wings are entire and brownish.

ATHENA, in the *Ancient Physic*, a plaster or liniment, commended against wounds of the head and nerves, of which we find descriptions given by Oribasius, Ælius, and Ægineta.

ATHENÆ, in *Ancient Geography*. See ATHENS.

ATHENÆ is also a name given to various other places: as, a town of Arabia. Pliny.—Also, a place at the eastern extremity of the Euxine sea, where was a temple of Minerva. Arrian.—Also, a town of the Peloponnesus, in Laconia. Steph. Byz. and Suidas.—Also, a place of Asia Minor, in Caria. Steph. Byz.—Also, a town of Greece, in Boeotia, situate on the river Triton, overwhelmed, according to

Strabo, by an inundation.—Also a town of Acarnania; another of Liguria: another of Italy: and another of Sicily. Steph. Byz.

ATHENÆA, in *Antiquity*, a feast of the ancient Greeks, held in honour of Minerva, who was called *Abnna*. These were afterwards called PANATHENÆA.

ATHENÆA, in *Botany*, probably from Athenæus. Schreb. 661. Iroucana. Aubl. Guian. 127. Class, *oñandria monogynia*. Gen. Char. *Cal.* perianth one-leaved, coloured, five-parted; parts oblong, acute, erect, spreading at top. *Cor.* none. *Stam.* filaments eight, filiform, erect; of which five are of the length of the calyx, the three alternate ones a little shorter; anthers sagittate; eight plumose bristles, shorter than the filaments, growing together with the filaments to a gland surrounding the germ. *Pist.* germ superior, ovate, surrounded at the base by an annular gland; style setaceous, longer than the stamens; stigma depressed, five-parted. *Per.* capsule globose, one-celled, three-valved; valves somewhat fleshy; seeds three to five, rounded, covered with a pulpy-coloured membrane, affixed to the receptacle in the bottom of the capsule.

Ess. Gen. Char. *Cal.* coloured, five-parted. *Cor.* none; bristles eight, feathered, between the filaments; stigma five-parted; capsule globose, one-celled, three-valved. *Seeds*, three to five.

Species, *A. guianensis*. Iroucana guianensis. Aubl. l. c. t. 12. This is a branching shrub with a stem four or five inches in diameter, covered with a wrinkled grey bark; leaves alternate, ovate, smooth, toothed, deciduous, four inches long; petioles very short, having a small sharp stipule on each side of the base; flowers in bundles, from the axils, and upon the tubercles of the stem and branches, each on a peduncle; calyx white; there is no corolla; seeds covered with a viscid membrane, of a scarlet colour; the bark, leaves, and fruit are sharply aromatic; the last, by the Creoles, is called *Caffè diable*. A native of Cayenne, and the neighbouring continent of Guiana, growing in a sandy soil, about half a mile or more from the shore.

ATHENÆUM, in *Antiquity*, a public place wherein the professors of the liberal arts held their assemblies, the rhetoricians declaimed, and the poets rehearsed their verses.

The word is derived from Athens, a learned city, where many of these assemblies were held; or from the name of Minerva, *Abnna*, goddess of polite arts and sciences; intimating, that Athenæum was a place consecrated to Minerva, or rather set apart for the exercises over which she presides.

The Athenæa were built in form of amphitheatres; and were all encompassed with seats, which Sidonius calls *cunei*.

The three most celebrated Athenæa were those at Athens, at Rome, and at Lyons; the second of which, according to Aurelius Victor, was built by the emperor Adrian, for the accommodation of the professors of the liberal arts, and of those who wanted to read their writings before a considerable number of people. It appears from the beginning of Juvenal's Satires, that this manner of reading in public was very common; and that Fronto lent the use of his house and gardens to the poets, who had occasion to recite their verses before a numerous audience. This was done by others; but as it belonged to the person, who wished to read his compositions, to furnish the room, and to pay the charge of the seats, it is probable, that the emperor Adrian, for the encouragement of works of taste and science, constructed the Athenæum with a view of obviating this inconvenience. Hence the name has been applied to all kinds of buildings or colleges intended for teaching the sciences and languages.

ATHENÆUS,

ATHENÆUS in *Biography*, a greek grammarian, was born at Naucratis in Egypt, and flourished in the third century. Suidas has erroneously referred him to the time of Antoninus Pius; but it appears from his own work (*Deipnosophist.* l. xii. p. 537. ed. Casaub.), that he wrote after the death of Commodus, and after the time of Oppian the poet. (Ib. l. ii. p. 13.) He was one of the most learned men of the age in which he lived: and, for the extent of his reading, and tenaciousness of his memory, he has not been improperly called the Varro, or Pliny, of the Greeks. The only work of this author extant is a valuable compilation from various writings, to which we have now no access, entitled *Δειπνοσοφισταί*, “*Deipnosophistæ*,” or “*The Table Conversation of the Sophists*.” In this work the author has introduced a great number of learned persons of all professions, and represented them as conversing together on a variety of subjects at the table of Larensius, a citizen of Rome. It contains a large collection of facts and anecdotes, forming a rich treasure of antiquities, which serve more to amuse the reader than to supply correct information. The author has interspersed with his several narrations many satirical reflections and scandalous stories, which tend to asperse and degrade the characters of the philosophers of whose names and writings he has given an account; and, therefore, the work, copious as it is in useful instruction, must be perused with caution. It consists of fifteen books; but of the two first, part of the third, and also of the last, we have merely an abridgement. Few works have suffered more from the carelessness of transcribers, and the negligence of editors. In the 14th book, curious inquirers after the music and dancing of the ancients, and after the biography of the most celebrated performers in both arts, will find more information concerning them than in any of the treatises written expressly on these subjects; for an account of which we must refer to the work itself. The first edition was published by Aldus Manutius, in Greek, at Venice, in 1514, fol.; and at Basil, in 1535, with a bad Latin translation by Natalis Comes. Dalechamp devoted his leisure hours, for thirty years, to the translation of Athenæus, which was published with annotations, by Casaubon, in folio, at Leyden in 1583, 1597, 1612, and 1657. This work was also translated into French by Marolles in 1680. Casaubon mentions an abridgement of this work by an unknown author, and at a period which he could not precisely ascertain, though he supposes it to have been made before the time of Eusebius. Pref. Casaub. in Athen. Suidas. Gen. Dict. Fabr. Bibl. Græc. l. iv. c. 20. § 5—8. t. iii. p. 631, &c.

ATHENÆUS, a popular orator and Peripatetic philosopher, was born at Seleucia in Cilicia, had a share in the government, and was for some time a demagogue in his own country. In the time of Augustus he came to Rome, and became an intimate friend of Murena. He was charged with being concerned in his conspiracy; but the emperor not finding him guilty, set him at liberty. Upon his return to Rome after his flight on this occasion, he repeated to his friends these words of Euripides:

“*Ἦεν νεκρῶν κούβητα καὶ σέβη πύλας Διόν.*”

“From death’s dread seats and gloomy gates I come.”

The manner of his death was tragical, as he was crushed by the fall of his house. Strabo, l. xiv. t. ii. p. 987.

ATHENÆUS, a mathematician, flourished about 200 years before Christ; but his country is unknown. His Greek treatise “*On Machines of war*,” dedicated to Marcellus, who took Syracuse in the 142d Olympiad. 212 B. C., is contained in the Collection of Ancient Mathematicians, published in folio at Paris, in 1693. Fabr. Bib. Græc. l. iii. c. 24. §. t. i. ii. p. 587.

ATHENÆUS, born at Attalia, in Cilicia, in the 9th year of our æra, as M. Goulin conjectures, was the principal of the sect of pneumatics. Galen, who gives a particular account of the doctrines of these philosophers, says, they esteemed the qualities of cold and heat, moisture and dryness, as four elements, entering into the composition of all bodies. To these a fifth, was added, called spirit, to which Athenæus attributed the motion of the pulse. Spirit was also supposed to pervade and give life and energy to body. Galen represents Athenæus as a voluminous writer; no part, however, of his works remains, except some chapters preserved by Oribasius, which throw little light on the manner in which he applied his doctrine to practice. Le Clerc, Hist. de Med.

ATHENAGARUM, in *Ancient Geography*, a district of India; supposed by Major Rennel, from its situation, to be Oude.

ATHENAGORAS, in *Biography*, a Christian philosopher, was a native of Athens, and flourished towards the close of the second century. His youth was spent among the philosophers of his time; and removing from Athens to Alexandria, he became a convert to Christianity. The manner of his conversion, according to Philip Sidetes, a writer of the fifth century held in no high estimation, was as follows. Proposing to write against the Christians and desirous of rendering his work the more complete, he read the scriptures, and was thus converted. Philip adds, that he was the first president of the catechetical school of Alexandria, and master of Clement who wrote the Stromata. Little upon which we can rely is said concerning Athenagoras by the ancients, and his character and opinions are chiefly deduced from his own works. The principal of these was his “*Apology for Christians*,” addressed to Marcus Aurelius Antoninus, and Lucius Aurelius Commodus, whose names are prefixed to it, says Fabricius, in all the manuscripts; and probably written about the year 177 or 178. In this work he repels the calumnies of the pagans against the doctrines and manners of the Christians. He also explains the notions of the Stoics and Peripatetics, concerning God and divine things, and exposes with accurate and strong reasonings their respective errors. He discovers much partiality for the system of Plato, and supports his arguments by the authority of this philosopher, and hence he has been ranked among the Platonising fathers. In what he advances concerning God and the Logos, or divine reason, he evidently blends the doctrines of Paganism with the doctrines of Christianity. According to Athenagoras, God is undivided, indivisible, and distinct from matter; there are middle natures between God and Matter; from the beginning, God, the eternal mind, being from eternity rational, had the Logos within himself; the son of God is the reason of the Father in idea and energy; for since the father and son are one, by him and through him all things are made; the Logos was produced, that the ideas of all things might subsist, and they are contained in his spirit. On the imperfect and untractable nature of matter, on angels, demons, and other natures compounded of matter and spirit, and on other philosophical topics, Athenagoras reasons with all the subtlety of the Grecian schools, so that in every page he is seen to have been by profession a philosopher; and indeed he is said to have retained the name and habit of a philosopher with a view of gaining greater credit to the Christian doctrine among the unconverted heathens. In moral philosophy, he adopted the common austerities, particularly with respect to marriage. He represents celibacy as meritorious, and second marriages as legalised adultery. In Athenagoras’s “*Discourse of the Resurrection of the Dead*,” probably written after the “*Apology*,” he argues rather from reason than scripture, in order to prove the possibility and fitness,

of a resurrection. His writings, upon the whole, manifest an happy union of Attic elegance with philosophical penetration; so that he is reckoned a polite writer, and his Greek is Attic, though his style is rendered less agreeable by frequent parentheses. The two treatises of Athenagoras have been usually printed together, in Greek and Latin. They were published in 4to. at Paris, in 1541; by H. Stephens, at Paris, in 8vo. in 1557; by Rechenberg, at Leipzig, in 1684, in 2 vols. 8vo.; by Fell, bishop of Oxford, with notes, at Oxford, in 1682, 12mo.; and with various notes by Dechair, from the same Sheldon press, in 1706, 8vo. The Romance under the name of Athenagoras, said to be a translation from a Greek MS. brought from the east, and published in 1599, and in 1612, in French by M. Fumée, intitled "True and Perfect Love, written in Greek by Athenagoras an Athenian philosopher, containing the chaste loves of Theogonus and Charides, of Pherecides and Melangenias," is a fiction; and was probably written in imitation of the Theagenes and Chariclea of Heliodorus, after the overthrow of Greece by Alaric, or the destruction of the Greek empire by the Turks. Cave, H. L. t. i. p. 79. Lardner's works, vol. ii. p. 180. &c. Fabr. Bibl. Græc. l. v. c. i. t. v. p. 85—91. Gen. Dict. Brucker's Hist. Philos. by Enfield, vol. ii. p. 295.

ATHENATORIUM, among *Chemists*, a thick glass cover, placed on a cucurbit, having a slender umbo or prominent part, which enters like a stopple within the neck of the cucurbit.

ATHENIANS, in *Ancient Geography*. See **ATHENS**, and **ATTICA**.

ATHENIENSIIUM PORTUS, or the port of the Athenians, was a harbour of Greece, between the Port Bucephalon and the promontory of Spireum, on the eastern side of the Argolide, in the Saronic gulf.

ATHENION, in *Biography*, a Greek historical painter, who flourished in the year 300 before Christ.

ATHENIPPUM, in *Ancient Physic*, a collyrium, commended against divers diseases of the eyes; thus denominated from its inventor Athenippus.

Its description is given by Scribonius Largus, and by Corraeus after him.

Galen mentions another athennippum, of a different composition, by which it appears, this was a denomination common to several collyriums.

ATHENIS, in *Biography*, a famous Grecian statuary, who flourished at Chio, about 538 years before Christ. See **BUPALE**.

ATHENODORUS, a Stoic philosopher, was a native of Cana, near Tarsus, in Cilicia, and the preceptor and friend of Augustus. During his residence at Rome, he was much respected by the emperor on account of his wisdom and probity, admitted into his confidence, and allowed to give him free and faithful counsel. Augustus, being addicted to gallantry, indulged a criminal passion for the wife of a senator, who was a friend of Athenodorus, and who communicated to him his distress. The philosopher availed himself of this opportunity of impressing upon the mind of the emperor a sense of the danger to which he exposed himself by such practices. Accordingly, he dressed himself in woman's clothes, and, providing himself with a poniard, put himself into the chair in which the lady was to have been conveyed. When he appeared before Augustus in this disguise, he said to him, "See, sir, to what danger you expose yourself! An enraged husband may arm himself in this manner, and revenge with your blood the injury you offer him." The admonition is said to have produced its designed effect; the emperor received it with deference; and he became more circumspect for the future. Zosimus (l. i. c. 6,) attributes the mild plan of government adopted

by Augustus to the influence of the counsels of Athenodorus. Before he left the court of Augustus, he is said by Plutarch (Apophthegm. Oper. t. 2. p. 207.) to have warned the emperor against excess of passion, and as a preservative, to have advised him to rehearse the twenty-four letters of the alphabet, before he allowed himself to say or do any thing. Upon this, Augustus took him by the hand, saying to him, "I want your assistance still longer," and kept him for another year. Such was his interest with Augustus, that he obtained for his fellow-citizens, the inhabitants of Tarsus, relief from some of the taxes which oppressed them; and on this account he was honoured by them with an annual festival. At an advanced age the emperor permitted him to return to his native country; and finding it distracted by factions, which had been excited by Boethus, whom Antony had invested with power, he exerted himself with prudence and firmness, in order to restrain and suppress them. By recruiting the exhausted funds of Tarsus, correcting the abuses which threatened its ruin, and introducing a new code of municipal law, he contributed to the revival and permanence of its prosperity. Having served his country faithfully during a prolonged life, he closed it with honour, and with the regret of his fellow-citizens, at the advanced age of eighty-two years. He was a considerable writer; and several of his works are cited by the ancients. Strabo says, (l. i. p. 6.), that he wrote concerning the ocean and its tides; and Stephanus (art. *Αρχιμεδον*) informs us, that he wrote the history of his own country; but none of his works are now extant. This Athenodorus is not the same who is mentioned by Suetonius (in Claud. c. 4.), as having been entrusted by Augustus with the charge of the education of Claudius Nero, afterwards emperor. Fabricius, however, asserts that they were the same person. Gen. Dict. Strabo, l. 14. t. ii. p. 991. Brucker's Hist. Phil. by Enfield, vol. ii. p. 117. Fabr. Bib. Græc. l. iii. c. 15. t. ii. p. 391.

ATHENODORUS Cordylis, a Stoic philosopher of Tarsus, was probably a native of Pergamus, lived about 50 years before Christ, and was the intimate friend and companion of Cato of Utica. He was keeper of the public library at Pergamus; and having refused several solicitations to leave this retreat, he was at last prevailed upon by Cato, who visited Asia for this purpose, to join him in the war which he had undertaken for the restoration of Roman liberty. Cato is said to have valued himself upon the success of his application to Athenodorus, more than if he had shared the conquests of Lucullus or Pompey. Strabo says, that he lived and died with Cato. Fabricius suggests, that this Athenodorus was the author of a work against the Categories of Aristotle, mentioned by Porphyry, Simplicius, and Stobæus. Plat. in Vit. Caton. Oper. t. i. p. 665. Diog. Laert. Strabo, l. xiv. t. i. p. 991. Fabr. Bib. Græc. l. iii. c. 15. t. ii. p. 371.

ATHENODORUS, a famous ancient sculptor, who was born at Rhodes. According to Pliny, he was a scholar of Polyclethus, who flourished about the eighty-seventh olympiad, or 432 years before Christ. He was one of the three who jointly executed the famous group of Laocœon: the other two were Agesander and Polydore.

ATHENOPOLIS, in *Ancient Geography*, a town of Gallia Narbonnensis, on the coast of the Vassillians, between port Citharista and Forum Julii, according to Pliny. Its precise situation is not now known.

ATHENRY, in *Geography*, a borough town of the county of Galway, in Ireland, which gives name to a barony. Within an extensive circuit of dilapidated walls, and their ruinous towers, the remains of castles and abbeys, that are intermixed with the cottages of a now small village, present a monument of its former consequence. There are also

many ruins of castles and churches in its neighbourhood. At this town was fought a battle between Fedlin O'Connor, prince of Connaught, an associate of Edward Bruce, and an English army under William de Burgo and Richard de Bermingham, in which, after a desperate engagement, the Irish were defeated with the loss of their prince and eight thousand men. This event happened in the year 1316. Distance from Dublin nearly 92 miles. N. lat. 53° 14'. W. long. 8° 40' 30". Beaufort. Leland.

ATHENS, in *Ancient Geography and History*, a celebrated city, called by way of eminence *πολις*, or *αση*, the city, was the capital of Attica, and the seat of the Grecian empire. It was founded by Cecrops, about 1556 years before Christ, and from him called "Cecropia." It afterwards, as some say, in the reign of Erichthonius, about 1487 years B.C., or according to others, in the reign of Erichtheus, about 1397 years B.C. assumed the name of Athens, from Minerva, denominated by the Greeks *Αθην*, and considered as the protectress of the city. Cecropia was seated upon a hill or rock in the midst of a spacious and fertile plain, partly with a view of securing it against piratical invaders, and partly to prevent its being overwhelmed by inundations, which were much dreaded in those ancient times. In process of time, as the number of inhabitants increased, the whole plain was covered with buildings, which were denominated from their situation, "the lower city," and Cecropia was called "Acropolis," or "the upper city." See ACROPOLIS. The old city, or citadel, was sixty stadia, or about 2½ leagues in circuit; it was fenced with wooden pales, and as some say, set about with olive-trees; and it was also fortified with a strong wall, partly built by Cimon, the son of Miltiades, out of the spoils of the Persian wars, and situate on the south side of the citadel; and partly on the north side, by Agrolas and Hyperbius, who, according to Pausanias (in Attic. l. i. c. 28. p. 67.), migrated from Sicily to Acarnania and denominated from them, who were called Pelasgi, the Pelasgic wall. The only entrance into the citadel was by one gate on the south-west, constructed at a great expence by Pericles, and denominated Propylæum. See PROPYLÆUM. The inside of the citadel was adorned with innumerable edifices, statues, and monuments, all of which it would be too tedious to recount. The most remarkable are the following.—At the entrance was a temple dedicated to Victory, adorned with paintings which were principally the work of Polygnotus, and constructed of white marble. Within the citadel were an immense number of statues erected by religion or gratitude, on which the chisels of Myron, Phidias, Alcamenes, and other artists of renown, seem to have bestowed animation. Of these statues some were those of famous Athenian generals, such as Pericles, Phormio, Iphicrates, and Timotheus; and others, those of the gods. About the middle of the citadel were the magnificent temple of Minerva, denominated Hecatompedon, and Parthenon (see PARTHENON); and the temple of Minerva Polias and Neptune Erechtheus, one part of which was consecrated to the former, and the other to the latter. On one side was exhibited the olive-tree which sprang out of the earth at the command of the goddess, and which so greatly multiplied in Attica; and on the other, the well, whence they pretend that Neptune caused the water of the sea to gush out. Thus these divinities are said to have contended for the honour of conferring their names on the rising city; but the gods decided in favour of Minerva, and the Athenians for ages preferred agriculture to commerce. Here, however, they have erected one common altar, which is called the altar of oblivion. Before the statue of the goddess was suspended a golden lamp, the work of Callima-

chus, which was supplied with oil once a year, the wick of which was made of amianthus, and which burned night and day. The columns of the front of the temple of Neptune are standing, together with the architrave: and also the screen and portico of Minerva Polias, with a portion of the cell retaining traces of the partition wall. The order of this building is Ionic. The portico is now used as a powder magazine, and near it is a battery commanding the town. The Turks use it to give notice of their ramazan and bairam, and on other public occasions. Contiguous to this temple was the Pandroseum. (See PANDROSEUM). Behind Minerva's temple was the public treasury, called OPISTHODOMOS; surrounded by a double wall.

The lower city comprehended all the buildings that surrounded the citadel, together with the harbours of Phalerum, Munychia, and the Piræus. The whole circuit of the city in its most flourishing state was no less, according to Aristides, than a day's journey; or, according to more exact computation, 178 stadia, or about 22 Roman miles. The port of Phalerum was connected with the city by a wall 35 stadia, or 1½ league in length, built by Themistocles, of stone, fastened by iron and lead, and forty cubits high; and that of Piræus was joined to it by a wall 40 stadia or 1½ league long, and erected by Pericles. These were almost closed at their extremity by a third wall of 60 stadia; and they inclosed not only these two harbours, and also that of Munychia, which lay between them, but also a multitude of houses, temples, and monuments of every kind; so that the entire circumference of the city has been estimated at nearly 200 stadia, or above 7½ leagues. In the wall that encompassed the city there were several gates, the principal of which were those of Ægeus, of Diocharis, of the Diomians, of Melite, of Acharna, of Hippades, of Thrasia, or Dipylon, of Itonia, sacred gate, and that of the Piræus. The streets of Athens were in general irregular, and the houses small and commodious. Besides the rock of the museum, close to the citadel on the south-west, separated by a valley from the hill on which the Areopagus stood, other eminences contributed to render the city extremely uneven. In these hillocks they had several springs of water, but not sufficient, without additional wells and cisterns, for the supply of the inhabitants. The city was encompassed by the river Ilissus and Cephissus, which joined their streams in the marsh of Phaerum, and near the banks of which were several public walks, and also public and private buildings. The three harbours of Athens were the PHALERUM, MUNYCHIA, and PIRÆUS; for an account of which see the articles. The principal edifices and places of note in and about the city are the following:—Without the gate of Piræus is a cenotaph, erected by the Athenians in honour of Euripides, who died at Macedonia, on which is inscribed "the glory of Euripides has all Greece for a monument;" and within the gate is a stately building, called Pompeion, in which are kept the sacred utensils used at festivals, and from which commence the processions of young persons exhibited on occasions of this kind. In an adjoining temple dedicated to Ceres are admirable statues of that goddess, Proserpine, and young Iacchus, executed by Praxiteles. In the street leading from the Piræus to the citadel, are numerous porticoes, some of which stood detached, and others contiguous to buildings, to which they serve as vestibules. To the left of this street is the quarter of the Pnyx, which was very populous; and contiguous to this was that of the Ceramicus, or pottery grounds, so called from the earthen ware formerly fabricated there. This extensive space was divided into two parts; one without the walls, where the academy was situated; and another within, in which was the grand square,

square or forum. In the royal portico, where the second of the archons held his tribunal, and where the areopagus sometimes assembled, were several statues, such as those of Pindar, Conon, Timotheus, and Evagoras king of Cyprus. Near the royal portico was that of Jupiter Liberator, where Euphranor the painter had represented in a series of pictures the twelve gods, Theseus, the people of Athens, and an engagement of the cavalry, in which Gryllus, the son of Xenophon, attacked the Thebans commanded by Epaminondas. The Apollo of the adjoining temple was the work of the same master. From the royal portico two streets branch out, and terminate in the forum: that on the right was decorated by a number of Hermæ, or heads of Mercury supported by pedestals, erected for recording some glorious achievements, or for inculcating some lessons of wisdom. This street is terminated by two porticoes that front the forum; the one, that of the Hermæ; the other, and the most handsome, is called the Pœcile, at the gate of which was the statue of Solon. The walls within the Pœcile were covered with bucklers taken from the Lacedæmonians and other nations, and enriched with the works of Polygnotus, Micon, Panoenus, and other celebrated painters. The forum, which was extremely spacious, was decorated with buildings destined to the worship of the gods, or the service of the state, or as places of asylum to the wretched; and statues of kings or individuals who had merited well of the republic. An adjoining square contained a temple in honour of the mother of the gods, with a statue of her by Phidias; and the place in which the senate assembled. In the temple of Mars, at a small distance, was a statue of that god, executed by Aleamenes, a pupil of Phidias.

In the middle of the city, between the forum and the citadel, was the temple of Theseus, built by Cimon some years after the battle of Salamis; it was smaller than that of Minerva, but built after the same model; like that, it was of the Doric order, and an elegant structure. It was enriched by the labours of skilful painters; and the remains of it are to be seen at this day. It was allowed the privilege of being a sanctuary for slaves, and for all persons of mean condition who fled from the persecution of men in power; in honour of Theseus who, whilst he lived, was the protector of the distressed. Near to the temple of Theseus, Pausanias places the temple of the Dioscuri, or of Castor and Pollux; and above this temple was the grove of Aglaurus, situate under the Acropolis. Near to this grove, north of the Acropolis, was the Prytæneum, where citizens who had rendered signal service to the state, were maintained at the public expense. See PRYTÆNEUM. Beyond this building, on the north-east side of the citadel, was the street of the Tripods, or the street of triumphs, in which were temples and houses containing tripods of brass, which were dedicated by those who had been victorious in the contests that subsisted among the poets, musicians, and dancers. In one of these edifices was the famous satyr, called by the Greeks Περὶ Βουκόλου, esteemed by Praxiteles himself one of the finest of his productions, and ranked by the public among the masterpieces of art. The street of the Tripods led to the theatre of Bæchus, where the people sometimes assembled to deliberate on affairs of state, or to be present at the representation of tragedies or comedies; and opposite to this theatre was the temple of Bæchus, one of the most ancient temples of Athens, it was situated in the quarter of Linnæ, or Marshes, and was opened only once a year. Between the street of the Tripods and the theatre of Bæchus was the Odeum, built by Pericles for musical competitions. (See ODEUM.) In the quarter of the marshes, south of the citadel, was the temple of the Olympian Jupiter, begun by

Pisistratus, continued by several succeeding governors, and finished in the time of Adrian. The ruin of this temple consists of very large and beautiful columns of the Corinthian order, fluted, about six feet in diameter and sixty in height. The temple of the Pythian Apollo lay to the north-west of that of Jupiter Olympius, and nearer to the citadel; and near to the Propylæum, at the bottom of the citadel, on the north side, is the temple of Apollo and Pan, in a grotto or cave, where Apollo is said to have deflowered Creusa, daughter of king Erichtheus. Besides these there were several other temples, such as the temple of Diana, that of the Eight Winds, and the Pantheon dedicated to all the gods. (See PANTHEON.)

Without the city, between the wall and the river Ilyssus, was the dromos or stadium (see STADIUM, and CYNOSARGES). Beyond the Ilyssus, and to the east of the Stadium, was mount Hymettus, and the district called Agræ, in which were the temples of Ceres, and of Diana Agrotera, or the huntress. Above this were the Gymnasia of the Lyceum (see LYCEUM), and of the Cynosarges. To the north-west, in the Ceramicus that lay without the city, and distant from it about six stadia, was the Academy. (See ACADEMY.) Beyond the Academy was a hill called Colonus, on which Sophocles laid the foundation of his Œdipus Coloneus. The river Cephissus enriched this district with its waters, though in summer this stream, and also the Ilyssus, were occasionally dry.

The topography of ancient Athens, given by Pausanias, so far corresponds to those remains, whose names and situations have been described by modern travellers, as to afford a strong presumption of its accuracy; and it affords a kind of standard by which the correctness of other descriptions may be estimated. In order to form a just notion of his plan, it is necessary to consider the stations from which his routes commenced; and these will appear to be in a natural order, and to have embraced in the most comprehensive manner the whole of the city of Athens. His two principal stations were the Ceramicus and the Prytæneum; and his routes from the former station noticed those parts that lay to the north-west, and those from the latter such as were situated to the north-east, and south of the Acropolis. Having arrived at Athens from the Piræus, and passing through the outer Ceramicus and the city gate, he entered the inner Ceramicus, which was his first station. On the right hand, he says, is seen the royal porch, and he there enumerates among other objects, the temple of the mother of the gods; the senate-house of five hundred; the Theseus; the temple of Mars; the Odeum; the fountain called Enneakrounos; the temple of Ceres and Proserpine; and another. Pausanias having finished the first route, without describing any objects in returning, commences his second, which appears to be very short; remarking only the temples of Vulcan, and of Venus Urania, above the Ceramicus, and which may be supposed to have been northward of the gate Dipylon. He then proceeds to say, that the traveller, directing his course to the Pœcile or Poikile, will observe the several objects in the following order: besides others, the Market place, the Gymnasium, the temple of Theseus, the temple of the Dioscuri, and the grove of Aglaurus: the temple of Theseus still remains. According to the order of Pausanias, we must look for the Poikile, the Market place or forum, and the Gymnasium, between the gate Dipylon and the temple. According to Pausanias, the temple of the Dioscuri was near to that of Theseus; and above the temple of the Dioscuri was the grove of Aglaurus; and as this grove was under the Acropolis, it must have been between that place and the temple of Theseus, or nearly between the Acropolis

Acropolis and the hill of the Areopagus. Near to the grove of Aglaurus was the Prytaneum, north of the Acropolis, and this was the second station of Pausanias. The first route from this station is explained as descending from the Prytaneum to the lower parts of Athens; and it includes the temple of Serapis, of the goddess Lucina, of the Olympian Jupiter, and the Delphinian Apollo, the Gardens, the Lyceum, the river Illysius, the temple of Diana the huntress, and the Stadium. Without describing any objects in his return from the Stadium to the Prytaneum, Pausanias commences his second route from that station by the way called Tripodes, in which, he says, there are temples, tripods, and other works deserving notice; and, in the following order he mentions the temple of Dionysius, the temple of Bacchus, the imitation of the tent of Xerxes, the theatre of Bacchus, the wall called Southern, the tomb of Calus, the temples of Æsculapius, of Themis, of Earth, and of Virid Ceres; and then enters the Propylea of the Acropolis. Within the Acropolis, he describes, among other objects, the Parthenon, the temples of Erectheus, Polias, and Pandrosus; and his descriptions agree so exactly with the remains found there, that this part of his topography affords an evidence of his precision in other respects. He then passes from the Acropolis over the Areopagus, thence to the tombs, and to the Academy; and this route is in the order of their situation; for he had before passed under the north-east side of the Areopagus, in his route from the temple of Theseus to the Prytaneum. The tombs, which are in the neighbourhood of the Museum, according to Dr. Chandler, were evidently in the situation to which Pausanias alludes; and the academy is known to have been to the west of the walls of the city. It has been the uniform opinion of antiquaries, that the old city of Athens was built on the northern side of the Acropolis; and the inscription of Adrian's arch is a confirmation that the addition to the city, built by that emperor, and called after him Adrianople, was on the southern side. Mr. Stewart, however, in his "Antiquities of Athens," (vol. iii.) conjectures, that the ancient city was on the south side of the Acropolis; but it has been alleged, that there are no remains which countenance this supposition; and besides, it should be recollected, that the Pelasgi, who fortified the Acropolis, were permitted to dwell beneath the walls: they were afterwards accused by the Athenians of way-laying their daughters, as they went from the city to fetch water from the Illysius: this could not possibly have happened, without supposing that the ancient city was on the north side of the Acropolis, and that the part inhabited by the Pelasgi was on the south side: for no other part would correspond to the account of the Pelasgi being in a situation between the city and the river. The Pelasgi were afterwards driven out of Attica; the spot on which they dwelt was execrated; and the Delphic oracle advised, that it should be kept rough and uncultivated. It is, however, well known, that this spot, in after-times, was inhabited; but it is somewhat singular, that, except the theatre and some few monuments, immediately under the walls of the Acropolis, the whole of the plain between the Acropolis and the Illysius, contains no remains of ancient works, besides one solitary column. This furnishes a strong argument against the supposition of the ancient city being erected in this situation; for undoubtedly the chief monuments of their grandeur would be contained within the city. This circumstance also accounts for Pausanias passing by, without describing any thing as situated there: it was sterile in antiquities, and therefore furnished no object deserving his notice. For these observations, we are indebted to an anonymous writer,

See Monthly Review enlarged, vol. xvii. p. 56. For the plans of Athens, annexed to the travels of Anacharsis, see the Maps of this work.

ATHENS, and the Athenians, *History of*. It has been already observed, that the city of Athens was founded by Cecrops about 1556 years B.C. This prince reigned fifty years. Under the reigns of his successors, various circumstances combined to determine the character and situation of the nation. The succession of princes appears, with few exceptions, the succession of improvement. Under the reign of Erichthonius, the colony of Cecrops accustomed horses, already docile to the bit, to draw wheel carriages; and profited by the labour of bees, which useful race of insects they carefully preserved on mount Hymettus. Under Pandion, they made new progress in agriculture; but a long drought having destroyed the hopes of the husbandman, the harvests of Egypt supplied the wants of the colony, which thence contracted a taste for commerce. Erichtheus, his successor, rendered his reign illustrious by useful institutions, and the Athenians dedicated a temple to him after his death. A considerable portion of barbarism still remained; the country, very imperfectly cultivated, maintained great numbers of savage animals, and still more savage men. The Grecian woods and mountains abounded in lions, boars, and other fierce animals, that often roamed from their haunts, and spread terror and desolation among the adjoining vallies. The vallies themselves teemed with men of brutal strength and courage, who availed themselves of the weakness of government, to perpetrate horrid deeds of violence and cruelty. About the year 1300 B.C. the first worthies of Greece, animated rather with the daring and useful, than with the romantic spirit of chivalry (Plutarch's Theseus), set themselves with one accord to remedy evils which threatened the existence of society. These travelled over Greece, and freed it from the violence both of kings and individuals: they appeared to the Greeks as beings of a superior order; and that infant people, no less extravagant in their gratitude than fears, rewarded the exploits with so much glory, that the honour of protecting them became the first ambition of noble minds. Of these, one of the most eminent was Theseus, the son of Egeus king of Athens, who was ardently desirous of rivalling the exploits of Hercules. The Pallantides, a powerful family of Athens, having attempted to wrest the sceptre from the aged hands of Egeus, young Theseus, now approaching to man's estate, overwhelmed the projects of the conspirators. (Plutarch's Theseus.) Marathon, the second city in Attica, had its environs infested by a ferocious bull; the heroic prince subdued this terrible animal (Plutarch's Theseus); and the Athenians regarded his success with astonishment and admiration. But his countrymen had soon after a call for their wonder and gratitude in a much more signal achievement, and more momentous benefit. Minos, king of Crete, accused them of having put to death his son Androgeus, and compelled them by force to deliver him, at stated intervals, a certain number of youths and maidens. These were to be chosen by lot, and their destiny was death or slavery. (Plutarch's Theseus.) It was now the third time that the pledges of their affections were to be torn from their unhappy parents. All Athens was in tears, but Theseus revived her hopes. He undertook to free the city from this odious tribute; and, to accomplish the noble project, voluntarily enrolled himself in the number of the victims, and embarked for Crete. The adventures of Theseus in Crete, exhibited by the inventive and often fanciful poetry of the Greeks, contain a great portion of the marvellous, through which a skilful and discerning reader may

may discover the probable. According to the tale which the Athenians relate, it was the cruel practice of Minos to shut up his tributary victims, the moment he received them, in a labyrinth, where they were soon after devoured by the minotaur, a monster half a man and half a bull, the offspring of the infamous amours of Pasiphae, queen of Crete: they add, that Theseus, having slain the minotaur, brought back the young Athenians, and was accompanied on his return by Ariadne, daughter of Minos, who assisted him in escaping from the labyrinth, and whom he abandoned on the shores of Naxos. The Cretans, on the contrary, allege, that the Athenian hostages were destined to the victors in the celebrated games in honour of Androgeus; that Theseus, having obtained permission to enter the lists, overcame Taurus, general of the troops of Minos; and that this prince had the generosity to do justice to his valour, and pardon the Athenians.

Minos had established an excellent system of government, which equally secured the authority of the prince and the liberty of the people, and connected religious with political influence. (Aristotle's Politics.) The advantages of this system Theseus discerned, and having returned and ascended the throne of Attica, vacant by the decease of his father, he resolved to improve the government of his country. The twelve towns, founded by Cecrops, were become so many republics, each of which had its particular magistrates and chiefs almost independent, whose interests, clashing continually, produced frequent wars; and though imminent dangers sometimes obliged them to have recourse to the protection of the sovereign, the succeeding calm soon awakened their ancient jealousies. The royal authority, fluctuating between despotism and degradation, alternately inspired terror and contempt; and the people, by the vice of a constitution, the nature of which was not exactly understood either by prince or subjects, had no means whatever to defend themselves against the extremity of slavery, or the excess of licentiousness. Theseus formed his plan; and, superior even to minute obstacles, took upon himself its execution in detail. He traversed the different districts of Attica, and endeavoured every where to insinuate himself into the favour of the people, who with ardour received a project which seemed to restore to them their primitive liberty; but the wealthier class, fearing to lose the authority they had usurped, and apprehensive of seeing a kind of equality established between all ranks of citizens, murmured at an innovation which diminished the royal prerogative: not daring, however, openly to oppose the will of a prince, who was endeavouring to obtain by persuasion, what he might exact by force, they consented, but with a secret determination to protest against the measure when circumstances might be more favourable. It was now determined that Athens should be the metropolis and centre of the state; that the senates of the cities should be abolished; that the legislative power should reside in the general assembly of the nation, divided into three classes, the nobles, the husbandmen, and the artificers; that the first magistrates, chosen out of the former, should have the superintendence of the sacred rites, and be the interpreters of the laws; that the different orders of citizens should form a mutual balance, the first, having in its favour the splendor of dignities; the second, the importance of services; and the third, the superiority of number. (Plutarch's Theseus.) It was determined in fine, that Theseus, placed at the head of the republic, should be the defender of the laws it might enact, and the general of the troops destined to its defence. He erected tribunals for the magistrates; enlarged the capital, and embellished it as far as the imperfection of the arts

at that time would permit. Strangers, invited to become citizens, flocked thither from all parts, and were incorporated with the ancient inhabitants. He added the territory of Megara to the country; he placed a column on the isthmus of Corinth, as a boundary between Attica and Peloponnesus; and revived, near this pillar, the Isthmian games, in imitation of those lately instituted by Hercules at Olympia. Every thing now seemed favourable to his views: he governed a free people, retained in obedience, by his moderation and his bounties; he dictated laws of peace and humanity to the neighbouring nations, and enjoyed a foretaste of that profound veneration with which succeeding ages gradually honour the memory of great men. Theseus also engaged in new undertakings of valour, some of them very unjustifiable (see THESEUS, HERCULES, and PIRITHOUS), and all of them prejudicial to his country, by occupying that time which might have been employed in the farther improvement of the state. But with these exceptions, Theseus was a very great and beneficial sovereign, and his reign was a very important epoch in Athenian history. For several ages, however, Athens was only a secondary power: in the time of Homer, that state sent but fifty ships, whereas several other countries sent eighty, and Mycene a hundred. The complement of men to each, being 120, the troops amounted to about 6000.

Full fifty more from Athens stem the main,
Led by Menestheus thro' the liquid plain;
No chief like thee, Menestheus! Greece could yield,
To marshal armies in the dusty field.
Th' extended wings of battle to display,
Or close th' embodied host in firm array.
Nestor alone, improv'd by length of days,
For martial conduct bore an equal praise.

See Pope's Homer's Iliad, l. ii.

At the time of the Trojan war, B. C. 1184, Athens, like other states of Greece, was subjected to a limited monarchy, but not strictly hereditary. Menestheus succeeded Theseus, in preference to the son of that monarch. Menestheus was succeeded by Demophoon, who distinguished himself at the siege of Troy, and on his return was eminent for political improvement. By him was erected the famous court of the ΕΡΗΤΕΣ, for trying wilful murder by a tribunal to which the British jury bears a considerable analogy. By this court, the king himself afterwards submitted to be tried, for having accidentally killed one of his subjects. He reigned thirty-three years, and was succeeded by his son Oxyntes, who reigned twelve years. Oxyntes was succeeded by his son Aphydas, who was murdered by Thymætes, the bastard son of Oxyntes. Thymætes demonstrated himself very unworthy to reign, and was at length dethroned to make room for a man who had distinguished himself in the following manner. There happened to arise a contest between the king of Boeotia and the Athenians, about a frontier town. The hostile prince challenged Thymætes to determine their dispute by a single combat. The Athenian sovereign chose to decline, but Melanthus, an exile from Messenia, who then resided at Athens, accepted the challenge. When they encountered, Melanthus demanded of his adversary, why, contrary to articles, he had brought a second into the field? He turned about to see who the alleged second was, whereupon Melanthus ran him through the body. Delighted with this victory, the Athenians did not regard the means by which it had been obtained, and appointed the conqueror their king. Melanthus was succeeded by his son Codrus: this prince was attacked by the Heraclidæ: having heard that the oracle promised the victory to that army which should lose its general in battle, he voluntarily devoted himself

to death; a sacrifice which so animated his troops, that they entirely defeated their enemies. Codrus was the last king of Athens, and on his death, the government became republican, by the establishment of Archons, B.C. 1070; an office which was at first hereditary, and little inferior, in point of power, to royalty itself. Medon, the son of Codrus, first held the office of ARCHON. His brother Neleus and Androclus, probably dissatisfied with these transactions, determined to leave their country. This design was approved by the Achæan and Messenian refugees, and by many Athenian citizens, who complained that Attica was too narrow and barren to maintain the increasing numbers of its inhabitants. The restless spirits in Phocis, Bœotia, and other neighbouring provinces, eagerly joined the emigrants. They sailed to Asia Minor, B.C. 1055, expelled the ancient inhabitants, a mixed race of Lydians, Carians, and Pelasgi, and seized the central and most beautiful portion of the Asiatic coast. (Herodotus, Clio.) Their colonies were gradually diffused from the banks of the Hermus, to the promontory of Poseidon. They afterwards took possession of Chios and Samos: and all these countries were united by the common name of Ionia, to denote that the Ionians composed the most numerous division of the colony. See IONIANS.

The government of the Archons, after several changes, at length became annual, and their number was nine. Peloponæus being now involved in the long and bloody wars between the Messenians and the Spartans, the Spartans, being in great danger, applied for assistance to the Athenians, who sent them aid on one occasion, and were instrumental to the reduction of the Messenians, and the aggrandisement of the Spartans, destined to become formidable rivals to themselves. During the first ages of Archontic government, Athens was little occupied by foreign wars, but very greatly by dissensions and seditions. They had no written laws, and were perpetually disagreeing on points of religion and government. The inhabitants of Attica were separated into three factions, each of which had at its head one of the most ancient families of Athens. Divided as they all were by interest, diversity of character, and situation, it was impossible for them to agree in the choice of a form of government. The poorest and most independent, confined to the adjacent mountains, favoured a democracy; the wealthiest, dispersed over the plain, wished for an oligarchy; while the inhabitants of the coasts, engaged in maritime and commercial affairs, were for a mixed government, which might secure their possessions, without proving injurious to public liberty. To this source of divisions, each party united the inveterate hatred of the poor against the rich. Obscure citizens, overwhelmed with debts, had no resource but that of selling their liberty, or that of their children, to merciless creditors; and the greatest part of them had determined to abandon a country which held out only ineffectual labour to some of them; and eternal slavery, and the sacrifice of every sentiment of nature, to the remainder. From the growth of knowledge, new sources of industry, new necessities and vices, were diffused through society. Licentiousness was either passed over with impunity, or reprehended by arbitrary punishments. The life and fortune of individuals were left at the discretion of magistrates, who, subjected to no certain limitations, were but too much disposed to listen to their prepossessions or their interests. In this confusion, which menaced the state with immediate destruction, Draco was chosen, B.C. 624, with full powers to exercise the whole of legislation, in its most extensive or circumstantial views. The particulars of his private life are little known to us; but he has left the reputation of a

man of worth, possessed of real knowledge, and sincerely attached to his country. Other strokes of character might perhaps embellish his eulogium, but are not necessary to his memory. Like all preceding and subsequent legislators, he formed a code of laws and morals; he took the citizen at the moment of his birth, prescribed the manner of his earliest education, followed him through the different stages of his life, and, connecting these partial views with the main object, flattered himself he should be able to form free men, and virtuous citizens; but he only produced malecontents, and his regulations excited so many murmurs, that he was compelled to take refuge in the island Ægina, where he soon after died.

His laws were strongly impressed with the peculiarity of his character; they were as severe as his manners had ever been rigid. Death was the chastisement he inflicted on idleness, and the only punishment he decreed for the slightest offences, as well as for the most atrocious crimes; he was accustomed to say, that he knew of none milder for the former, and could devise no other for the latter. It seems as if his powerful mind, virtuous even to excess, was incapable of any indulgence for crimes at which it revolted, or for those weaknesses over which it triumphed without an effort. As he had not attempted any change in the form of government, the intestine divisions augmented from day to day. One of the principal citizens, named Cylon, formed the project of seizing on the sovereign authority; he was besieged in the citadel, where he had long defended himself, and at length, wanting provisions, and destitute of every hope of succour, eluded, by flight, the punishment due to his crime. His followers took refuge in the temple of Minerva; from which asylum they were enticed by the promise of life, and instantly massacred. Some of these unfortunate men were murdered even on the altars of the awful Eumenides. The indignation excited by this action was universal; the people at once execrated the perfidy, and shuddered at the impiety of the victors; and the whole city expected that some dreadful calamity would be immediately inflicted by celestial vengeance. Amidst this general consternation, news was brought that the city of Nisæa and the isle of Salamis had fallen by the arms of the Megarensians. To this melancholy intelligence succeeded, soon after, an epidemical distemper. The public imagination, already agitated, was suddenly seized with panic terrors, and haunted by a thousand terrifying chimeras. The augurs and oracles being consulted, declared that the city, polluted by the profanation of the holy places, must be purified by the ceremonies of expiation. The Athenians, therefore, sent to Crete for Epimenides, B.C. 612, considered as a man who had an intercourse with the gods (Pausanias, l. i.), and who saw into futurity. He really appears to have been a reformer endued with talents and knowledge to engage confidence in his opinions, and austerity of manners to command respect. The first years of his youth he passed in solitary places, and seemed wholly absorbed in the study of nature, forming his imagination to enthusiasm, by fasting, silence, and meditation, without any other ambition than by making himself acquainted with the will of the gods, to secure his dominion over the minds of men. His success surpassed his hopes, and he acquired such a reputation for wisdom and sanctity, that in times of public calamity, nations intreated from him the favour of purifying them by rites, which, as they alleged, he could render more acceptable to the divinity. Athens received him with transports of hope and fear. He directed that new temples and new altars should be built to immolate the victims he had chosen, and that these sacrifices

should be accompanied by certain hymns. As while speaking he seemed agitated with a divine inspiration, his impetuous eloquence was irresistible. He availed himself of the ascendancy he had acquired, to effect several changes in the religious ceremonies, and in the manners of the people; and by various useful regulations, he endeavoured to bring the Athenians to the two principles of social union and justice. But the reform of Epimenides, though beneficial as far as it extended, was very inadequate to the evils. The people were still suffering under combined anarchy and oppression; the magistrates plundered the treasury and the temples; and often betrayed for bribes the interests of their country: the rich tyrannised over the poor, the poor continually alarmed the safety of the rich: the rapacity of creditors knew no bounds: they compelled the insolvent debtors to cultivate their lands like cattle, to perform the service of beasts of burden (Gillies, v. ii. 107.), and to transfer to them their sons and daughters, whom they exported as slaves to foreign countries. In such a distressed situation, there arose for their relief the illustrious Solon, B. C. 594. This celebrated sage first distinguished himself by military policy and warlike efforts. The Athenians had been long engaged in a war against the Megarensians, concerning the island of Salamis; fatigued and broken by tedious and arduous hostilities, they abandoned the enterprise in despair, and even made a law enacting the punishment of death against any one who should propose the capture of that island. Solon, aware of the importance of a possession that commanded the coasts of Attica, and deeming the national despondence inglorious as well as impolitic, ardently desired to rouse his countrymen to more vigorous counsels; but the new penal law restrained his efforts. At length he devised an expedient for patriotically transgressing the pusillanimous law, and avoiding the punishment. He accordingly counterfeited insanity, and caused his family to report that he was actually mad (Plutarch's Solon); the rumour being spread and generally believed, he composed a poem, describing the advantages of Salamis, and inciting the Athenians to renew the war. His verses, strong and impressive, produced the desired effect. The people were roused, an expedition was undertaken, and Solon is, by Plutarch, said to have devised the following stratagem for cutting off the Megarensians, who then occupied Salamis. With his friend Pisistratus he sailed at the head of an armament to Colias; there finding a number of women sacrificing to Ceres, he sent a confidential person to Salamis, instructed to profess himself a deserter, and to tell the Megarensians, that if they desired to seize the chief Athenian women, to make all sail to Colias. The Megarensians, taking the story for truth, presently manned a ship; and Solon describing this ship just as it put off from the island, commanded the women to be gone, and ordered some beardless youths, dressed in these women's clothes, their shoes and mitres, and privately armed with daggers, to dance and wanton near the shore, till the enemies had landed, and the ship was in their power. Things being thus ordered, the Megarensians were allured with the appearance, and coming near the shore, strove who should leap out first, as it were only to seize the women; but were so warmly received, that not one of them escaped. The Athenians sailed for the island, thus deprived of its defenders, and annexed Salamis to the territories of Athens. The fame which Solon thus acquired, he soon increased by his prudence and conduct with regard to another subject of foreign policy.

The Criseans were a flourishing state, not far from Delphi, and, commanding the approaches to that rendezvous of Grecian superstition, derived considerable emolument from the expences of the devotees. But with these advan-

tages they were not satisfied; they began to exact vexatious and exorbitant duties from the merchants who came to expose their wares in the sacred city; which, on account of the great concourse of profligate pilgrims from every quarter, soon became the seat, not of devotion only, but of dissipation, vanity, and licentious pleasure. It was in vain for the merchants to exclaim against these unexampled impositions; the taxes were continually increased; the evil admitted not the expectation of either remedy or relief; and the strangers, familiarised to it by custom, began to submit without murmur; and perhaps endured the hardship with greater patience, when they perceived that they drew back the tax in the increased price of their commodities. Encouraged by this acquiescence in their tyranny, the Criseans levied a severe impost on the pilgrims, whether Greeks or Barbarians, who visited the temple of Apollo; a measure directly inconsistent with a decree of the Amphictyons, which declared that all men should have free access to the oracle, as well as extremely hurtful to the interest of the Delphians, who soon felt a gradual diminution of their profits from the holy shrine. The Criseans, totally regardless of the sentiments of religion, plundered the temple of Delphi, with many circumstances of aggravating atrocity. Solon roused his countrymen to avenge the sacrilege, and to his ingenuity and skill it was chiefly owing that the Criseans were vanquished (Gillies, vol. i. 221.); but Solon was declined to render himself, by legislation, most beneficial to his country. The general opinion of his genius and virtues, joined to the experience of his military talents, success in wars, and political address, had procured him distinguished influence over the people. His experienced ability, and above all, his approved wisdom and equity, pointed him out for the noblest and most sublime employment of humanity, that of regulating the laws and government of a free people. Such, at least, the Athenians may be considered, when their unanimous suffrage rendered Solon the absolute umpire of their whole constitution and policy. When he undertook the reform of the state, tyranny and disorder prevailed; the wretched populace, deriving courage from despair, had determined no longer to submit to such multiplied rigours; and, before the wisdom of the lawgiver interposed, they had taken the resolution to elect and follow some warlike leader, to attack and butcher their oppressors, establish an equal partition of lands, and institute a new form of government. But the numerous clients and retainers, who, in a country little acquainted with arts and manufactures, depended on the wealthy proprietors of the lands and mines of Attica, rendered this undertaking alike dangerous to both parties; so that both became willing rather to submit their differences to law, than to decide them by the sword. The impartiality of Solon merited the unlimited confidence of his country. He maintained the ancient division of property, but abolished debts: he established the rate of interest at 12 per cent. at which it afterwards remained; but forbade that the insolvent debtor should become the slave of his creditor, or be compelled to sell his children into servitude. After these preliminary regulations, which seemed immediately necessary to the public peace, Solon proceeded, with an impartial and steady hand, to new model the government; on this generous but equitable principle, that a few ought not, as hitherto, command, and the many obey; but that the collective body of the people, legally convened into a national assembly, were entitled to decide, by a plurality of voices, the alternatives of peace and war; contract or dissolve alliances with foreign states; enjoy all the branches of legislative or sovereign power; and elect, approve, and judge the magistrates or ministers entrusted, for a limited time, with the executive authority. Strangers,

and all those who could not ascertain their Athenian descent, both in the male and female line, were totally excluded from the assembly and courts of justice. The regulations of Solon marked the utmost attention to preserve the pure blood of Athens unmixed and uncorrupted; nor could any foreigner, whatever merit he might claim with the public, be admitted to the rank of a citizen, unless he abandoned for ever his native country, professed the knowledge of some highly useful or ingenious art, and, in both cases, had been chosen by ballot, in a full assembly of six thousand Athenians. The numbers of this convention, and still more their impetuosity and ignorance, must have proved inconsistent with good government, if Solon had not secured the vessel of the republic from the waves of popular frenzy, by the two firm anchors of the senate and the areopagus; tribunals originally of great dignity, and of very extensive power, into which men of a certain description only could be received as members. Solon divided the Athenians into four classes, according to the produce of their estates. The first consisted of those whose lands annually yielded five hundred measures of liquid, as well as dry commodities, and the minimum of whose yearly income may be calculated at sixty pounds sterling, which is equivalent, if we estimate the relative value of money by the price of labour, and of the things most necessary to life, to about six hundred pounds sterling in the present age. The second class consisted of those whose estates produced three hundred; the third two hundred; the fourth, and by far the most numerous class of Athenians, either possessed no landed property, or at least enjoyed not a revenue in land equal to twenty-four pounds sterling, or, agreeably to the above proportion, two hundred and forty pounds of our present currency. All ranks of citizens were alike admitted to vote in the public assembly, and to judge in the courts of justice, whether civil or criminal, which were properly so many committees of the assembly. But the three first classes were exclusively entitled to sit in the senate, to decide in the areopagus, or to hold any office of magistracy. To these dignities they were elected by the free suffrages of the people, to whom they were accountable for their administration, and by whom they might be punished for malversation or negligence, although they derived no emolument from the diligent discharge of their duty. The senate of four hundred, which, eighty-six years after its institution, was augmented to five hundred by Cleisthenes, enjoyed the important prerogatives of convoking the popular assembly; previously examining all matters before they came to be decided by the people, which gave them a negative before debate in all public resolutions; and of making laws, which had force during a year, without requiring the consent of the populace. Besides this general superintendence and authority, the senate was exclusively invested with many particular branches of the executive power. The president of that council had the custody of the public archives and treasury; the senate alone built ships, equipped fleets and armies, seized and confined state criminals, examined and punished several offences, which were not expressly forbidden by any positive law. The weight of such a council, which assembled every day, except festivals, infused a large mixture of aristocracy into the Athenian constitution; this, as we shall immediately explain, was still farther increased by the authority of the AREOPAGUS.

The principal magistrates in Athens were the nine archons. (See ARCHON.) These nine archons, or presidents of the several courts of justice, like all other Athenian magistrates, were, at the expiration of their annual office, accountable to the people; and when their conduct, after a severe scrutiny, appeared to merit public approbation and

gratitude, they were received, and remained for life, members of the areopagus, a senate invested with a general inspection over the laws and religion, as well as over the lives and manners of the citizens; and which, in dangerous emergencies, was even entitled to assume dictatorial power. See LYDIAS, ISOCRATES, ANACHARIS, vol. i. and GILLIES'S Greece, vol. ii. Thus did the senate of the areopagus, and that of the four hundred, become two counterpoises sufficiently powerful to secure the republic against the storms from which all states are incessantly in danger (see Plutarch, in Solon.); the former, by repressing the enterprises of the rich by its general censure; and the latter, by restraining by its decrees and its presence the excesses of the multitude. New laws were enacted in support of these regulations. The constitution might be attacked either by the general factions which had so long agitated the different orders of the state, or by the ambition and intrigues of certain individuals. To guard against these dangers, Solon denounced punishments against those citizens who, in time of public commotion, refused openly to declare for one of the parties. (Plutarch, in Solon.) His view, in this admirable institution, was to rouse men of merit and integrity from a state of fatal inactivity, to oppose them to the factious, and save the republic by the courage and ascendancy of virtue. By a second law, every citizen convicted of having attempted to make himself master of the sovereign authority, was condemned to death. Lastly, in the case of an attempt to erect another government on the ruins of the popular form, this wise legislator could imagine but one method to reanimate the nation; and that was by obliging the magistrates to resign their employments; and hence this stern and menacing decree:—it shall be lawful for every citizen, not only to put to death a tyrant and his accomplices, but any magistrate who shall continue to exercise his functions after the destruction of the democracy. Such is the great outline of the constitution established by Solon, according to which every Athenian citizen enjoyed the inestimable privilege of being judged by his peers, and tried by laws to which he himself had consented. Although the legislative and judicial powers were thus lodged with the people, men of property and ability were alone entrusted with the administration of government; and as power in some measure followed property, the same expedient which served to maintain a due distinction of ranks in society, tended also to promote the industry and frugality of the multitude, that they might thereby become entitled to share those honours and offices to which persons of a certain estate only could aspire. (See GILLIES, vol. ii. p. 114.) Conformable to this constitution was the code of laws which was framed by this illustrious legislator. As a system of jurisprudence, the institutions of Solon possess extraordinary excellence. They have the merit of easily coalescing with great variety and dissimilarity of political systems, and are indeed well adapted to any limited government. Transfused into the Roman law, they have, in the forcible and eloquent language of Dr. Gillies, served after an interval of above sixteen hundred years, to abolish the barbarous practices of the Gothic nations, and to introduce justice, security, and refinement among the modern inhabitants of Europe. The laws of Solon consider the citizen in the various relations of domestic, civil, and political society. They accurately mark the duties belonging to these relations, and prescribe the rules for directing and enforcing the performance of them, and for preventing their violation. To form the citizen early to the habits most beneficial to the community, the laws of Solon describe the plan of his education. They recommend the exercises corporeal, intellectual, and moral, which tend

most powerfully to invigorate the bodily constitution; to enlarge, refine, and direct the understanding; to form, strengthen, and liberalize the heart. They strongly reprobate idleness, and recommend industry, pointing out the objects, private and national, for which it would be most usefully and honourably exerted. They forcibly inculcate temperance, and censure the contrary as a principal source of misconduct. Although the Athenian law was transfused into the Roman on many subjects; in several there is a very considerable difference. In Athens, the institutions regarding women, and the relations in which they are concerned, were much more liberal than those of Rome, although they fall greatly short of those in modern times, when men respect the natural equality of the sex. Solon considers marriage as an engagement of mutual love and affection, the ends of which are to give happiness to the family, and useful citizens to the state. He does not consider the wife, as the Romans afterwards did, as only part of the family property, which the husband, the proprietor, was to use as he pleased. He regards her as the domestic companion of her husband, nearly equal to him in the care of the children: he rigorously punishes those who violate the obligations of the married state: he permits divorce, not according to the caprice of the husband, but after a discussion before a magistrate: he permits women to separate from their husbands on the same ground as men from their wives. His law for the protection of unmarried women was highly equitable. Whoever seduced a woman of before unimpeached conduct, was, if unmarried, obliged to atone to her by marriage for the injury. On this law hinge the plots of most of Terence's plays. The married destroyer of virgin innocence was punished with a salutary rigour. The reciprocal duties of parent and child Solon did not leave to the mere operation of natural affection, but added positive laws. These enjoined parents to bestow such pains on the education of their children as might enable them to perform their various duties as men and citizens. They oblige children to maintain their parents in declining years, two cases excepted; e.g. if the children had been born of a courtesan, or had been educated to no profession. In the first case, they supposed that children owe nothing to parents who had begotten them to disgrace; in the second, who destined them to uselessness and dependence. Domestic tribunals were not permitted by Solon's laws. A citizen could only be judged by his peers, and by them only deprived of property, liberty, or life. The magistrates civil, military, and ecclesiastical, were by Solon's laws entitled to respect and obedience, whilst they acted agreeably to the end of their office. (See Anacharsis, Gillies, and Aristotle's Politics.) These are a few of the outlines of the provision made by Solon's laws for maintaining what judge Blackstone styles the *rights of persons*. The laws of Solon respecting property were founded on principles of pure ethics, and regarded moral conduct as well as the preservation of property and political expediency. They considered private virtue as well as private right and public tranquillity; they not only provided that one man should not injure another, but endeavoured to prevent such motives from existing as tend to produce injury. Thus by the Athenian law, the next heir is incapable of being guardian to a minor, because it might be apprehended that such a guardian might be more desirous of appropriating the inheritance than of promoting the good of the ward. That regulation therefore considers moral motives, and withholds temptations. All the institutions of Solon respecting successions and testaments united the two considerations of regard to property and to moral principle. Solon allowed the citizen to dispose of his pro-

perty at pleasure; at the same time by his regulations he guards against the arts of legacy hunters; and thus, while he respects property, withholds motives to injustice. In that part of his code which treats of what the civilians term *actions*, and judge Blackstone *private wrongs*, Solon's description of injuries, and measures of redress, are nearly the same as in the Roman and English law. They all proceed upon a plain and obvious principle in ethics, that every injury done must be redressed. The injuries which may be done to an individual, affect either his liberty, property, character, or person, and are in general nearly the same in all countries. On this principle (says Gibbon, speaking of that branch of law), the civilians of every country have erected a similar jurisprudence, the fair conclusion of universal reason and justice. In that part which the civilians style penal law, and Blackstone *public wrongs*, Solon differs very considerably from the Roman law, and agrees with the English. This difference is partly in the description of crimes, and partly in the mode of cognizance. Public wrongs are either such actions or omissions as tend to affect the tranquillity and happiness of a state. The same actions therefore must be wrong in very different degrees in different states and circumstances. The perfection of a penal code depends on the connection in the description of laws, between crimes and public injuries in the first place; and in the second, between crimes and punishment. If every action which generally hurts the public, is by the laws a crime, and if the punishment be exactly in proportion to the crime, and be not inflicted without certain proof of the commission, that must be a good penal code. A wise lawgiver apportions punishment to crime, but does not consider *punishing justice* only, he also takes *preventive* into his consideration. One of the many great excellencies of our English law is, that it has adopted efficacious means for preventing crimes. To this branch of legislation Solon also had paid considerable attention. The prevention of crimes depends chiefly on two things; first, vigilance in observing the conduct of those who, either from their general character, or from particular circumstances, may be supposed most likely to commit them; secondly, on the previous care bestowed on the morals of the people. This last is undoubtedly the surest way of preventing crimes from being general. As a great source of criminal conduct is idleness, Solon enacted a law which obliged every citizen to exercise some trade or profession. "None," says the learned and ingenious Drummond, "among the various institutions of Solon has been more deservedly celebrated than that which obliged every citizen to exercise some trade or profession. In countries where the climate naturally disposes men to sloth and inactivity, every law which incites the mind to exertion, or which rouses the latent energy of its faculties, must necessarily be attended with the most salutary effects." This law had a tendency not only to prevent the negative evil of sloth, but the positive evil of active criminality. By the institutions of Solon, extravagance, intemperance, and debauchery underwent a severe animadversion. Magistrates were empowered to watch the buddings of noxious practices which might, if not crushed, ripen into crimes. Solon's description of the various kinds and measures of crimes is very accurate, and the annexed punishment is generally proportionate. No action of pernicious tendency is by the Athenian laws exempted from penal animadversion. By the Roman law, suicide (according to the just and striking description of Blackstone, "the pretended heroism, but real cowardice of the Stoic philosophers, who destroyed themselves to avoid those ills which they had not the fortitude to endure") was not only not punished, but

was encouraged. By Solon's laws, the self-murderer was branded with public infamy, and exposed to what, according to the religious notions of his countrymen, constituted public punishment. Solon describes the various species of fraud, theft, robbery, and homicide with the greatest accuracy. Of the last in particular, the different shades from what our laws call chance medley, to parricide, are delineated with a most discriminating precision. It is not only the description of crime, and the annexation of punishment; that is of importance in penal cases, but also the tribunal which is to take cognizance of the case. By Solon's laws, every Athenian citizen had a right to be tried by his peers; the Athenian law was in this superior to the Roman, which, in many cases, admitted domestic tribunals. The father took cognizance of the crimes of his own family. Thus at Rome, the accused frequently was not tried by a tribunal of his peers, bound to act according to a fixed law, but by an arbitrary judge, whose own will was his only rule. Solon, like every wise lawgiver, endeavoured to extend the influence of religion over the minds of his countrymen. He enjoined a profound veneration for divinities, and described actions as pleasing or displeasing to them, according to the intention of the agent combined with the known tendency of the act: aware that the internal sentiments of religion are strengthened and confirmed by external rites, he strictly enjoined the regular performance of rites and ceremonies.

Such was the code of Solon, such the civil and political institutions which contributed so powerfully to render this small territory so very great a state. The laws of Solon were to continue in force only for a century. Conceiving that conduct depends chiefly upon habits, he thought that the practice of a hundred years would confirm the Athenians in the habitual observance of such beneficial rules. But the restrictions being contrary to the licence of strong passions, appeared to many encroachments upon natural liberty; and they wished for modifications which might admit fuller scope to their desires. When the first novelty was worn off, Solon was surrounded by a crowd of importunate citizens, who overwhelmed him with questions, advices, commendations, or reproaches. Some pressed him for an explanation of particular laws, capable, according to them, of different interpretations; others proposed a variety of things to be added, modified, or suppressed. Solon having exhausted his patience, and tried every conciliatory method in vain, was sensible that time alone could perfect and give strength to his work; he therefore departed, after requesting permission to absent himself forty years (see Plutarch, in Solon), and binding the Athenians by a solemn oath, not to make any alteration in his laws during his absence. (See Herodotus, Clio.) The adventures of Solon during his peregrination, belonging to himself individually, and not to the Athenians, will be seen under the articles SOLON, CROESUS, &c. The object of his travels being, as Herodotus informs us, to view mankind; after having, like Ulysses, traversed many countries, and seen many men, he returned to his native country to behold the operation and effects of his institutions. He found that much time is required before men, who had been either the slaves of despotism or the sharers in licentiousness, can be reconciled to just and equitable laws. The Athenians were ready again to sink into anarchy. (See Plutarch's Life of Solon.) The three parties, which had so long rent the public, seemed to have suspended their hatred, during the legislation, only to vent it with more violence in his absence; in one point alone were they united, in desiring a change in the constitution, without any other motive than a secret restlessness, or any object

but vague hopes. Solon, received with the most distinguished honours, wished to avail himself of these favourable dispositions to calm dissensions too frequently reviving. At first he thought himself powerfully seconded by Pisistratus, who was at the head of the popular faction; and who, apparently eager to maintain equality among the citizens, declared himself an irreconcilable enemy to every innovation which might tend to its destruction; but he soon discovered that this profound politician concealed the most inordinate ambition under the mask of an affected moderation. Never did a man unite more qualities to captivate the minds of the people: he was of an illustrious birth, and possessed of great wealth, acknowledged wealth (see Herodotus, in Terpsichore, his 5th book), a commanding figure, a persuasive eloquence, to which the musical tone of his voice lent new charms, and a mind enriched with the talents bestowed by nature, and the information procured by study. No man was a greater master of his passions, or knew better how to turn to advantage those virtues he really possessed, and those of which he had only the appearance. His success has proved, that in projects of tedious execution, nothing can bestow a more decided superiority than mildness and flexibility of character. With such eminent advantages, Pisistratus, accessible to the lower citizens, lavished on them those consolations and succours, which dry up the source, or palliate the bitterness of suffering. Solon, attentive to his proceedings, penetrated his intentions; but whilst he was employed in devising means to guard against their consequences, Pisistratus appeared in the forum covered with wounds he had artfully procured, imploring protection of the people whom he had so frequently protected. (See Herodotus, Clio.) The assembly being immediately convoked, he accused the senate and the chiefs of the other factions of attempting his life; and displaying his still bleeding wounds: "Behold!" he exclaimed "the reward of my love for the democracy, and of the zeal with which I have defended your rights." At these words only menacing exclamations were heard on all sides; the principal citizens kept silence in astonishment, or took to flight. Solon, filled with indignation at their cowardice and the infatuation of the people, in vain attempted to reanimate the courage of the former, and to dispel the frenzy of the latter; his voice, enfeebled by years, was easily overpowered by the clamours excited by pity, rage, and apprehension. The assembly concluded by voting Pisistratus a strong guard for the defence of his person (B.C. 560). From this moment all his projects were accomplished; he presently employed his force to take possession of the citadel, and after disarming the multitude, seized without opposition on the supreme authority. But though Pisistratus by this usurpation destroyed for a time the political liberty of Athens, his power eventually gave stability to the laws which Solon had introduced. That extraordinary tyrant, for so the Greeks styled him, was not more distinguished by the loftiness of his genius, than the humanity of his disposition; and had not the violence of contending factions, and the fury of his enemies, inflamed his natural love of power, the name of Pisistratus would stand the foremost in the list of Grecian patriots and heroes. His valour and conduct were signalized in the conquest of Nisæa, Salamis, Naxos, Delos, and Sigeum; and if he displayed boldness and address in acquiring sovereignty, he displayed still more moderation and virtue in administering it. He assumed, indeed, the royal dignities of priest and general, and took care that the chief offices of magistracy should be filled by his partisans; but he maintained the regular course of law and justice, not only by his authority, but by his example; having appeared in person

son to answer an accusation in the *aréopagus*. He not only enforced the laws of Solon against idleness, but endeavoured to give them more efficacy, by introducing new arts and manufactories into Attica. He was the first who brought into that country the complete collection of Homer's poems, which he commanded to be sung at the Panathenæan festival; nor can we suppose that he would have been zealous to diffuse the liberal and manly sentiments of that divine poet, if his government had not resembled the moderation and equity of the heroic ages, rather than the despotism of tyrants. (See Gillies's *Greece*, vol. ii. 117.) His son Hipparchus imitated and surpassed the mild virtues of his father; and amidst the turbulence of the latter democracy, it was acknowledged with a sigh by the Athenians, that their ancestors were indeed happy under Solon and Pisistratus, but that the reign of the tyrant Hipparchus brought back on earth the golden days of Saturn. The father had required a tenth part of the produce of Attica, to support his guards, and the other appendages of royalty: his more generous son remitted one half of this imposition. While he alleviated the burdens, yet encouraged the industry of his subjects, by building the temple of Olympian Jupiter, he was solicitous to dispel their ignorance and barbarity, by erecting pillars in every part of the city, engraved with elegiac verses, containing lessons of wisdom, and precepts of morality. He collected the first library in Athens; and his liberal rewards, and still more his agreeable manners and winning affability, attracted to that city the most distinguished poets of the age. The murder of Hipparchus exasperated the temper of his brother and successor Hippias; but, notwithstanding the calamities which the latter inflicted and suffered, it must be allowed that the government of Pisistratus and his family, which, with various interruptions, lasted sixty-eight years, increased the strength and promoted the refinement of Athens. (See Gillies's *Greece*, vol. ii. 118.)

Hipparchus, in particular, was fond of letters. Anacreon and Simonides, invited to his court, met with a most flattering reception: the first being loaded with honours, and the second with presents. He deserves also to participate with his father in the glory of extending the fame of Homer. He may be reproached, as well as his brother, with too freely abandoning himself to pleasures, and with inspiring the Athenians with a taste for luxury. Fortunately, nevertheless, if in the midst of these excesses he had not committed an act of injustice, of which he was the first victim! Two young Athenians, Harmodius and Aristogiton, united in bonds of the tenderest friendship, having received from this prince an affront it was impossible to forget, conspired his destruction, and that of his brother. Some of their friends entered into this conspiracy, and its execution was fixed for the solemnity of the panathenæa: they hoped that the crowd of Athenians, who, during the ceremonies of this festival, were permitted to bear arms, would second their efforts, or at least protect them against the fury of the guards who attended on the sons of Pisistratus. With this view, after covering their poignards with branches of myrtle, they repaired to the place where the princes were arranging a procession, which they were to precede to the temple of Minerva. When they arrived, they saw one of the conspirators in familiar conversation with Hippias, and concluded themselves betrayed; but resolving dearly to sell their lives, retired for a moment, and finding Hipparchus, plunged a dagger in his heart. Harmodius instantly fell beneath the redoubled blows of the prince's guards. Aristogiton, seized almost at the same instant, was put to the torture; but far from naming his accomplices, he accused the most faithful parti-

fans of Hippias, who ordered them to be dragged to instant punishment. "Halt thou still other wretches to discover?" exclaimed the tyrant, transported with fury. "There are none left but thee," replies the Athenian; "I die, and enjoy in death the satisfaction of having deprived thee of thy best friends." From that moment Hippias abandoned himself to the perpetration of every kind of injustice (Thucydides b. 6. c. 59.; but the yoke he laid heavy on the Athenians was broken three years after. (B. C. 510.) Clithenes, chief of the Alcmæonidæ, a powerful house of Athens, at all times inimical to the family of Pisistratus, collected all the malecontents about his person; and having obtained the assistance of the Lacedæmonians, by means of the Pythia of Delphi, whom he had gained over to his interest, marched against Hippias, and forced him to abdicate the tyranny. No sooner had the Athenians recovered their liberty, than they rendered the highest honours to the memory of Harmodius and Aristogiton. Statues were erected to them in the forum; it was enacted that their names should be forever celebrated at the festival of the panathenæa, and should, on no pretext whatever, be given to slaves. The poets eternized their glory by poems and songs, and very extensive privileges were granted in perpetuity to their descendants. Clithenes, who had so greatly contributed to the expulsion of the Pisistratidæ, had still to struggle for many years against a powerful faction; but at length obtaining in the state the authority to which he was entitled by his great talents, he confirmed the constitution established by Solon, which the Pisistratidæ had never attempted entirely to subvert. (Anacharsis's *Travels*, vol. i. p. 174.) The power of Athens was great in ancient times; but it became incomparably greater after the re-establishment of freedom. So advantageous to the powers of the human mind is the enjoyment of liberty, even in its least perfect form, that in a few years after the expulsion of Hippias, the Athenians acquired an ascendancy in Greece, which was fatal to their enemies, painful to their rivals, and even dangerous to themselves. They chastised the insolence of the islanders of Eubœa and Ægina, who contended with them in naval power; and humbled the pride of Thebes, which rivalled them in military glory. Favoured, as they fondly believed, by the protection of their tutelary Minerva; and animated, as they strongly felt, by the possession of an equal freedom; they adorned their capital with the richest spoils of their vanquished enemies. Their influence soon extended over the northern parts of Greece; and the fame of their power, still greater than their power itself, alarmed the fears and jealousy of the Peloponnesians. The Spartans, in particular, who had assisted them in restoring the democracy, now perceived the error of which they had been guilty, in promoting the greatness of an ambitious rival. In order to prevent the dangerous consequences of their folly, they summoned to a congress all their allies in Peloponnesus, that their united wisdom might concert proper measures for resisting, ere it was too late, the encroachments of the Athenians, which threatened the liberties of all Greece. Their allies readily obeyed the welcome summons, and the deputies of the several states, having assembled in the Spartan forum, eagerly listened to the speakers appointed to explain the intentions of that republic. The Lacedæmonian orators acknowledged the mistaken policy of their country, in expelling from Athens the family of Pisistratus, and delivering the government of that city into the hands of an ungrateful populace, who had since treated them with much indignity. But why (they proceeded) should we relate private injuries? Have they not insulted all their neighbours? Does not their pride daily increase with their power? And is there not reason

reason to dread, that their growing ambition may endanger, and at length destroy, the public safety? In order to prevent this evil, we have recalled Hippias from banishment. And let us, therefore, by our united efforts, reinstate the son of Pisistratus in that power and authority of which we most injudiciously deprived him. The speech of the Lacedæmonians produced not the intended effect. The Peloponnesians, however jealous of the Athenian greatness, were still more jealous of the power of tyrants; and many of them, who had experienced the haughtiness of Sparta, were not dissatisfied with beholding a rival to that republic in the northern division of Greece. The other deputies expressed their dissent by silent disapprobation; but Socrates, the Corinthian, declared his sentiments at great length, in a speech which alike marks the manly character of the age, and the youthful vigour of Grecian eloquence. "Then surely, Lacedæmonians, will the heavens sink below the earth, and the earth rise sublime in the air; men will inhabit the depths of the sea, and fishes will take possession of the land; when you, formerly the bulwarks of liberty, shall demolish the popular governments of Greece, and establish tyrannies in their room, than which nothing can be more unjust or more pernicious." After this pompous exordium, the Corinthian proceeded to describe and exaggerate the calamities which his own countrymen had suffered from the usurpation of Cypselus, and his son Periander. Having related, at great length, the proud, cruel, and despotic actions of those princes; "Such," added he, "are the genuine fruits of absolute power; but I adjure you, by the Grecian gods! attempt not to re-establish it in Athens. The Corinthians were seized with astonishment when they heard that you had sent for Hippias; I myself was amazed at beholding him in this assembly; yet we never suspected that you proposed to restore him, in triumph, to his much injured city. If you still persist in this fatal resolution, know that the Corinthians disavow all part in a design equally unjust and impious." The other deputies listened with pleasure to the boldness of Socrates, who expressed the sentiments which they themselves felt, but which their respect for the Lacedæmonians obliged them to conceal. Hippias alone opposed the general voice of the assembly, attesting the same gods which his opponent had invoked, and prophesying, that at some future time the Corinthians would repeat of their present conduct, and regret their cruel injustice to the son of Pisistratus, when their own citizens, as well as the rest of Greece, should fatally experience the dangerous ambition of Athens. This remonstrance, which was so fully justified in the sequel, produced no immediate effect in the assembly; the Lacedæmonians finally yielded to the general request of their confederates, and abstained from their intended innovation in the government of a Grecian city.

The dethroned prince, finding his cause abandoned by the Greeks, sought the protection of Artaphernes, the Persian governor of Sardis: having acquired the confidence of this magistrate, he represented to him the insolence, ingratitude, and perfidy of his countrymen, and the severest reproaches with which he loaded their character gained ready belief with the Persian. The Athenians, who were informed of these intrigues, sent ambassadors to Sardis, in order to counteract Hippias; but the resolution of Artaphernes was already taken: and he told the ambassadors, that if they consulted their safety, and would avoid the resentment of Persia, they would reinstate Hippias on the throne of his father. This answer had been reported to the Athenians, and the assembly had finally settled to oppose the powers of the greatest empire upon earth, rather than admit within their walls the declared enemy of their liberties.

(See Herodotus, book v.) Precisely at this juncture (B.C. 501.) Aristagoras arrived at Athens, explained the revolt of the Asiatic Greeks from the government of Artaphernes, and solicited the assistance of the Athenians, in defending their own colonies against the oppressive violence of the common foe. Many arguments were not necessary to make the people of Athens adopt a measure which gratified their own passions. The eloquent Milesian, however, described the wealth and extent of Persia, the grandeur and populousness of its cities, and above all, the slothful effeminacy and pusillanimous weakness of their inhabitants, who, unable to support the ponderous shield, or to poise the manly lance, invited as an easy prey, the victorious arms of a more warlike invader. The speech of Aristagoras was well fitted to excite the ambition and avarice of Athens. The assembly immediately decreed that assistance should be sent to Ionia. Twenty ships were fitted out with all convenient speed, which reinforced by five more belonging to Eretria, a town of Eubœa, rendezvoused in the harbour of Miletus. Aristagoras spent not long time in his embassy to the other states of Greece, and soon met the Athenian allies at the place appointed. It was here determined, that while the commander in chief regulated the civil affairs of the Ionians, his brother Charopinus should conduct a military expedition against the wealthy capital of Lydia. The Athenians, desirous of testifying their resentment against the common enemy, and still more desirous of plunder, eagerly engaged in this undertaking. The united fleets left the harbour of Miletus, and sailed to Ephesus, where the troops were disembarked; and, in three days, accomplishing a journey of seventy miles, appeared before the walls of Sardis. The Persian governor little expected such a visit; his soldiers were not prepared to take the field; and the extensive walls of the city could not be defended on all sides against the besiegers; and the Greeks, without opposition, entered Sardis, in order to plunder the accumulated wealth of that ancient capital. But an accident prevented them from reaping the fruits of their success. The resentment of a rapacious soldier, disappointed of his prey, set fire to the house of a Lydian, situate on the skirts of the town which consisted for the most part of very combustible materials, the houses being all roofed, and many of them walled with cane; a mode of building doubly dangerous in that arid climate. The flames readily communicated from one house to another; and, in a short time, the whole circumference of the place was surrounded with a wall of fire. Sardis was built in the Grecian, not in the Eastern fashion, having on the banks of the Pactolus, which intersected the town, a spacious square, which commonly served for the marketplace. Thither the Persians, driven from their extremities, betook themselves to refuge against the fury of the flames.

Darius was extremely enraged against the Greeks, and especially the Athenians, for having abetted revolt among his subjects. The proud monarch of the East, when informed that the citizens of Athens had co-operated with the Ionians, in the taking and burning of Sardis, discovered evident marks of the most furious resentment; shooting an arrow into the air, he prayed that heaven might assist him in punishing the audacious insolence of that republic; and every time he sat down to table, an attendant reminded him of the Athenians, lest the delight of Eastern luxury should seduce him from his fell purpose of revenge. The execution of his design was entrusted to Mardonius, a Persian nobleman of the first rank, whose personal as well as hereditary advantages had entitled him to the marriage of Artazostra, daughter of Darius; and whose youth and inexperience were compensated, in the opinion of his master, by his superior

superior genius for war, and innate love of glory. In the second spring after the cruel punishment of the Ionians, Mardonius approached the European coast with an armament sufficient to inspire terror into Greece. The rich island of Thasus, whose golden mines yielded a revenue of near three hundred talents, submitted to his fleet; while his land forces added the barbarous province of Macedonia to the Persian empire. But having steered southward from Thasus, the whole armament was overtaken and almost destroyed by a violent storm, while endeavouring to double the promontory of mount Athos, which is connected with the Macedonian shore by a narrow neck of land, but forms a long and lofty ridge in the sea. Three hundred vessels were dashed against the rocks; twenty thousand men perished in the waves. This disaster totally defeated the design of the expedition; and Mardonius having recovered the shattered remains of his fleet and army, returned to the court of Persia, where by flattering the pride, he averted the resentment of Darius; while he represented, that the Persian forces, invincible by the power of man, had yielded to the fury of the elements. The address of Mardonius rescued him from punishment; but his misfortunes removed him from the command of Lower Asia. Two generals were appointed in his room, of whom Datis, a Mede, was the more distinguished by his age and experience, while Artaphernes, a Persian, was the more conspicuous for his rank and nobility, being descended of the royal blood. That his lieutenants might appear with a degree of splendor suitable to the majesty of Persia, Darius assembled an army of 500,000 men, consisting of the flower of the provincial troops of his empire. The preparation of an adequate number of transports and ships of war occasioned but a short delay. The maritime provinces of the empire, Egypt, Phœnicia, and the coasts of the Euxine and Ægean seas, were commanded to fit out, with all possible expedition, their whole naval strength; the old vessels were repaired, many new ones were built; and in the course of the same year in which the preparations commenced, a fleet of six hundred sail was ready to put to sea. This immense armament the Persian generals were ordered to employ in extending their conquests on the side of Europe, in subduing the republics of Greece, and more particularly in chastising the insolence of the Eretrians and Athenians, the only nations which had conspired with the revolt of the Ionians, and assisted that rebellious people in the destruction of Sardis. With respect to the other nations which might be reduced by his arms, the orders of Darius were general, and the particular treatment of the vanquished was left to the discretion of his lieutenants; but concerning the Athenians and Eretrians, he gave the most positive commands that their territories should be laid waste, their houses and temples burnt or demolished, and their persons carried in captivity to the eastern extremities of his empire. Secure of effecting this purpose, his generals were furnished with a great number of chains for confining the Grecian prisoners; a haughty presumption (to use the language of antiquity), in the superiority of man over the power of fortune, which on this, as on other occasions, was punished by the just vengeance of heaven. (B. C. 490.) The Persian fleet enjoyed a prosperous voyage to the isle of Samos, from whence they were ready to proceed to the Athenian coast. The late disaster which befel the armament commanded by Mardonius, deterred them from pursuing a direct course along the shores of Thrace and Macedonia; they determined to steer in a direct line through the Cyclades, a cluster of seventeen small islands lying opposite to the territories of Argos and Attica. The approach of such an innu-

merable host, whose transports darkened the broad surface of the Ægean, struck terror into the unwelcome inhabitants of those delightful islands. The Naxians took refuge in their inaccessible mountains. The natives of Delos, the favourite residence of Latona and her divine children, abandoned the lawful majesty of their temple, which was overshadowed by the rough and lofty mount Cynthus. Paros, famous for its marble; Andros, celebrated for its vines; Ceos, the birth place of the plaintive Simonides; Syros, the native country of the ingenious and philosophic Pherecydes; Ios, the tomb of Homer; the industrious Amorgos; as well as all the other islands which surrounded the once sacred shores of Delos, either spontaneously offered the usual acknowledgment of earth and water as a testimony of their friendship, or submitted, after a feeble resistance, to the Persian arms. The invaders next proceeded westward to the isle of Eubœa, where, after almost a continued engagement of six days, their strength and numbers, assisted by the perfidy of two traitors, finally prevailed over the valour and obstinacy of the Eretrians. Hitherto every thing was prosperous; but a more difficult task remained, in the execution of which the Persians (happily for Europe) experienced a fatal reverse of fortune. After the reduction of Eubœa, the Athenian coasts separated from that island only by the narrow strait of Euripus, seemed to invite the generals of Darius to an easy conquest. They readily accepted the invitation, as the punishment of Athens was the main object which their master had in view when he fitted out his seemingly invincible armada. The measures which they adopted for accomplishing this design appear abundantly judicious; the greater part of the army was left to guard the islands which they had subdued; the useless multitude of attendants were transported to the coast of Asia: with a hundred thousand chosen infantry, and a due proportion of horse, the Persian generals set sail from Eubœa, and safely arrived on the Marathonian shore, a district of Attica, about thirty miles from the capital, consisting chiefly of level ground, and therefore admitting the operations of cavalry, which formed the main strength of the barbarian army, and with which the Greeks were very poorly provided. Here the Persians pitched their camp, by the advice of Hippas the banished king of Athens, whose perfect knowledge of the country, and intimate acquaintance with the affairs of Greece, rendered his opinion on all occasions respectable.

To combat this mighty force, the Athenians could not bring the twelfth part of the number, but their handful breathed the spirit of freedom, which was paramount to a countless multitude, the tools of despotism. It was first deliberated whether they ought to await the Persians in the city, or meet their foes in the field. There are emergencies in which the most adventurous boldness is the soundest wisdom; happily for the Athenians they had citizens able both to discover and apply this maxim. Three men then flourished in Athens, qualified and destined to give new energy to the state. These were Miltiades, Aristides, and Themistocles. Their characters will best display themselves in the narrative of their actions. Miltiades had long carried on war in Thrace, where he acquired a splendid reputation; Aristides and Themistocles, younger than himself, had from their infancy manifested a rivalry, which would have been the ruin of the state, had they not sacrificed it on all emergencies to the public welfare. The example and harangues of these three illustrious citizens kindled the flames of the noblest heroism in the minds of the Athenians. Levies were immediately made. Each of the ten tribes furnished a thousand foot soldiers, with a commander at their head.

No sooner were the troops assembled, than they marched out of the city into the plain of Marathon, where the inhabitants of Platæa sent them a reinforcement of a thousand infantry. Scarcely were the two armies in sight of each other, before Miltiades proposed to attack the enemy; Aristides, and several of the commanders, warmly supported this measure; but the rest, terrified at the excessive disproportion of the armies, were desirous of waiting for succour from Lacedæmonia. Opinions being divided, they had recourse to that of the shoemacher, or chief of the militia, who was consulted on such occasions to put an end to the equality of suffrages. Miltiades addressed himself to him with the ardour of a man deeply impressed with the importance of present circumstances: "Athens (said he) is on the point of experiencing the greatest of vicissitudes; ready to become the first power of Greece, or the theatre of the tyranny and fury of Hippias: from you, alone, Callimachus, she now awaits her destiny. If we suffer the ardour of the troops to cool, they will shamefully bow beneath the Persian yoke; but if we lead them on to battle, the gods and victory will favour us. A word from your mouth must now precipitate your country into slavery, or preserve her liberty." (See Herodotus, l. vi. c. 109.) Callimachus gave his suffrage, and the battle was resolved. To ensure success, Aristides, and the other generals after his example, yielded to Miltiades the honour of the command which belonged to them in rotation; but, to secure them from every hazard, he preferred waiting for the day which of right placed him at the head of the army. When that day arrived, Miltiades drew up his troops at the foot of a mountain, on a spot of ground scattered over with trees, to impede the Persian cavalry. The Platæans were placed on the left wing; Callimachus commanded the right; Aristides and Themistocles were in the centre of the battle, and Miltiades everywhere. (See Herodotus, l. vi.) At the first signal, the Greeks advanced over this space running. The Persians astonished at a mode of attack so new to both nations, for a moment remained motionless; but to the impetuous fury of the enemy, they soon opposed a more sedate and not less formidable fury. After an obstinate conflict of some hours, victory began to declare herself in the two wings of the Grecian army. The right dispersed the enemy in the plain, while the left drove them back on a morass that had the appearance of a meadow, in which they stuck fast and were lost. Both these bodies of troops now flew to the succour of Aristides and Themistocles, ready to give way to the flower of the Persian troops, placed by Datis in the centre of his battle. From this moment the rout became general. The Persians, repulsed on all sides, found their only asylum in the fleet, which had approached the shore. The conquerors pursued them with fire and sword, and took, burnt, or sunk, the greater part of their vessels; the rest escaped by dint of rowing. The banished tyrant of Athens fell in the engagement; two Athenian generals, and about two hundred citizens, were found among the slain: the Persians left six thousand of their best troops in the scene of action. The joy excited among the Athenians by a victory, which not only delivered them from the dread of their enemies, but raised them to distinguished pre-eminence among their rivals and allies, is evident from a remarkable incident which happened immediately after the battle. As soon as fortune had visibly declared in their favour, a soldier was dispatched from the army to convey the welcome news to the capital. He ran with incredible velocity, and appeared, covered with dust and blood, in the presence of the senators: excess of fatigue conspired with the transports of enthusiasm to exhaust the vigour of his frame: he had

only time to exclaim in two words, "Rejoice with the victors!" and immediately expired. The Athenians neglected nothing to eternize those who fell in the battle. Honourable funerals were bestowed on them; their names were engraven on half columns erected on the plain of Marathon. In the intervals between them were erected trophies bearing the arms of the Persians. An artist of eminence painted all the circumstances of the battle in one of the most frequented porticoes of the city: Miltiades was there represented at the head of the generals, and in the act of exhorting the troops to fight for their country. The highest praises were bestowed upon Miltiades, and he was appointed commander of an expedition against the Persian garrisons. The first operations of the Athenian armament were crowned with success. Several islands were subdued, and considerable sums of money collected. But the fleet arriving before Paros, every thing proved adverse to the Athenians. The Parians made a very vigorous defence; their strength, however, began to decline, and they must have been overpowered, but for a fortunate accident. An extensive grove, happening to be set on fire in a neighbouring island, was believed by the besiegers to indicate the approach of a Persian fleet. The same opinion gained ground among the Parians, who determined by their utmost efforts to preserve the place until they should be relieved by the assistance of their protectors. Miltiades had received a dangerous wound during the siege; and the weakness of his body impairing the faculties of his mind, he gave orders to draw off his victorious troops, and returned with the whole fleet to Athens. The Athenian citizens, and particularly the more eminent and illustrious, had universally rivals and enemies. The competitions for civil offices, or military command, occasioned eternal animosities among those jealous republicans. Xantippus, a person of great distinction, and father of the celebrated Pericles, who, in the succeeding age, obtained the first rank in the Athenian government, eagerly seized an opportunity of depressing the character of a man which had so long surpassed that of every competitor. He was accused of suffering himself to be corrupted by Persian money, and notwithstanding the solicitations of the most virtuous citizens, was condemned to be thrown into the dungeon in which malefactors are left to perish. The magistracy opposing the execution of this infamous decree, his punishment was commuted into a fine of fifty talents; and as he was unable to pay this sum, Athens saw the vanquisher of Darius expire in chains of the wounds he had received in the service of the state.

But the glory of Miltiades survived him; and the Athenians, however unjust to his person, were not unmindful of his fame. At the distance of half a century, when the battle of Marathon was painted by order of the state, they directed the figure of Miltiades to be placed in the fore ground, animating the troops to victory; a reward which, Dr. Gillies observes, "during the virtuous simplicity of the ancient commonwealth, conferred more real honour than all that magnificent profusion of crowns and statues, which, in the later times of the republic, were rather extorted by general fear, than bestowed by public admiration." "The jealousies (continues the same author), resentments, dangers, and calamities, which often attend power and pre-eminence, have never yet proved sufficient to deter an ambitious mind from the pursuit of greatness." The rivals of Miltiades were animated by the glory of his elevation, not depressed by the example of his fall. His accuser, Xantippus, though he had acted the principal part in removing this favourite of the people, was not deemed worthy to succeed to his power.

Two candidates appeared for the public confidence and esteem, who alternately outstripped each other in the race of ambition, and whose characters deserve attention even in Athenian history, as they had a powerful influence on the fortune of Athens. (See Dr. Gillies's History of Greece, vol. i. p. 407.) The character of Aristides has been already seen in biographical detail (see article ARISTIDES): here it is to be viewed merely in its combination with events and with characters which affect the history of Athens.

The character of Themistocles was of a more doubtful kind. The trophy, which Miltiades had raised at Marathon, disturbed his rest: he was inflamed with a desire to emulate the glory of this exploit; and while he enabled Athens to maintain a superiority in Greece, he was ambitious to acquire for himself a superiority in Athens. His talents were well adapted to accomplish both these purposes; eloquent, active, enterprising, he had strengthened his natural endowments by all the force of education and habit. Laws, government, revenue, and arms, every branch of political and military knowledge, were the great objects of his study. In the courts of justice he successfully displayed his abilities in defence of his private friends, or in accusing the enemies of the state. He was forward to give his opinion upon every matter of public deliberation; and his advice, founded in wisdom, and supported by eloquence, commonly prevailed in the assembly. Yet with all these great qualities, his mind was less smitten with the native charms of virtue, than captivated with her splendid ornaments. Glory was the idol which he adored; he could injure, without remorse, the general cause of the confederacy, in order to promote the grandeur of Athens; and history still leaves it as doubtful, as did his own conduct, whether, had an opportunity offered, he would not have sacrificed the happiness of his country to his private interest and ambition. The discernment of Aristides perceived the danger of allowing a man of such equivocal merit to be entrusted with the sole government of the republic; and on this account, rather than from any motives of personal animosity, he opposed every measure that might contribute to his elevation. In this patriotic view, he frequently solicited the same honours which were ambitiously courted by Themistocles, especially when no other candidate appeared capable of balancing the credit of the latter. A rivalry thus began, and long continued between them; and the whole people of Athens could only decide the much contested pre-eminence. The interest of Themistocles so far prevailed over the authority of his opponent, that he procured his own nomination to the command of the fleet; with which he effected the conquest of the small islands in the Ægean, and thus completed the design of Miltiades. While he acquired fame and fortune abroad, Aristides increased his popularity at home. The opposition to his power, arising from the splendid eloquence and popular manners of his rival, was now fortunately removed, and he became the chief leader of the people. His opinion gave law to the courts of justice; or rather such was the effect of his equity and discernment, he alone became sovereign umpire in Athens. In all important differences he was chosen arbitrator, and the ordinary judges were deprived of the dignity and advantages formerly resulting from their office. This consequence of his authority, offending the pride of the Athenian magistrates, was sufficient to excite their resentment; which, of itself, might have effected the ruin of any individual. But their views on this occasion were powerfully promoted by the triumphant return of Themistocles from his naval expedition. The admiral had acquired considerable riches; but wealth he despised, except as an instrument of ambition. The spoils

of the conquered islanders were profusely lavished in shows, festivals, dances, and theatrical entertainments, exhibited for the public amusement. His generous manners and flowing affability were contrasted with the stern dignity of his rival; and the result of the comparison added great force to his insinuation, that since his own necessary absence in the service of the republic, Aristides had acquired a degree of influence inconsistent with the constitution; and, by arrogating to himself an universal and unexampled jurisdiction in the state, had established a silent tyranny, without pomp or guards, over the minds of his fellow-citizens. Aristides, trusting to the innocence and integrity of his own heart, disdained to employ any unworthy means, either for gaining the favour, or for averting the resentment, of the multitude. The contest, therefore, ended in his banishment for ten years, by a law intitled the Ostracism (from the name of the materials on which votes were marked), by which the majority of the Athenian assembly might expel any citizen, however inoffensive or meritorious had been his past conduct, who, by his present power and greatness, seemed capable of disturbing the equality of republican government. This singular institution, which had been established soon after the Athenians had delivered themselves from the tyranny of Hippias, the son of Pisistratus, was evidently intended to prevent any person in future from attaining the same unlawful authority. At Athens, even virtue was proscribed, when it seemed to endanger the public freedom; and only four years after the battle of Marathon, in which he had displayed equal valour and wisdom, Aristides, the justest and most respectable of the Greeks, became the victim of popular jealousy; an example of cruel rigour, which will for ever brand the spirit of democratical policy. The banishment of Aristides exposed the Athenians still more than formerly to the danger which they hoped to avoid by this severe measure. The removal of such a formidable opponent enabled Themistocles to govern without control; army, navy, and revenue, all were submitted to his inspection. It happened, indeed, most fortunately for the fame of this great man, as well as for the liberty of Athens, that his active ambition was called to the glorious task of subduing the enemies of his country. The smaller islands in the Ægean were already reduced to obedience; but the possession of them was uncertain while the fleet of Ægina covered the sea, and bid defiance to the Athenians. This small island, or rather this rock, inhabited time immemorial by merchants and pirates, and situate in the Saronic gulph, which divides the territories from the northern shores of Peloponnesus, was a formidable enemy to the republic; the jealousy of commerce and naval power embittered their mutual rivalry; and as the inhabitants of Ægina, who were governed by a few leading men, had entered into an alliance with the Persians, there was every circumstance united which could provoke to the utmost the hatred and resentment of the Athenians. A motive less powerful than the excess of republican antipathy could not probably have prevailed on them to embrace the measure which they now adopted by the advice of Themistocles. There was a considerable revenue arising from the silver mines of mount Laurium, which had been hitherto employed in relieving the private wants of the citizens, or dissipated in their public amusements. This annual income Themistocles persuaded them to destine to the useful purpose of building ships of war, by which they might seize or destroy the fleet of Ægina. The proposal was approved, an hundred galleys were equipped, the naval strength of Ægina was broken, and success animated the Athenians to aspire at obtaining the unrivalled empire of the sea. Corcyra formed the only remaining obstacle to their ambition. This island, which,

which, under the name of Phœacia, is celebrated by Homer for its amazing riches and fertility, had been still further improved by a colony of Corinthians. It extends an hundred miles along the western shores of Epirus, and the natural abundance of its productions, the convenience of its harbours, and the adventurous spirit of its new inhabitants, gave them an undisputed advantage over their neighbours in navigation and commerce. They became successively the rivals, the enemies, and the superiors of Corinth, their mother country; and their successful cruises infected the coasts and disturbed the communication of the islands and continent of Greece. It belonged to Athens, who had so lately punished the perfidy of Ægina, to chastise the insolence of the Corcyreans. The naval depredations of these islanders made them be regarded as common enemies; and Themistocles, when, by seizing part of their fleet, he broke the sinews of their power, not only gratified the ambition of his republic, but performed a signal service to the whole of the Grecian confederacy. Victorious by sea and land, against Greeks and Barbarians, Athens might now seem entitled to enjoy the fruits of a glorious security. It was generally believed in Greece, that the late disaster of the Persians would deter them from invading a second time the coasts of Europe. But Themistocles, who, in the words of Thucydides (lib. i.), was no less sagacious in seeing the future, than in managing the present, regarded the battle of Marathon not as the end of the war, but as the prelude to new and more glorious combats. He continually exhorted his fellow-citizens to keep themselves in readiness for action; above all, to increase, with unremitting assiduity, the strength of their fleet; and, in consequence of this judicious advice, the Athenians were enabled to oppose the immense armaments of Xerxes (of which the most formidable tidings soon arrived from every quarter), with two hundred galleys of a superior size and construction to any hitherto known in Greece. (See Gillies's *Greece*, vol. i. p. 414.)

Meanwhile the reduction of revolted provinces had given employment and lustre to the Persian arms. Nine years after the battle of Marathon, and in the fourth year of his reign (B.C. 481.), Xerxes found himself uncontrolled master of the East, and in possession of such a fleet and army as flattered him with the hopes of universal empire. The three last years of Darius were spent in preparing for the Grecian expedition. Xerxes, who succeeded to his sceptre and to his revenge, dedicated four years more to the same hostile purpose. Amidst his various wars and pleasures, he took care that the artisans of Egypt and Phœnicia, as well as all the maritime provinces of Lower Asia, should labour with unremitting diligence, in fitting out an armament adequate to the extent of his ambition. Twelve hundred ships of war, and three thousand ships of burthen, were at length ready to receive his commands. The former were of a larger size and firmer construction than any hitherto seen in the ancient world: they carried on board, at a medium, 200 scamen and thirty Persians who served as marines. The ships of burthen contained, in general, eighty men, fewer being found incapable of rowing them. The whole amounted to 4200 ships and about 500,000 men, who were ordered to rendezvous in the most secure roads and harbours of Ionia. We are not exactly informed of the number of the land forces, which were assembled at Susa. It is certain however, that they were extremely numerous, and it is probable that they would continually increase on the march from Susa to Sardis, by the confluence of many tributary nations, to the Imperial standard of Xerxes. The Persian army consisted of 1,700,000 infantry, and 83,000 cavalry; besides 20,000 Arabians, riders of camels, and Libyan charioteers: when to

these were added sailors and marines, the number amounted to 2,317,610: this was the number of fighting men whom Xerxes brought from Asia, exclusively of attendants and slaves. Besides, there were immense numbers of women and eunuchs, who, according to eastern luxury and debauchery, followed the camp, in all the ostentatious pageantry and feeble magnificence of despotic pomp: so that to use the words of the animated Bartholemi, 5,000,000 had been torn from their native homes, and were preparing to destroy whole nations, to gratify the ambition of an individual named Mardonius. In Europe he was joined by 300,000 of Thracians, Macedonians, and northern Greeks, who meanly deserted their brave countrymen of Sparta and Athens; so that the whole exceeded 2,600,000 men. (This account is translated from Herodotus, l. vi.) The number of this army, as recorded by the first Greek historian, has never been equalled by any of ancient or modern times, from Herodotus to his literary descendant Gillies. But little availed the bodies of Asiatic slaves, against the souls of European freemen. Having wintered at Sardis, he sent ambassadors to demand earth and water, as a mark of submission, from all the Grecian states except Athens and Sparta, whom he presumptuously reserved for the severest punishment. (B. C. 480) The slow march of his immense army, and, still more, its tedious transportation across the seas which separate Europe from Asia, ill suited the rapid violence of his revenge. Xerxes therefore ordered a bridge of boats to be raised on the Hellespont, which, in the narrowest part, is only seven stadia, or seven eighths of a mile in breadth. Here the bridge was formed with great labour; but whether owing to the awkwardness of its construction, or to the violence of a succeeding tempest, it was no sooner built than destroyed. The great king ordered the directors of the work to be beheaded; and, proud of his tyrannic power over feeble men, displayed an impotent rage against the elements. In all the madness of despotism, he commanded the Hellespont to be punished with 300 stripes, and a pair of fetters to be dropped into the sea; adding these frantic and ridiculous expressions:—"It is thus, thou salt and bitter water, that thy master punishest thy unprovoked injury; and he is determined to pass thy treacherous streams, notwithstanding all the insolence of thy malice." After this absurd ceremony, a new bridge was made of a double range of vessels, fixed by strong anchors on both sides, and joined together by cables of hemp and reed, fastened to immense beams driven into the opposite shores. The decks of the vessels, which exceeded 600 in number, were strewed with trunks of trees and earth, and their surface was still farther smoothed, by a covering of planks. The sides were then railed with wicker work, to prevent the fear and impatience of the horses; and upon this singular edifice the main strength of the army passed in seven days and nights, from the Asiatic city of Abydos, to that of Sestos in Europe. The army began its march divided into three bodies, one of which followed the sea shore, and the two others proceeded at stated distances, through the interior part of the country. (See Herodotus, l. vii.) The measures that had been adopted, procured them certain means of subsistence. Three thousand vessels laden with provisions kept along the coast, regulating their motions by those of the army. The Egyptians and Phœnicians had previously stored many of the maritime towns of Thrace and Macedonia, and the Persians at every station were fed and provided with every thing by the inhabitants of the adjacent countries, who, long apprised of their arrival, were prepared for their reception. But before this general transportation, considerable part of the forces had been already sent to

the coast of Macedonia, in order to dig across the isthmus which joins to that coast the high promontory of Athos. The disaster which befel the fleet commanded by Mardonius, in doubling the cape of this celebrated peninsula, was still present to the mind of Xerxes. The neck of land, only a mile and a half in breadth, was adorned by the Grecian city of Sana; and the promontory being rich and fertile, was well inhabited both by Greeks and Barbarians. The cutting of this narrow isthmus, by a canal of sufficient width to allow two galleys to sail abreast, was a matter not beyond the power of a potentate who commanded the labour of so many myriads; but it is observed by Herodotus, to have been a work of more ostentation than utility, as the vessels, according to the custom of the age, might have been conveyed over land with greater expedition, and with less trouble and expence. The Persian forces were now safely conducted into Europe; and the chief obstacle to the easy navigation of their fleet along the coasts of Thrace, Macedon, and Thessaly, to the centre of the Grecian states, was removed by the dividing of mount Athos. Through the fertile plains of Lesser Asia, the whole army had kept in a body; but the difficulty of supplies obliged them to separate into three divisions in their march through the less cultivated countries of Europe. Before this separation took place, the whole fleet and army were reviewed by Xerxes, near Doriscus, a city of Thrace, at the mouth of the river Hebrus. This celebrated muster we shall narrate in the words of Dr. Gillies. "Such an immense collection of men assembled in arms, and attended with every circumstance of martial magnificence, gave an opportunity for seeing, or at least for supposing, many affecting scenes. The ambition of the great king had torn him from his palace of Susa, but it could not tear him from the objects of his affection, and the ministers of his pleasure. He was followed by his women, and by his flatterers, and all the effeminate pride of a court was blended with the pomp of war. While the great body of the army lay every night in the open air, Xerxes and his attendants were provided with magnificent tents. The splendor of his chariots, the mettle of his horses, which far excelled the swiftest racers of Thessaly, the unexampled number of his troops, and above all, the bravery of the immortal band (a body of 10,000 Persian cavalry, so named because their number was constantly maintained from the flower of the whole army), seemed sufficient, to the admiring crowd, to raise the glory of their sovereign above the condition of humanity; especially since, among so many thousands of men as passed in review, none could be compared to Xerxes in strength, in beauty, or in stature. But amidst this splendor of external greatness, Xerxes felt himself unhappy. Having ascended an eminence to view his camp and fleet, his pride was humbled with the reflection, that no one of all the innumerable host could survive an hundred years. The haughty monarch of Asia was melted into tears. The conversation of his kinsman and counsellor, Artabanus, was ill calculated to console his melancholy. That respectable old man, whose wisdom had often moderated the youthful ardour of Xerxes, and who had been as assiduous to prevent, as Mardonius had been to promote, the Grecian war, took notice that the misery of human life was an object far more lamentable than its shortness. In the narrow space allotted, has not every one of these in our presence, and indeed the whole human race, often wished rather to die than to live? The tumult of passions disturbs the best of our days; diseases and weakness accompany old age; and death, so vainly dreaded, is the sure and hospitable refuge of wretched mortals." (See Gillies, vol. i. p. 424.) Xerxes often conversed with Dema-

ratus, an exiled king of Sparta, who had taken refuge with the Persian monarch, and their dialogues, detailed by Herodotus, admirably illustrate the opposite circumstances and characters of the Persians and Greeks. The following is nearly the substance. "Do you imagine," said the despot, "that the Greeks will dare to resist my forces?" Demaratus, having obtained permission to speak the truth, replied, "The Greeks are to be feared, because they are poor and virtuous. Without pronouncing the eulogium of the other states, I shall only speak to you of the Lacedæmonians: They will scorn the idea of slavery. Should all Greece submit to your arms, they will be but the more ardent in defence of their liberty. Inquire not the number of their troops; were they but a single thousand, nay, were they still fewer, they would present themselves to the combat." The Persian king, at hearing this, laughed aloud; and after comparing his forces with those of the Lacedæmonians: "Do you not see," said he, "that the greatest part of my soldiers would take to flight, were they not retained by menaces and blows? As a similar dread cannot operate on those Spartans, who are represented to us as so free and independent, it is evident that they will never unnecessarily brave certain death: and what is there to constrain them to it?" "The law," replied Demaratus; "that law which has more power over them, than you have over your subjects; that law which faith to them, behold your enemies; the question is not to number them; you must conquer or die." Xerxes was rather amused than instructed by this discourse. His hopes of success seemed built on too solid principles to be shaken by the opinion of a prejudiced Greek. Every day messengers arrived with the submission of new nations. He proceeded on his march, till he arrived at the pass of Thermopylæ. This is a defile situated at the foot of mount Oeta, between Thessaly and Phocis; a pass no more than ninety feet broad, and the only one by which the host of Xerxes could penetrate into Achaia. Thither the Grecian army, not exceeding 11,000, directed its course: of these 4,000 only were more immediately destined to defend the passage. But finding himself mistaken, and being informed by Demaratus, that a handful of men might at this place stop for a considerable time all his forces, he endeavoured to corrupt Leonidas by magnificent presents, and the most tempting promises, even that of making him supreme lord of Greece. But Leonidas having rejected all his temptations with disdain, Xerxes thereupon commanded him by a messenger to send him his arms. "Let your king come and take them," answered Leonidas. Then the Medes advanced against the Greeks: but being unable to sustain their attack, were obliged to retreat. The troop of Persians, distinguished by the name of *immortal*, next charged the Greeks, and fought with great valour, so that the pass was choaked up with dead. While the best troops of Xerxes were thus sacrificed to the Spartan valour, an inhabitant of the country having discovered to the Persians a secret path conducting to an eminence that commanded the pass, a large detachment was immediately sent to take possession of it. Leonidas receiving intelligence that the tops of the rocks forming the pass were occupied by 20,000 Persian troops, whose darts must soon overwhelm him and his small party, intreated the greater part of his men to retire, and reserve themselves for a more advantageous opportunity of serving their country; while he himself with about 300 Spartans and a few Thespians would maintain the pass till the last. The rest having accordingly departed, "Come my friends," said Leonidas, "let us dine cheerfully, in the hope of supping together in the other world." His brave companions, encouraged by the example of their chief, thought

thought of nothing now but to sell their lives as dearly as possible; believing it incumbent on them, as the leading people of Greece, to devote themselves to certain death, thereby to convince the Barbarians how much it must cost them to reduce a free people to slavery. In the dead of night, this heroic troop advancing directly forwards to the tent of the king, penetrated to the middle of the Persian camp, cut off all that came in their way, and spread the most dreadful consternation among the enemy. But daylight at last discovering them distinctly to the Persians, they were immediately surrounded, and being rather overwhelmed than conquered, breathed their last above heaps of slaughtered enemies; leaving to after ages an example of intrepidity before unknown, and hardly to be paralleled in history. The Persians are said to have lost upwards of 20,000 men in this engagement, and, among the rest, the two brothers of Xerxes. To the memory of these brave defenders of Greece, a superb monument was afterwards erected, bearing two inscriptions; the one in honour of all those who had served on that occasion; importing, that an army of four thousand Peloponnesian Greeks had there stopped the progress of the whole Persian force; the other in honour of Leonidas and his 300 Spartans, expressed, in a few simple words, to this effect: "Go, passenger, tell at Sparta, that we died here in obedience to her laws." This famous action at Thermopylæ, in the opinion of Diodorus Siculus, contributed very highly to the subsequent advantages obtained by the Greeks; for the Persians, astonished at so striking an instance of desperate valour, thence concluded, that it was hardly possible to subdue a nation of such undaunted resolution; and the Greeks likewise perceived, from the same example, that valour and discipline are capable of vanquishing the greatest multitude; and that therefore it was possible to overcome the Persians.

But the principal defence of Greece rested with the Athenians. The very day that Leonidas fell at Thermopylæ, the Athenian fleet, commanded by Themistocles, having discovered, while cruising off Artemisia, a promontory of Eubœa, a detachment of the enemy's fleet amounting to two hundred vessels, attacked them in the night, and sunk more than thirty of them, and the rest were that same night wrecked on the coast of Eubœa by a storm that succeeded the engagement. The Athenians receiving next day a reinforcement of fifty-three ships more, attacked those of the Cilicians, and sunk many of them. A general engagement ensued the same day, in which both parties fought with great bravery; and though neither could boast of the victory, yet the loss was most considerable on the side of the Persians. From the event of these several actions, the Athenians learned, that victory is not always determined by the greater number of ships. Hearing, in the mean time, of what had passed at Thermopylæ, the Greeks thought it adviseable to retire nearer home, and therefore set sail for Salamis, a small island not far from Attica. Xerxes having now advanced into Phocis, after marking his march all along with the effects of his resentment, the Peloponnesians resolved to fortify themselves within the isthmus. The Athenians, therefore, seeing themselves on the eve of being crushed under the whole weight of the Persian power, sent in this extremity, to consult the oracle; who told them, "that the only means of preserving their city were wooden walls." These wooden walls, pointed out by the oracle, were interpreted by Themistocles to be their ships; and he told his countrymen, that the sole means of preservation left was, to abandon the city, and to betake themselves to their fleet. This advice was not at all relished by the people, who shuddered at the thoughts

of deserting their gods, and the tombs of their ancestors. Themistocles, however, succeeded at last in persuading them, that the existence of Athens depended neither on its houses nor its temples, but on the lives of its citizens; and that the gods themselves had, by the mouth of the oracle, plainly declared it to be their pleasure, that the Athenians ought to leave their city for a while. The people at last, convinced by his eloquence, consented to go on board of their ships. It is difficult to say, whether we are more affected on this occasion by the melancholy situation of the Athenians, thus compelled by a barbarous prince to desert their native country; or by the heroic resolution of these Athenians, to go in this manner into a sort of voluntary banishment, rather than submit to their oppressors. The Athenians conveyed their women, children, and the greater part of their old men, to Trazene, a small town on the sea coast of Peloponnesus, where they were received with all the marks of humanity which their situation required. But many of their oldest men were left in the citadel, being unable, by reason of their great age and infirmities, to undergo the fatigue of transportation. Xerxes in the mean time approaching towards Athens, sent a detachment of his army to plunder the temple of Delphos, which contained immense riches. But Herodotus and Diodorus Siculus tell us, that most of the soldiers sent on this errand perished in a violent tempest. The Persian army arriving at Athens, found nothing but silence and solitude within the walls. They attacked the citadel, which, after a brave resistance by its feeble garrison, was taken by storm, and all within it were put to the sword: Xerxes ordered the rest of the city to be set on fire. In the mean time differences were likely to arise in the Grecian fleet commanded by Eurybiades; one half of them being of opinion that they ought to advance towards the isthmus of Corinth, to be at hand to support their army; and the other, that they ought by no means to quit the advantageous post at Salamis. The latter opinion was supported by Themistocles, who, on this occasion, gave another proof of his extraordinary moderation and coolness of temper. For while he was maintaining his opinion with some warmth against Eurybiades, who was a man of choleric disposition, the latter flew in a passion, and lifted up his cane to strike him: Themistocles called out to him, "strike, but hear me." His eloquence and firmness at last prevailed, and the Greeks saw that, being extremely inferior to the enemy in the number as well as in the size of their ships, it was of the highest importance to avail themselves of their present situation, and to give battle in such a narrow strait as that of Salamis, where the enemy could not bring all their fleet into action. They resolved, therefore, to prepare to fight the Persians in this strait. The Persians determined to give battle, contrary to the opinion of queen Artemisia, who represented to them, that the loss of a sea fight must inevitably be attended with the destruction of their army on land. But her advice, though the most prudent, was rejected, Xerxes having himself declared his sentiments for their coming to action. Themistocles, in the mean time, to put it entirely out of the power of his countrymen to retire from Salamis, contrived to have false intelligence conveyed to Xerxes of their intending to decline the engagement, and to make their escape, and therefore advising him to order his fleet instantly to advance and block them up. This stratagem he communicated to Aristides, who undertook to exhort the rest of the commanding officers with whom he was in great credit, not to be dismayed at seeing themselves hemmed in, but to behave with their usual intrepidity. The stratagem had the desired effect; and

and the Greeks seeing no other possibility of escaping, except by fighting their way through the midst of the enemy, prepared for the engagement. Xerxes, who was on shore, being desirous of seeing the battle, ordered a superb throne to be erected for him on an eminence. The fleet of the Greeks consisted of three hundred and eighty sail. Themistocles, who that day commanded it, waited for the rising of a wind, which regularly began to blow at a certain hour, in a direction exactly in the face of the enemy. The Persians began the attack with great bravery; but the small fleet of the Greeks, acting by the skill of its commanders under every advantage, soon threw the enemy's first line into confusion, and sunk the Persian admiral. Those that followed him, intimidated by his fate, partly betook themselves to flight, and partly were sunk. On the wings, however, the action continued very warm and obstinate; but the wind being against the Persians, the unwieldy size of their ships rendered them very difficult to be managed, and their great number rather embarrassing than availing them in such a narrow strait, they could not long sustain the impetuosity of the Athenians, but fell into a general disorder. The Ionians, mindful of their Grecian extraction, were the first that fled; and they were quickly followed by the rest of the Persian fleet, which soon appeared scattered up and down in flight and confusion. Queen Artemisia signalised herself by a courage far above her sex. In the height of the battle, perceiving herself to be on the point of falling into the hands of the Greeks, she immediately hung out Grecian colours, and attacking one of the Persian galleys, sunk it. The Greek that pursued her, deceived by this stratagem, believed her to be one of his own party, and quitted the pursuit. The victory cost the Greeks forty ships; but of the Persians two hundred were either taken or sunk. This engagement, one of the most memorable recorded in ancient history, entailed immortal fame on the Grecian wisdom and courage. The renowned Cimon, though yet but a young man, distinguished himself highly on that occasion, and gave evident marks of his future greatness. But as the principal glory belonged to Themistocles, the eyes of all the Greeks were fixed on him, and the highest honours were conferred on the deliverer of Greece. At this time every sentiment of jealousy was overlooked, and none exceeded the Lacedæmonians in their encomiums on Themistocles, whom they crowned with laurel, the reward of wisdom and valour. When he appeared at the Olympic games, the whole assembly rose up to give him place; every eye was fixed on him alone; and that day was the most glorious of his life.

The Persians and Greeks were in expectation of a new battle; but Mardonius was by no means satisfied with the orders given by Xerxes; he read in the soul of that prince nothing but the meanest sentiments combined with projects of revenge, to which he possibly might fall a victim. "My lord," said he, approaching him, "deign to recal your courage; your expectations were not founded on your fleet, but on that formidable army with which you have entrusted me. The Greeks are no more able to resist you now than heretofore; nothing can shelter them from the punishment due to their ancient offences, and the fruitless advantage they have lately gained. If we determine on a retreat, we shall for ever be the objects of their derision; and the opprobrium that has fallen on the Phœnicians, the Egyptians, and other nations who fought on board your vessels, will recoil on your faithful Persians. Suffer me to propose another method to save their glory and your own; I would advise you to lead back the greater part of your troops to Persia, and leave me three hundred thousand men,

with whom I shall be able to reduce all Greece." (See Herodotus, l. viii.) Xerxes, who in his own mind was rejoiced at the proposal, assembled his council, admitted to it Artemisia, and requested her opinion on the project of Mardonius. The queen discovering the real sentiments of Xerxes, gave an advice which she knew would be pleasing. "Leave," she said, "to Mardonius, the care of completing your work. If he succeeds, yours will be all the glory; if he perishes, or is defeated, your empire will not, on that account, be shaken, nor Persia consider the loss of a battle as any great misfortune, when you shall have secured your person." When the Greeks had leisure to examine the extent and completeness of their success, they determined, in the first emotions of triumph and resentment, to pursue the shattered remains of the enemy. That no Barbarian might escape, they proposed immediately to sail westward, to destroy the Persian bridge over the Hellespont, and thus to intercept their return. This design was recommended, and chiefly supported by the Athenians, who, having experienced the greatest share of the danger, felt most sensibly the joys of deliverance. But upon more mature deliberation, it occurred that the Persians were still sufficiently numerous to afford just grounds of terror. To their cowardice and inexperience, not to their want of strength, the Greeks owed all their advantages over them; but should the impossibility of retreat be added to their other calamities, they might derive courage from despair, and, by efforts hitherto unexerted, repair the consequences of their past errors and misfortunes. These considerations, first suggested, it is said, by Euribiades the Spartan, were adopted by Themistocles, who convinced his countrymen that the jealousy of the Grecian gods, unwilling that one man should be lord of Europe and Asia, rather than their own prowess, had given them the victory over Xerxes; a prince of such folly and madness, that he had treated with equal irreverence things human and divine, destroyed the sacred temples, overthrown the venerable altars and images, and impiously insulted the gods of the Hellespont with stripes and fetters. That it was the duty of the Athenians, after having gloriously repelled the common enemy, to provide for the subsistence of their wives and families, to sow their lands, rebuild their houses, and thus to repair, by the most industrious activity, the dreadful ravages committed on their territories. (See Gillies, vol. i. p. 482.) Themistocles had no sooner persuaded the Athenians to embrace his opinion, than he secretly dispatched his confident Sicinus to acquaint the great king with the danger which he had so nearly escaped, and to advise him to pursue his journey with all possible expedition. Xerxes readily believed a piece of information, which agreed with the suggestions of his own timidity. The rapidity of his march, conspired with other circumstances above mentioned, in proving fatal to the lives of his followers; and the crafty Athenian, who knowing the instable affections of the multitude, wished to deserve the gratitude of a king, gained the double advantage of dispelling sooner than could otherwise have happened, that destructive cloud of Barbarians which hovered over his country, and of convincing their leader that he was in part indebted for his safety to that very man whose counsels, rather than the arms of Greece, had occasioned his affliction and disgrace.

Mardonius (B.C. 479), after wintering in Thessaly, took the field, and began his operations by making very advantageous offers to the Athenians, to detach them from their confederacy with the other states; promising not only to rebuild their city, and to give them a vast sum of money, but to set them at the head of all Greece. Aristides, then archon,

archon, answered the messengers of Mardonius, that all the gold in the world was insufficient to corrupt the Athenians, or to induce them to desert the defence of the common liberty of their country; that while the sun continued to light the world, the Athenians would remain the mortal enemies of the Persians, and would revenge, to the utmost of their power, the mischief they had brought upon their country, and the burning of their houses and temples. As soon as Mardonius received the answer of the Athenians, and thence saw that no motive could induce them to break their engagements, he ordered his army to march towards Attica. The Athenians, on the approach of the Persian army, left their city a second time, and retired to Salamis. Mardonius thereupon sent new deputies to them, with terms still more advantageous than the former: but the Athenians were so far from accepting them, that they stoned to death one Lycidas, only for saying that they ought to give an audience to the deputies. The Persian general, provoked at the contempt with which the Athenians treated all his proposals, entered Athens, and burnt every thing that had formerly escaped the fury of Xerxes. In this situation, the Athenians complained to the Lacedæmonians of their not having sent them the stipulated succours: the latter were then solely intent on maintaining their ground within the Peloponnese, and defending the entry of the isthmus; but in compliance with the requisition of the Athenians, who made a great outcry against the slowness of their proceedings, they sent to their assistance five thousand Spartans, each of whom was attended by seven helots. These forces, joined with those of the Athenians and Peloponnesians, formed altogether an army of about 70,000 men; which, after assembling at Eleusis, followed Mardonius into Bœotia, and encamped at the foot of mount Cithæron. Pausanias, son of Cleombrotus, and viceroy of Sparta, commanded the Lacedæmonian troops, and Aristides those of the Athenians; the Persian army then amounted to 300,000 men. Pausanias, in the mean time, advanced towards Platæa, with his forces drawn up in battle array; the Athenians being on the right wing, and opposed to the Persian troops, and the Lacedæmonians on the left, opposed to the Greek troops in the service of the Persians. The Megareans, who were encamped on the plain, having been attacked by the Persian cavalry, were, after a very brave and long resistance, on the point of giving way, when three hundred Athenians ran to their relief. The battle then became more obstinate than before; but Magistius, who commanded the Persian cavalry, being slain, his men betook themselves to flight. The death of this officer, who was reckoned the ablest in the Persian army, spread universal consternation through all their troops. Ten days intervened between this action and the general engagement. Artabazus was of opinion, that the Persians ought to avoid a general battle; but Mardonius, a man of a violent fiery disposition, thought otherwise. Pausanias and Aristides, informed of the design of the Persians to attack them, drew up their army in order of battle near to the city of Platæa, which Mardonius perceiving, changed the intended order of his attack. But the Greeks, finding themselves straitened for water in their present situation, resolved to decamp. Mardonius believing this movement to be a flight, immediately advanced with his men, uttering loud shouts, and charged the rear of the Greek army, composed of the Lacedæmonians, who, forming themselves into a column, opposed the enemy with their usual valour, and falling on the Persians with the greatest fury, made a dreadful slaughter. Mardonius fell in the beginning of the action. The main body of the Greek army advancing in the mean time

to the charge, in separate detachments, completed the overthrow of the Persians. In another quarter of the field, the 40,000 Greeks in the Persian service, who were engaged with the troops commanded by Aristides, hearing of the flight of the Barbarians, followed their example, and retreated likewise, but rallied in their camp, and there entrenched themselves. The Lacedæmonians, however, supported by the Athenians, attacked and forced their entrenchments; after which, nothing was to be seen but a general massacre, for the Persians being too numerous to be made prisoners, received no quarter, and were all put to the sword. Artabazus, after distinguishing himself both as a skilful and as a brave soldier, collected the scattered remains of the Persian army, amounting now to no more than 44,000 men, and returned with all possible expedition towards Persia. The loss of the Greeks in this engagement was about 10,000 men. The Greeks, as a monument of this memorable victory, erected a statue to Jupiter in the temple of Olympia, inscribed with the names of all the states of Greece who had fought at Platæa. It came next under consideration, whether the prize of valour ought to be adjudged to the Athenians or to the Lacedæmonians. But to avoid all controversy on this head, whereby the general joy arising from the victory might be disturbed, the question was, by the influence of Aristides, referred to the determination of the other Greeks, who, to prevent any jealousy between those rival states, adjudged it to belong to the Platæans. Then, after sending a tripod of solid gold to the temple at Delphos, and setting apart a tenth of the spoil, as an offering to the gods, to be applied to religious purposes, they divided with great justice the rest of the spoil, which was so immense, that Justin is of opinion it was the first great cause of the corruption of the Grecian manners. By the persuasion of Aristides, the Greeks passed a solemn decree, obliging all the states to send deputies to Platæa, to offer sacrifices to *Jupiter the deliverer*, instituting public games at that place every fifth year; and ordering a fleet of a hundred ships, and an army of 10,000 foot, and as many horse, to be kept always on foot, for making continual war on the Barbarians. The Platæans were appointed to celebrate the anniversary of all those who had fallen in this battle, which they regularly performed with much pomp and ceremony. The Persian fleet, having, in the mean time, sailed towards Samos, that of the Greeks, under the command of Leotychides the Lacedæmonian, and Xantippus the Athenian, advanced as far as Delos, upon the earnest intreaty of the inhabitants of Chios, who begged to be delivered from their subjection to the Barbarians; and likewise in consequence of secret intelligence received by them of the intention of the Ionians to revolt. The Persians, hearing of the approach of the Greeks, retired to Mycale in Asia Minor, where they drew their vessels on shore, and surrounded them with a deep ditch. The Greeks, however, pursued them thither, and with the assistance of the Ionians, attacked them. The battle was at first bravely fought on both sides; but the Milesians and Samians, followed by the rest of the Asiatic Greeks, having deserted from the Persians, the latter were vanquished, and 40,000 of them cut in pieces. The Athenians took possession of the enemy's camp, burnt the Persian fleet, and returned to Samos with a vast deal of plunder. This engagement happened on the same day with that of Platæa. Thus did that memorable day for ever free the Greeks from any future Persian invasions, and deliver them from those innumerable armies of Barbarians, which like clouds of locusts had consumed their country for two whole years. These grievous defeats were never forgotten by the Persian monarchs; and they

they entirely cured Xerxes of all desire of undertaking any other enterprises of the same kind. He thought no more of executing vengeance on the Greeks; and to efface all remembrance of his past disasters, he gave himself wholly up to every sort of voluptuousness and debauchery. His court became one general scene of the most shameful excesses, murder and incest succeeding each other in a perpetual round. This weak licentious prince was at length put to death by his own subjects. The severe effects of tyranny, formerly experienced by the Athenians, had excited in them such a strong desire of liberty, that to preserve it, they boldly hazarded the greatest dangers. Their bravery, however, was admirably supported and conducted by the wisdom and skill of their generals, who were particularly attentive to choose such a situation for giving battle, that the enemy could not much avail themselves of their vast superiority in point of number.

Thus by their vigorous efforts, and the wisdom of their leaders, delivered from the Persian invasion, the Athenians brought back their wives and children to Athens, of which they rebuilt the walls, and considerably increased the extent. The Lacedæmonians taking umbrage at this, from an apprehension lest Athens should become too powerful, represented to the Athenians, that it was the general interest of Greece to have no fortified place without the Peloponnese, because in case of a fresh invasion, it might serve for a retreat and warlike magazine to the enemy. Themistocles having procured himself to be named ambassador to Lacedæmon, there to justify the conduct of his countrymen, maintained in open senate that it was as much for the common advantage of the allies, as for that of the Athenians, that the latter had fortified their city with good walls; that besides, it was but equitable that they, as well as the rest, should take proper measures for their own safety; and in fine, that they were able to defend themselves either against foreign or domestic enemies. In the next place, Themistocles, solely intent on increasing the power of the republic, fortified Piræus (B. C. 477) the famous harbour of Athens, in the same manner as he had done the city, and persuaded the Athenians to augment their fleet yearly with twenty ships. The object of this skilful politician was to deprive the Lacedæmonians of the superiority hitherto possessed by them over the other states of Greece. But it must be confessed that he was not very scrupulous with regard to the means employed by him for that purpose. An instance of this was his project of burning the Grecian fleet in the harbour of Pegazus, whither it had retired to winter after the defeat of Mardonius; or, according to some authors, that part of it only which belonged to the Lacedæmonians. But not daring openly to propose this scheme, he was desired by the people to communicate the matter privately to Aristides who having been accordingly informed of it, declared to the people, that though the project of Themistocles was indeed highly useful, yet at the same time, it was most unjust! Themistocles was therefore prohibited from putting it in execution.—How becoming thus to see a whole state prefer what was just to what was useful! and what a high idea of the justice of Aristides must we now conceive, when we see him chosen singly by a whole people, to determine whether a project of the utmost general importance was just or unjust! At the same time, the allies prepared to restore to their freedom the Grecian cities in which the Persians had left garrisons. A numerous fleet, under the command of Pausanias and Aristides, obliged the enemy to abandon the isle of Cyprus; and the city Byzantium, situated on the Hellespont. The conduct of Pausanias on this expedition was so insolent, as to disgust

the allies, who refused any longer to obey the Spartans, and thenceforward to fight under the orders of the Athenians. (B. C. 476.) The farther proceedings of the Lacedæmonian general, and his fate, will be found under the article PAUSANIAS, and SPARTA. The Spartans, with a praise-worthy moderation, yielded to the Athenians the command of the sea. About this time, Themistocles experienced the vicissitude of fortune, and the transitory nature of popular favour. The civil administration of this illustrious Athenian was no less eminent and successful than his political and military efforts. By yielding more protection to strangers than they enjoyed in neighbouring cities, he augmented not only the populousness, but the wealth of Athens; as that description of men paid an annual contribution in return for their security. This, together with other branches of the revenue, he employed in building annually about sixty galleys, the addition of which to the Athenian navy abundantly compensated such losses as were sustained by the accidents of the sea in foreign parts. Notwithstanding the envy and malice of worthless demagogues, who infested the Athenian assembly and courts of justice, Themistocles was fast advancing to the attainment of the same authority at home which Aristides enjoyed abroad, when complaints arrived from Sparta, that he had conspired with Pausanias to betray the public liberty. The known resentment of the Spartans against this extraordinary man sufficiently explains the reason why they, who were so dilatory in their proceedings against Pausanias himself, should be so eager to bring to punishment his supposed accomplice. But it is not easy to conceive how the Athenians could admit such an accusation against a citizen, whose singular valour and conduct had gained the decisive victory at Salamis; whose counsels and address had fortified their city with impregnable strength; whose foresight and activity had procured them a fleet which no nation in the world could resist; and whose abilities and patriotism had not only saved his country from the most formidable invasion recorded in history, and which was principally directed against Athens, but amidst the terrors of this invasion, the treachery of false friends, and the violence of open enemies, had so eminently contributed to raise his republic to the first rank in the Grecian confederacy. Yet such, on the one hand, was the effect of that envy which in republics always accompanies excellence; and such, on the other, the influence of Spartan bribery and intrigues, that Themistocles was banished by the ostracism, a punishment inflicted on men whose aspiring ambition seemed dangerous to freedom, which required not the proof of any particular delinquency, and which had effect only during a term of years. (Gillies, vol. ii. p. 65.) This illustrious man retired into Persia, where his treatment and death will be seen under the article THEMISTOCLES.

Aristides also died about the same time (B. C. 467 or 471); and the conduct of the Persian war was devolved on his colleague Cimon, who united the integrity of that great man to the valour of Miltiades his father, and the decisive boldness of Themistocles. But as he felt an ambition for eminence which disdains bare imitation, he not only reflected the most distinguished excellencies of his predecessors, but improved and adorned them by an elegant liberality of manners, an indulgent humanity, and candid condescension; virtues which long secured him the affections of his fellow citizens; while his military talents and authority, always directed by moderation and justice, maintained an absolute sway over the allies of the republic. His first operations were employed against the coast of Thrace, which the taking of Byzantium seemed to render an easy conquest. The only places in that country fitted to make an obstinate resistance, were

the towns of Eion and Amphipolis, both situate on the river Strymon; the former near its junction with the Strymonic gulph, the latter more remote from the shore, but entirely surrounded by an arm of the gulph, and the principal branches of that copious river. Amphipolis, however, was taken, and planted by a numerous colony of Athenians. But Eion still opposed a vigorous resistance; Boges, the Persian governor, having determined rather to perish than surrender. After long baffling the efforts of the besiegers, by such persevering courage and activity as none of his countrymen had displayed in the course of the war, this fierce barbarian was at length not tamed but exasperated by hunger. His companions and attendants, equally desperate with their leader, followed his intrepid example; and mounting the ramparts with one accord, threw into the middle stream of the Strymon their gold, silver, and other precious effects. After thus attesting their implacable hatred to the assailants, they calmly descended, lighted a funeral pile, butchered their wives and children, and again mounting the walls, precipitated themselves with fury into the thickest of the flames. After this, Cimon subdued the other states in that country, drove from Syrops the pirates that infested the Ægean sea, established an Athenian colony in their place, and made himself master of Naxos. Cruising along the coast of Asia, he reduced all the maritime cities of Caria and Lycia, and left not the Persians in possession of a single inch of ground between Ionia and Pamphylia. Hearing that the Persian fleet lay at anchor at the mouth of the river Eurymedon, waiting for a reinforcement of Phenician ships, that they might attack him with their united forces; he immediately sailed against the former to prevent their junction; charged them with such vigour, that they were obliged, in spite of their great superiority, to run their ships a-ground; and took more than a hundred of them. Without giving his men time to breathe after their victory, he instantly landed them, and attacked the army of the enemy, which was drawn up on the banks of the Eurymedon. The Persians sustained the first charge of the Greeks with great firmness. But the troops of Cimon, animated by their late success, broke them at last, put them fairly to flight, made a great number of them prisoners, and got a vast booty. Cimon crowned his victories with the capture of the Phenician fleet which was coming to the assistance of the Persians, and by that means gave a fatal blow to the Persian naval power. The rich spoil of the Barbarian camp rewarded the enterprise and celerity of the Greeks, who, loaded with wealth and glory, returned home during winter, and piously dedicated to Apollo a tenth of the plunder acquired by these ever memorable achievements. A considerable portion of the remainder was employed in strengthening the fortifications of Athens. Agreeably to the Grecian custom, the general was entitled to a valuable share. Cimon received it as a testimony of the public esteem, and expended it for the public use, embellishing his beloved native city with shady walks, gardens, porticoes, schools of exercise, and other works of general pleasure and utility. (See Gillies, vol. ii. p. 74.)

While Cimon was attending the power, glory, and influence of the Athenians abroad, a man of very great talents acquired the direction of affairs at home. This was Pericles, one of the most extraordinary men that even Athens herself produced. His mind, naturally of the first capacity and vigour, was enriched by extensive and useful knowledge, adorned by elegant literature, and fortified by the soundest philosophy. Damon, professedly a teacher of rhetoric, but really master of history, politics, and all the learning of the times, was his tutor. Anaxagoras instructed him in philosophy. That

wife man had made it his chief study to confirm the most important and pleasing doctrine, that a Being of supreme intelligence and benevolence governs the world, rewards the virtuous, and punishes the vicious. "From him (says Dr. Gillies, Pericles early learned to control the tempest of youthful passions, which so often blast the promising hopes of youthful manhood; to preserve an unshaken constancy in all the vicissitudes of fortune, since all are the varied dispensations of the same wise Providence." Fertile in means for the attainment of his objects; skilful in the varied application of them, according to the variation of circumstances; having the ready and complete command of his own great intellect and extensive information, both in forming and executing plans; courageous, temperate, versatile, yet steady; decisive, yet cautious; bold, yet prudent; enterprising, yet circumspect; he excelled in politics, in war, and in every pursuit which required combined genius and conduct. His eloquence united plenitude of information, force of genius, and nervousness of style: it was either convincing or persuasive, according to the objects he had in view: at one time, its majesty commanded the hearers; at another, its softness and delicacy insinuated themselves into their hearts. The superior talents of this celebrated statesman greatly increased the prosperity of the country, and his policy was peculiarly beneficial in improving the advantages that had been acquired in war by his predecessors, or his cotemporary Cimon. He promoted agriculture and manufactures, and greatly extended the commerce and maritime power of his country. Riches flowed from all quarters to Athens, and were in a considerable degree employed in strengthening and adorning the city. He encouraged the fine arts, literature, and philosophy. Under him flourished Polygnotus, Parrhasius, and Phidias, those ingenious artists, who so happily made painting, sculpture, and statuary, the vehicles of sentiment and character, as well as of external feature and figure. Respected by him, lived Anaxagoras, the father of moral philosophy; and Euripides, who, in the garb of fiction, exhibits the just and elevated reasoning, the pious and virtuous sentiments of both. Taste, genius, and philosophy, were never more prevalent than at Athens in the age of Pericles. But with the many advantages which were conferred upon the Athenians by Pericles, there were mixed several disadvantages, but rather in ultimate effect than in immediate appearance. There were two parties at Athens, the aristocratical and democratical. Cimon by blood and affinity was connected with the former, and by his dispositions and character was fitter for gaining an ascendancy over the chief people in the state, than for courting the multitude. With all the powers and accomplishments which could form a patriotic and beneficial statesman and soldier, he wanted the dexterous versatility which conciliates the favour of the multitude. Pericles, with genius and strength of mind that must have rendered him a leader in any class of men, in any age or country, chose popularity as the road to the gratification of ambition, and indulged the inclination of the populace, as well as pursued the interest of the state. With this view he promoted luxury, licentiousness, and profusion. The firm and rigid virtue of Cimon was adverse to such a pernicious waste of the treasures which his exertions had acquired. Between two such great men, embracing opposite principles and parties, rivalry naturally arose. Foreign politics, as well as domestic, enflamed their differences. Cimon, aristocratical in his own principles, was attached to the Spartans, and wished amity to subsist between Sparta and Athens. The Athenian multitude, elated with their signal successes, and wishing to domineer over all Greece, was hostile to Sparta, which would be the

most powerful obstacle to the accomplishment of their designs. The Spartans, on the other hand, were extremely jealous of the progress of the Athenians, and of the formidable power they had acquired. Cimon endeavoured to appease, Pericles to promote, this hostile spirit between the two chief nations of Greece; and his schemes appeared to be the more successful. But their animosity, before it broke out into action, was diverted by a calamity equally sudden and unforeseen. In the year four hundred and sixty-nine before Christ, Sparta was overwhelmed by an earthquake. Taygetus and the neighbouring mountains were shaken to the foundation, and twenty thousand Lacedæmonian citizens or subjects perished in this dreadful disaster. Amidst the ruins of Sparta, one description of men beheld the public misfortunes not only without horror, but with a secret satisfaction. The oppressed Spartan slaves, known by the appellations of Helots and Messenians, assembled in crowds from the village in which they were cantoned, and took measures for delivering themselves, during the cruelty of the elements; from the not less inexorable cruelty of their unfeeling tyrants. The prudent arrangements of king Archidamus, who, foreseeing the revolt, had summoned the citizens to arms, prevented them from getting immediate possession of the capital; but they rendered themselves masters of the ancient and strong fortress of Ithomé, from which they continued many years to infest the Lacedæmonian territories. Cimon earnestly seconded the application of the Spartans, and the Athenians were prevailed on to send them the required assistance, and the combined forces proceeded to the siege of the fortress. The besiegers, however, met with little success, that the Spartans dismissed their Athenian auxiliaries, on pretence indeed that their help was no longer necessary, but in reality, from a suspicion that they favoured the interest of the rebels. The Athenians were greatly offended by this caprice, and Pericles instructed his partisan Ephialtes to remind the people that Cimon was the chief promoter of sending assistance to the Spartans. The illustrious captain was accused, and a farther charge laid against him that by presents from the Macedonians he was prevailed upon to let slip a manifest opportunity of enlarging his conquests, after taking from the Persians the gold mines of Thrace. To this accusation Cimon replied, that to the utmost of his power he had prosecuted the war against the Thracians and other enemies of the state of Athens; but that it was true he had not made any inroads in Macedonia, because he did not imagine that he was to act as a public enemy to mankind, and because he was struck with respect for a nation modest in their carriage, just in their dealings, and strictly honourable in their behaviour towards him and the Athenians; that if his countrymen looked upon this as a crime, he must abide their judgment; but, for his part, he could never be brought to think such conduct amiss. His defence however was unavailing, and he was banished for ten years. (B.C. 460.)

Pericles, thus free from the control of Cimon, confirmed his own credit with the people, and made innovations on the established form of government. He deprived the Areopagus of the power of judging in the most important questions that had formerly belonged to their jurisdiction; he rendered the other courts of justice subservient to his pleasure; and he became so absolute in Athens, that under this republican government he possessed a power almost despotic. To secure the permanency of his power, while he promoted industry and beneficial action, he gratified their love of pleasure. The city now (to use the language of Dr. Gillies) afforded a perpetual scene of triumph and festivity. Dramatic entertainments, to which they were passionately ad-

dicted, were no longer performed in slight unadorned edifices, but in stone or marble theatres, erected at great expence; and embellished with the most precious productions of nature and of art. The treasury was opened not only to supply the decorations of this favourite amusement, but to enable the poorer citizens to enjoy it without incurring any private expence; and thus at the cost of the state, or rather of its tributary allies and colonies, to feast and delight their ears and fancy with the combined charms of music and poetry. The pleasure of the eye was peculiarly consulted and gratified in the architecture of the theatres and other ornamental buildings; for as Themistocles had strengthened, Pericles adorned his native city; and unless we had the concurring testimony of antiquity, as well as the immortal remains of the Parthenon or temple of Minerva, which still excite the admiration of travellers, it would be difficult to believe that in the space of a few years there could have been created those inestimable wonders of art, those innumerable temples, theatres, statues, altars, baths, gymnasia, and porticoes, which, in the language of ancient panegyric, rendered Athens the eye and light of Greece. Sums earned in honourable contests with the Persians, or extorted from dependant allies, were expended in multiplying theatres, in giving gratuitous admission to the poorer citizens to these, and also to feasts and revellings, in procuring parasites, dancers, and buffoons, to flatter and gratify the coarse taste of the carousing populace, in importing the delicacies of distant countries, in preparing them with all the refinements of cookery to gratify their palates, in encouraging the reception of beautiful courtezans, in costly perfumes and splendid dresses, in delighting the ears and fancy with the charms of music; in short, in gratifying the senses and the vanity of the multitude, without the exertion of their own labour. Meanwhile Pericles anxiously and ably promoted the supremacy of Athens over the rest of Greece. Stimulated and assisted by the Spartans, the Thebans made war upon the Athenians; but the active vigilance of Pericles sent an army to Bœotia; the valour and conduct of Myronides the Athenian general obtained a decisive victory near the walls of Tanagra. Pericles placed Athenian garrisons in several Bœotian fortresses; he made the neighbouring republics of Corinth and Megara feel and acknowledge the superiority of Athens, and after sending Tolmidas, a commander endued rather with an impetuous than well-regulated courage, to ravage the coast of the Peloponnesus, he sailed thither next year in person, and made the Lacedæmonians and their allies deeply regret, that they had too soon discovered their animosity against a republic alike capable to protect its friends, and take vengeance upon its enemies. While the Athenians were thus triumphing over the states of Greece, they found an inducement to undertake an expedition against the territories of the Persian king. Egypt, taking advantage of the successive defeats of the Persian monarch, revolted, and headed by Inarus a Libyan chief, expelled the Persians. Inarus, in order to strengthen his interest by foreign alliance, dispatched an embassy to Athens, craving the assistance of that victorious republic against its most odious and inveterate enemy. The application was successful, and the Athenians sent an army to Egypt. On their junction with the king of Libya, they gave battle to the Persians, put them to flight, and got possession of a part of Memphis. Next year however the scene was greatly altered; for after several fruitless assaults, they were at last obliged to raise the siege of that city on the approach of the enemy, and to retire to Biblis, an island in the Nile. In this place they withstood an eight months siege. But their fleet happening to lie at anchor in the Nile, the Persians, by changing the

the course of the river, rendered the ground round the ships dry, took every one of them, and put the greatest part of their crews to the sword. The army being thus disabled from opposing the enemy any longer, partly perished and partly dispersed. During these misfortunes the Athenians became sensible of the injustice of their treatment of Cimon, and recalled him after five years banishment. Soon after his return, that great man succeeded in bringing about a peace between his countrymen and the Lacedæmonians (B. C. 455); and with a view of diverting the Athenians, grown presumptuous by their late good fortune, from making war on their neighbours, he resolved to find occupation for their arms abroad. Departing, therefore, for Cyprus with a fleet of a hundred and forty vessels under his command, and being there joined by sixty more from Egypt, he attacked Artabazus, the admiral of Artaxerxes, and took a hundred of his ships: he next made a descent upon Cilicia, and totally defeated Megabazus, another officer of that prince: he then returned to Cyprus to form the siege of Citium. In the course of the siege, Cimon fell sick: perceiving his end approaching, he beseeched his men to keep his death a secret. They followed his advice, and, proceeding with their operations, obtained a signal victory, in which they took a hundred of the enemy's ships, and then sailed back in triumph to Attica. Artaxerxes, finding his inability, to contend with the Athenians, sent deputies to Athens to solicit peace. His ambassadors were favourably heard in the Athenian assembly by those who were more solicitous about confirming their usurpations over their allies and colonies, than ambitious of extending their Asiatic conquests. Cimon, who invariably maintained the contrary system, was now no more. A peace, therefore, was concluded on the following conditions: that all the Greek colonies in Lower Asia should be declared independent of the Persian empire; that the armies of the great king should not approach within three days journey of the western coast; and that no Persian vessel should appear between the Cyanean rocks and the Chelidonean isles; that is, in the wide extent of the Ægean and Mediterranean seas, between the northern extremity of the Thracian Bosphorus and the southern promontory of Lycia. On such terms the Athenians and their allies stipulated to withdraw their armament from Cyprus, and to abstain thenceforward from molesting the territories of the king of Persia. Such was the conclusion of this memorable war, which, since the burning of Sardis, the first decisive act of hostility, had been carried on with little intermission during fifty-one years. The same magnanimous republic which first ventured to oppose the pretensions of Persia, dictated to that haughty empire the most humiliating conditions of peace; an important and illustrious æra in Grecian history, which was often celebrated with pompous panegyric during the declining ages of Athenian glory.

Having terminated the war against the Asiatic foe with such honour and advantage, the Athenians directed more constant and undivided efforts to render themselves paramount in Greece; and, during twenty years, various contests arose between the Athenians and neighbouring states. Without pursuing the detail of these contentions, and the various truces by which they received a temporary suspension, we shall merely mention the result, which was extremely favourable to Athens, so that the republic rose to unprecedented power. With her prosperity the pride of Athens rose in proportion, until her neighbours, both apprehensive and envious of her power, and farther inflamed to resentment by her insolence, formed for her humiliation a confederacy which brought on the Peloponnesian war.

Jealousy of an overgrown potentate, and what in modern language is called the balance of power, was the chief and ultimate political cause of that celebrated war; rivalry, resentment, and pride, inflamed the difference on both sides; but the proximate and incidental cause was a dispute between the Corinthians and the Corcyreans, a colony from Corinth; the contest was inflamed into a war. (The details of the dispute belong to the articles CORCYRA, and CORINTH.) The Corcyreans were first successful, and gained a great naval victory, the Corinthians formed a confederacy with neighbouring states of the Peloponnesus (B. C. 443). to combat the power to which they were themselves unequal. Alarmed at this combination, the Corcyreans applied (B. C. 433.) for assistance to the Athenians; and urged that an alliance between Athens and Corcyra would be advantageous to both parties; and of its benefits the Athenians would become immediately sensible, if they reflected that the people of the Peloponnesus being equally hostile to both (the open enemies of Corcyra, the secret and more dangerous enemies of Athens); their country must derive a vast accession of strength by receiving, without trouble or expence, a rich and warlike island, which, unassisted and alone, had defeated a numerous confederacy, and whose naval force, augmenting the fleet of Athens, would for ever render that republic sovereign of the seas. If the Corinthians complained of the injustice of receiving their colony, let them remember that colonies are preserved by moderation, and alienated by oppression; that men settle in foreign parts to better their situation, not to surrender their liberties; to continue the equals, not to become the slaves of their less adventurous fellow-citizens. Ambassadors from the Corinthians endeavoured to counteract the eloquence of the Corcyreans, contested their propositions concerning the independence of colonies, affirmed that the mother-country always retained a supremacy over its emigrated descendants, and appealed to the interests of the Athenians, as powerfully inducing them practically to support their doctrines concerning the relative duties of colonies. These islanders (they said) acknowledged themselves a colony of Corinth, but pretended that settlements abroad owe nothing to those who established them, to those whose fostering care reared their infancy, from whose blood they sprung, by whose arms they have been defended. We affirm, on the contrary (and appeal to you, Athenians! who have planted so many colonies), that the mother-country is entitled to that authority which the Corcyreans have long spurned, to that respect which their insolence now refuses and disdains; that it belongs to us, their metropolis, to be their leaders in war, their magistrates in peace; nor can you, Athenians! oppose our just pretensions, and protect our rebellious colony, without setting an example most dangerous to yourselves. The Athenians did not implicitly listen to the arguments of either side, but were more favourable to the Corcyreans, and entered into a defensive alliance with that state. Before the Athenians dispatched a fleet to support the objects of their new engagement, the Corinthians attacked the squadron of their enemies, and gained a signal victory; but the arrival of the Athenian armament (B. C. 432.) prevented them from reaping any decisive advantage from their late success. To divert the force of the Athenians, the Corinthians stirred up revolt among colonies which the Athenians had planted along the coasts of Thessaly, Macedonia, and Thrace. But these were not their only measures; aware of the jealousy and alarm with which Sparta and her allies regarded the Athenians, they tried to kindle the combustible particles into a conflagration, which they trusted would overwhelm Athens. They easily succeeded

in an application so very agreeable to the dispositions of those whose co-operation they desired, and a general confederacy was formed, consisting of the seven republics of the Peloponnese (B. C. 431), except Argos and Achaia; the first of which from ambition, and the second perhaps from moderation, preserved, in the beginning of the war, a suspicious neutrality. Of the nine northern republics, Acarnania alone declined joining the allies, its coast being particularly exposed to the ravages of the Corcyrean fleets. The cities of Naupactus and Platæa, for reasons that will soon appear, were totally devoted to their Athenian protectors; whose cause was likewise embraced by several petty princes of Thessaly. But all the other states beyond the isthmus longed to follow the standard of Sparta, and to humble the aspiring ambition of their too powerful neighbour. While they were preparing for this concert, the Peloponnesians sent hostile embassies and manifestoes to the Athenians, requiring them to grant independence to the colonies, and announcing the force by which the requisition would be supported. Alarmed by this menacing combination, the Athenian populace were filled with rage against Pericles, whom they accused of having caused this confederacy by his general conduct, and especially by a decree which he procured against the inhabitants of Megara, which had revolted from the authority of Athens, and imputed his enmity to that city to the private pique of his favourite mistress Aspasia; and with the petty suspicion of a vulgar mob, conceived him to have appropriated to his own use great portions of the national treasure. Though the transcendent virtues of Pericles were not unalloyed, yet his were not the vices of common minds; avarice made no part of his composition: he proved that his private expences were justly proportioned to the measure of his patrimony; many instances were brought of his generous contempt of wealth in the service of his country; and it appeared, after the strictest examination, that his fortune had not increased since he was entrusted with the exchequer. He contended that the situation of the republic did not justify despondence or submission to the dictates of an imperious rival. Their financial resources, military and political strength, and above all the spirit of the people, enabled them to resist with effect the efforts of their banded enemies, and by a detail of the various constituents of Athenian greatness contrasted with those of their rivals, illustrated his proposition. He therefore proposed that the answer to their demands should disclaim their right to interfere, disavow every intention of commencing hostilities, but declare the readiness and ability of the Athenian republic to repel force by force. Such an answer, in the relative disposition of the parties, was deemed tantamount to a declaration of war.

The war which now ensued, is celebrated in Grecian history by the name of the Peloponnesian war. It lasted for twenty-seven years; twenty-one of which are the subject of the history of Thucydides; but death having prevented that illustrious author from pursuing it to its termination, its continuation and conclusion was reserved for Xenophon.

Hostilities were begun by the Thebans, who attacked Platæa, a city of Bœotia, in alliance, as we have just mentioned, with Athens. All Greece was immediately in motion. The Lacedæmonians march toward the isthmus of Corinth, a narrow neck of land about six miles broad, which joins the Peloponnese to the country properly called Greece. Archidamus, one of the Spartan kings, before advancing farther, dispatches an ambassador to the Athenians, to require of them to relinquish their pretensions. But the Athenians command the messenger to retire, without deigning even to give him an audience.

The Lacedæmonians thereupon advanced with an army of 60,000 men, while that of the Athenians amounted to no more than 18,000; but, to make up the odds, the latter had a fleet of 300 gallees. On the approach of the Lacedæmonian army, the inhabitants of the country abandoned their habitations, and carrying away every thing they could, took refuge in Athens. The plan of operations pursued by the Athenians, on the suggestion of Pericles, was to weary out the enemy by protracting the war. The Lacedæmonians entering Attica, laid siege to Eñoe, but being obliged, after a few fruitless assaults, to relinquish that attempt, they advanced still nearer to Athens, and encamped within half a league of the city. Unwilling, while so much inferior in point of numbers, to hazard the fate of the republic in a general battle, Pericles found it difficult to prevent the Athenians, exasperated at the sight of the ravages committed on their country, from sallying forth upon the enemy. But by means of his admirable art in managing the multitude, he kept both the senate and the people from assembling to deliberate, though at the expence of numberless insults from his enemies; in spite of which he persisted, in his plan, unmoved either by threats or entreaties. In the mean time he dispatched a fleet of one hundred ships to ravage the coasts of the Peloponnese; which being joined by that of the allies, made a descent upon Laconia, and laid waste the territories of Sparta. The Lacedæmonians finding all their endeavours to draw the Athenians out of their city ineffectual, and receiving intelligence of the ravages committed in Laconia by the Athenian fleet, found themselves under the necessity of withdrawing from Attica. On the setting out of the expedition against the coast of Laconia, an extraordinary eclipse of the sun happened just as Pericles was going on board of his galley. Pericles perceiving the Athenians to be terrified at this phenomenon, which they considered as an unlucky presage, threw his cloak over the face of the pilot, and asked him if he saw? the pilot having answered in the negative, Pericles explained to the by-standers, that the body of the moon, being in like manner interposed at that instant between their sight and the sun, prevented them from seeing his light. When the Lacedæmonians retired out of Attica, the Athenians appropriated a hundred talents of money, and a hundred of their best ships, for the more immediate defence of their country, in case of a fresh invasion, prohibiting any person, under pain of death, from proposing a different application of those resources. They then expelled from the island of Egina its present inhabitants, whom they regarded as the principal cause of the war; and they divided that island by lot among the citizens of Athens. They made an alliance with the kings of Macedon and Thrace; subdued the island of Cephælonia; laid waste the territory of Megara; and took the harbour of Nisæum; this concluded the first campaign. The Athenians next celebrated funeral rites to the memory of those who had fallen since the beginning of the war. For this purpose, a large tent was constructed, wherein they exposed the bones of the slain, which were covered with flowers and perfumes. Then the bones were carried with much pomp and solemnity to a suburb of the city called Ceramicus, where they were deposited in a monument destined to be the tomb of those who fell in war, and lastly, one of the citizens pronounced a funeral oration in their praise; a charge which on this occasion was undertaken by Pericles himself. Though always superlatively eloquent, he at this time seemed to outdo himself; and in pronouncing the eulogium on those who were no more, he omitted no argument that might inflame the courage of the survivors. Thucydides has preserved this

this famous oration, of which the beautiful expressions and lofty sentiments are equally admired. The army of the Lacedæmonians and their allies returned into Attica, and laid every thing waste with fire and sword. But the plague, which then raged among the Athenians, was still more pernicious to them, depriving them of their best citizens and bravest soldiers; and Athens exhibited nothing but a melancholy scene of sickness and death. Of this dreadful scourge, an awfully striking account is exhibited in the energetic description of Thucydides. Without dwelling on the corporeal symptoms which the historian presents in his affecting narrative of this scourge, we shall merely give the substance of its moral effects. At the beginning of this dreadful calamity, sublime examples of filial piety and generous friendship were displayed; but as the consequences were almost always fatal to the children and friends, they were but rarely repeated afterwards. Then the most respectable ties were broken; the eyes about to close for ever, beheld on all sides only the most profound solitude, and death no longer produced a tear. This callous insensibility gave birth to an unbridled licentiousness. The death of so many worthy men, mingled without distinction in the same tomb with villains; the destruction of so many fortunes, become suddenly the inheritance or prey of the lowest citizens, made a lively impression on those who have no other principle but fear. Persuaded that the gods no longer protected or regarded virtue, and that the vengeance of the laws would not be so prompt as the death impending over them, they imagined that the instability of human possessions pointed out the use that they should make of them, and that having but a few moments to live, they were justified at least in passing them in the midst of pleasures.

Notwithstanding the distresses in which Athens was involved, the elevated soul of Pericles, with unbroken fortitude, planned the extrication of his country, as far as it was practicable by human means. A numerous family fell successive victims to the rapacious pestilence. Though a tenderly affectionate father, he bore the disaster with magnanimous serenity. At the funeral of the last of his sons, he dropped, indeed, a few reluctant tears of paternal tenderness; but ashamed of this momentary weakness, he bent his undeviating mind to the defence of the republic. Having collected an hundred Athenian, together with fifty Chian and Lesbian vessels, he sailed through the Saronic gulph, and ravaged the unprotected coasts of Elis, Argos, and Laconia. The plague breaking out in the fleet, defeated the success of the expedition, and revisiting Athens with redoubled fury, almost desolated the city. Maddened by their accumulated sufferings, the Athenians imputed their miserable situation to Pericles: they deprived him of his authority, and condemned him to a fine; but they soon acknowledged their folly and injustice. He was again prevailed on to resume the reins of administration, and his last efforts were employed to stimulate his country to that vigour of counsels and of conduct which only could preserve her power, honour, and independence: temporary disaster might assail, but in the nature of things its duration could not be long; Athens would ultimately triumph, if she was true to herself. "Of the two elements," he said, "destined for the use of men, the sea and the land, we absolutely command the one, nor is there any kingdom, or republic, or confederacy, that pretends to dispute our dominion. Let this consideration elevate our hopes, and personal afflictions will disappear at the view of public prosperity. Let us bear, with resignation, the strokes of Providence, and we shall repel with vigour the assaults of our enemies. It is the hereditary and glorious distinction of our republic,

never to yield to adversity. We have defied danger, expended treasure and blood, and amidst obstinate and formidable wars, augmented the power, and extended the fame of a city, unrivalled in wealth, populousness, and splendor, and governed by laws and institutions worthy of its magnificence and renown. If Athens must perish, (as what human grandeur is not subject to decay?) let her never fall at least through our pusillanimity; a fall that would cancel the merit of our former virtue, and destroy at once that edifice of glory which it has been the work of ages to rear. When our walls and harbours are no more, when the terror of our navy shall have ceased, and our external magnificence shall have fallen to decay, the glory of Athens shall remain. This is the prize I have hitherto exhorted, and still exhort you to defend, regardless of the clamours of sloth, the suspicions of cowardice, or the persecution of envy." These were the last efforts of this illustrious man; he was soon after seized with the plague, which proved fatal. On his death-bed, retaining his understanding, his chief comfort was, not the splendor of his genius and achievements, but the recollection of his well-spent life. When he was about to yield his last breath, the leading men of Athens assembled round his bed were soothing their affliction by recounting his victories and the number of his trophies. "These actions," said he to them, raising himself up with difficulty, "are the works of fortune, and common to myself with other generals; the only eulogium I merit is, that I have never been the cause that any citizen should wear mourning." (Gillies.)

After the death of Pericles, two persons contended for the direction of affairs; Cleon, a turbulent and impudent demagogue, devoid of talents, or of any moral qualities which entitled him to pre-eminence, but a great favourite with the lower populace; and Nicias, a man of solid ability, prudence, and integrity: and for several years the war was successful or unsuccessful according as the one or the other predominated.

About this time the Peloponnesians invested Plataea, a city in alliance with Athens. This siege is not only remarkable for the obstinate resistance of the besieged, but for being the first recorded in history which was conducted with any sort of regularity. Both parties here made use of mounds of earth, the one to attack, the other to defend. The Peloponnesians burnt a part of the town by means of bundles of sticks, to which they set fire. On the other hand, the besieged neglected no expedient to frustrate the various attempts of the enemy. But the most surprising circumstance of all is, that so small a place as Plataea, which contained no more than four hundred inhabitants, and eighty Athenians, was capable of making so vigorous a resistance against a powerful army. The enemy at last changed the siege into a blockade, and surrounded the town with two ditches. The Bœotians were left to guard these intrenchments, and the bulk of the army marched away. The besieged having lost all hope of succour, resolved to attempt to make their escape out of the town; which about one half of them effected by a very daring stratagem, suggested and executed by despair. The remaining half, dismayed at the dangers attending the attempt, continued in the town. But finding themselves unable to defend it any longer, they were obliged to surrender at discretion: eight Spartans went to decide their fate; the miserable Plataeans pleaded in vain that they had been forced, through necessity, to side with the Athenians, in order to obtain their protection against the Thebans, by whom they were grievously oppressed. They were all murdered in cold blood; their wives were carried into slavery; and their town was razed to the ground. Such was the melancholy fate of the Plataeans,

tears, who, during the Persian war, had rendered the most signal services to Greece.

(B. C. 428.) In the fourth year of the war, the Peloponnesians, agreeably to their general plan, invaded Attica by land, whilst the Athenians as before sent a naval force to devastate the coasts of their enemies. Between two parties, of which the one was evidently superior by land, and the other by sea, if both skilfully employed their resources, there must be an alternation of victory and defeat, which by reciprocal diminution of resources through the evils of war, demonstrated peace to be mutually beneficial. This year, however, threatened a blow to the naval power of Athens that might materially affect the equilibrium. The maritime strength of Athens depended in a considerable degree upon her foreign settlements and dominions. As her treatment of these was frequently imperious, and even oppressive, her dependencies did not bear her supremacy without repining. Availing themselves of the present difficulties, all the inhabitants of Lesbos, except those of Methymne, resolved to separate from Athens. The Athenians, sensible how great a loss the defection of this island must be, sent out a fleet of forty gallees to attack that of the Mitylenians, who, finding themselves repulsed, proposed terms of accommodation; which were listened to by the Athenians. A suspension of hostilities being agreed on, the Mitylenians dispatched ambassadors both to Athens and to Lacedæmon at the same time. The ambassadors were told by the Lacedæmonians, that they should be fully heard at the approaching Olympic games, where the other allies would have an opportunity of assisting at the conference. Thucydides has transmitted to us the import of what was urged by these ambassadors; from which we see, that they admitted the treaty anciently concluded between the Lesbians and Athenians, and assigned the ambition of the latter, not their present misfortunes, as the reason that induced them now to relinquish that treaty. The allies were satisfied with their reasons, and admitted them into their confederacy. Informed of these preparations, the Athenians fitted out a fleet of a hundred sail, appeared unexpectedly off the promontory of the isthmus of Corinth, and made a descent upon the Peloponnese, while another fleet protected the coasts of Attica. Never had they raised so formidable an armament before; and it so overawed the Lacedæmonians, that they hurried back to the defence of their own country. The Athenians, in the mean time, pushed on the siege of Mitylene, whither they sent a detachment of a thousand soldiers, and the town was blocked up both by sea and land. The inhabitants receiving no assistance from the Lacedæmonians, and being pressed by famine, were obliged to surrender at discretion. The authors of the revolt, to the number of more than a thousand, were conveyed to Athens, and there put to death. Orders were at the same time issued to massacre the rest of the inhabitants, by way of example. But the people, shocked at such horrible cruelty, caused the decree to be revoked, and dispatched counter orders; which luckily arrived at the instant they were proceeding to put the first in execution. (Thucydides.) Then the town was dismantled, and the whole territory of the island, except Methymne alone, was divided by lot among the inhabitants of Athens. The fifth (B. C. 427) year of the war was principally distinguished by the sedition of Coreyra. In the course of hostilities, the Corinthians had captured a considerable number of those islanders, and wisely treated them with a gentleness and kindness which gained their affections. Having brought them to this disposition, they earnestly persuaded them, when they should return to their country,

to employ their efforts for reconciling the children with the parent country, and detaching their fellow-citizens from Athens, the tyrant over her allies. The Coreyteans were dismissed, and arriving at home, endeavoured to reconcile their countrymen to the Peloponnesians. The aristocratical party very readily agreed, and formed a conspiracy for massacring the leaders of the democratic party. The commons applied to the Athenians, who sent a fleet to assist their partisans. The Peloponnesians also sent a squadron to support the nobles: but the Athenians preserving their maritime superiority, their enemies retired, and the democrats were paramount. Their cruelty was so signal, as from that time to give the name of Coreyrean to every sedition of uncommon atrocity. The following account, in the elegant language of Dr. Gillies, contains an awful monument of the dreadful effects of intestine dissension.

“The unhappy prisoners were first confined in a dungeon. Dragged successively from thence, in parties of twenty at a time, they were compelled to pass in pairs, their hands tied behind their backs, between two ranks of their enemies, armed with whips, prongs, and every instrument of licentious and disgraceful torture. The wretches left in prison were long ignorant of the ignominious cruelty inflicted on their companions: but, as soon as they learned the abominable scenes transacted, they refused to quit their confinement, guarded the entrance, and invited, with one consent, the Athenians to murder them. But the Athenians wanted either humanity or firmness to commit this kind cruelty. The Coreyrean populace ventured not to force a passage from despair. They mounted the prison walls, uncovered the roof, and overwhelmed those below with stones, darts, and arrows. These weapons were destructive to many, and furnished others with the means of destroying themselves, or each other. They laid down their heads, opened their breasts, exposed their necks, mutually soliciting, in plaintive or frantic accents, the fatal stroke. The whole night (for night intervened) was spent in this horrid scene; and the morning presented a spectacle too shocking for description. The obdurate hearts of the Coreyreans were incapable of pity or remorse; but their relenting eyes could not bear the sight; and they commended the bodies of their fellow-citizens, now breathless or expiring, to be thrown on carts, and conveyed without the walls.” Thus ended the sedition of Coreyra; but its consequences were not soon to end. The contagion of that unhappy island, engendered a political malady, which spread its baneful influence over Greece. The aristocratical, and still more, the popular governments of that country, had ever been liable to faction, which occasionally blazed into sedition. But this morbid tendency, congenial to the constitution of republics, thenceforth assumed a more dangerous appearance, and betrayed more alarming symptoms. In every republic, and almost in every city, the intriguing and ambitious found the ready protection of Athens, or of Sparta, according as their selfish and guilty designs were screened under the pretence of maintaining the prerogatives of the nobles, or asserting the privileges of the people. A virtuous and moderate aristocracy, an equal impartial freedom, these are the colourings which served to justify violence, and varnish guilt. Sheltered by the specious coverings of fair names, the prodigal assassin delivered himself from the importunity of his creditor. The father, with unnatural cruelty, punished the licentious extravagance of his son; the son avenged, by parricide, the stern severity of his father. The debates of the public assembly were decided by the sword. Not satisfied with victory, men thirsted for blood. This general disorder overwhelmed laws human and divine. The ordinary course

of events was reversed: sentiments lost their natural force, and words their usual meaning. Dullness and stupidity triumphed over abilities and refinement; for while the crafty and ingenious were laying fine-spun snares for enemies, men of blunder minds had immediate recourse to the sword and poignard. Hitherto the war had been carried on without any material advantage to either party. The following year (B. C. 426.) more critical events took place: Demosthenes, a general of merit and enterprise, commanded the Athenian forces at Naupactus, which had been bestowed on the unfortunate Messenians; by whose assistance, together with that of the Athenian allies in Acarnania, Demosthenes undertook to subdue Ætolia. The Messenians being continually harassed by the Ætolians, persuaded Demosthenes that it would be easy to overrun their country, before the inhabitants, who lived in scattered villages, widely separated from each other, could collect their force, or attempt resistance. In pursuance of this advice, Demosthenes entered Ætolia, took and plundered the towns, and drove the inhabitants before him. During several days he marched unresisted; but having proceeded to Ægion, the principal, or rather only city in the province, he found that his design had by no means escaped the notice of the enemy. Living in a country abounding in defiles, and involved in woods, the Ætolians, though irregular and desultory in their warfare, yet employing a species of bush fighting not unlike to that which, two and twenty centuries afterwards, has been used by the American Indians, defeated the regularly disciplined heroes of Athens, and Demosthenes was obliged to take refuge in Naupactus. The Athenian general, however, soon found means to irritate those Barbarians to venture a contest in the plains, and, with great ease, obtained a signal victory. Elevated with this success, Demosthenes undertook an expedition to the western shore of Peloponnesus, and seized Pylus. The Spartans, eager to recover this important post, attempted to dislodge the enemy, but were defeated, and obliged to take refuge in Sphacteria, a small island upon the coast; and the Athenians, being masters of the sea, surrounded their retreat, and cut off all supplies of provisions. Anxious to save those troops, the Spartans sent ambassadors to Athens with proposals of peace. The ambassadors frankly owned the extreme necessity that had obliged the Lacedæmonians to submit to so humiliating a step, put the Athenians in mind of the uncertain fate of arms, and exhorted them to embrace this opportunity of restoring tranquillity to Greece. But the Athenians, grown presumptuous by their good fortune, as well as by the flattering oration of their favourite demagogue Cleon, required, as a preliminary condition, that the troops confined in the island should lay down their arms, and be conducted to Athens, upon the promise of the Athenians to set them at liberty as soon as the Lacedæmonians had delivered up the places conquered by them, from the Athenians. The Lacedæmonians refused to comply with this condition, and both parties prepared themselves for war. The Athenians, in the mean time, were very vigilant to prevent any provisions from passing into the island of Sphacteria. The Lacedæmonians, on the other hand, engaged the whole country round to contribute their utmost efforts to relieve the besieged troops, and promised to set free all the slaves who should succeed in carrying them provisions; which many did, at the extreme hazard of their lives. In the mean time, the Athenians in Pylus began, on their part, to be straitened for provisions. Cleon persuaded the people, that the slowness of the siege was owing to the inactivity of their commanders; and maintained, that a little vigour must very soon reduce the island, which he

offered to accomplish himself. Having been accordingly sent thither, and having joined Demosthenes, they landed together in Sphacteria, and beat the enemy to the extremity of the island. The Lacedæmonians, however, took possession of a fortification, and defended, with the most desperate courage, the only passage by which they could be attacked. But the general of the Messenians, having discovered a difficult pass that led to the fortification, marched that way, and appearing unexpectedly on the rear of the Lacedæmonians, called aloud to them to lay down their arms. The Lacedæmonians, exhausted with heat and fatigue, obeyed the summons, by laying their shields on the ground; and, after a short conference, they surrendered at discretion. The Athenians, after erecting a trophy, reembarked on board of their fleet. This siege continued sixty-two days. Cleon is said to have caused 123 of those unhappy Spartans to be murdered. The rest were conveyed to Athens, and thrown into prison, till peace should take place; the Athenians threatening, at the same time, to put them all to death, if the Lacedæmonians made any more incursions into their country. Soon after happened the sedition of Megara. The inhabitants of that town, after expelling their magistrates, quarrelled among themselves, one party being for recalling their magistrates, the other, for delivering their town into the hands of the Athenians. Brasidas, in the mean time, the best officer the Lacedæmonians then had, having come before Megara, its gates are immediately thrown open to him. The exiled magistrates returning soon after, and resuming their authority, condemn to death one hundred inhabitants of the opposite faction. Brasidas advances into Thrace, subdues several cities, and lays siege to Amphipolis, a place of much importance to the Athenians, whither he got the greatest part of their wood. They therefore dispatched Thucydides, the famous historian, to its relief; but the place was taken before his arrival. His countrymen, however, imputed to him the loss of the place, and banished him at the instigation of Cleon. The Athenians having about the same time advanced into Boeotia, under the command of Demosthenes and Hippocrates, were defeated near Delium by the Thebans, who, after their victory, besieged and took that town. No decisive advantage had been hitherto obtained by either party. The Athenians and Lacedæmonians therefore agreed on a truce for a year; which Brasidas, who had been successful in all his enterprises, bore with great impatience. Cleon, on the other hand, who had acquired much authority in Athens by means of his bold and vehement eloquence, incited his countrymen to resume the war. Being more presumptuous than skilful in military operations, he resolved to attempt the retaking of Amphipolis, hoping to be assisted by a body of troops from Perdiccas king of Macedon. But Brasidas got the start of him, and threw himself into the town. To increase the presumption of Cleon, the Spartan general, who was well acquainted with his character, affected to be afraid of an encounter; but after making the proper dispositions, Brasidas sallied forth unexpectedly, and attacked the left wing of the Athenians, which, being the flower of their army, made a vigorous resistance. Brasidas, however, at last broke them, and killed six hundred, with very little loss on his own side. This attack disconcerted and terrified Cleon, who was killed by a Spartan soldier as he was flying from the battle. Brasidas was of the number of the slain on the side of the Lacedæmonians. He was an excellent officer, equally brave and prudent, and deserves to be ranked among the Lacedæmonian heroes. It was the mother of this general, who, on hearing the exploits of her son commended,

out going abroad to seek for more ; and that though they were hardly beginning to recover from the misfortunes occasioned by the late war and plague, they were wantonly exposing themselves to a greater danger still. Nicias, in this harangue, likewise reflected indirectly on the luxury of Alcibiades, who had now carried his extravagance to an incredible pitch. The expence of the furniture of his house, and of his retinue, was prodigious. His table was as sumptuous as that of any prince ; and he contended at the Olympic games with seven different sets of horses. To support so expensive a life, it was absolutely necessary for him to possess vast funds ; and Nicias no doubt meant to insinuate, that Alcibiades expected to have an opportunity by this expedition to repair his private fortune, which must have been greatly dissipated by such enormous expences. Alcibiades answered the harangue of Nicias, by telling the audience, that his magnificence was intended to reflect honour on his country ; he put them in mind of his services to the commonwealth ; he assured them that the cities of Sicily were so weary of the oppression of their petty sovereigns, that they would instantly open their gates to the first power which should appear to deliver them from their present slavery ; and he concluded with telling them, that to carry their arms abroad was the surest way to damp the courage of their enemies, and that the Athenians must always continue masters at sea, in spite of the Lacedæmonians. The Athenians, delighted with this flattering speech of Alcibiades, entirely disregarded that of Nicias, who was a man of a soft pusillanimous disposition, and of an irresolute temper. They therefore persisted in their resolution to undertake this expedition, and began to make the necessary preparations for it with the utmost dispatch. (Thucydides.) Just as the Athenian fleet was on the point of setting sail, several evil presages fell out that extremely perplexed the minds of the people. 1st. The feast of Adonis happened at this time, which was celebrated by the women uttering piteous groans and lamentations ; and it was customary for all the inhabitants on that occasion to wear mourning. 2dly. The statues of Mercury, one of which stood before the entry of every house, were all maimed in the same night, and the author of this piece of sacrilege could not be discovered. The wild libertine character of Alcibiades exposed him to suspicions of having been concerned in this mischief. But the affection entertained for him by the soldiers and sailors, who declared that they would not proceed on the expedition, if the smallest violence was offered to his person, preserved him at present from any trouble on that account. Alcibiades demanded to be tried, that he might have an opportunity of justifying himself before his departure. But the people, impatient for the expedition proceeding, obliged him to set sail. The view of the fleet under sail attracted the admiration both of the citizens and of strangers ; for never had a single city in the western world displayed so grand and magnificent an armament. It consisted of a hundred and thirty-six vessels, carrying six thousand two hundred and eighty soldiers, of whom the greater part were heavy armed. Besides these, there were thirty vessels loaded with provisions, and the whole was attended by one hundred barks, without including merchant ships, or the after augmentations of the fleet. Besides the sea forces, there was a body of troops for the land service, and among these a few cavalry. All the forces were equipped in the most complete manner ; and, upon the whole, there could hardly be a grander or more beautiful exhibition. (B. C. 414.) When the troops were embarked, the whole fleet on a signal given by a trumpet, weighed anchor, attended with a general shout of the spectators,

pouring out their most earnest vows for the success of their fellow-citizens. The fleet directed its course towards Rhegium, whither they dispatched some ships before the rest, to see that the money promised by the Egigians was ready ; of which, however, they found no more than thirty talents provided. Nicias availed himself of this circumstance to enforce the reasons he had insisted on against the expedition, and advised to terminate the dispute between the Egigians and Selinontines in an amicable manner ; to oblige the former to fulfil their engagements ; and then to return to Athens. Alcibiades, on the contrary, said it would be disgraceful to return without performing some signal exploit with so powerful an armament ; that they ought to endeavour to detach the Greeks in Sicily from their connection with Syracuse, to bring them over to their own party, and after obtaining from them reinforcements both of troops and provisions, to attack Syracuse. Lamachus advised to march immediately against Syracuse ; but the opinion of Alcibiades prevailed. They therefore continued their course for Sicily, where Alcibiades reduced Catana. At Athens the enemies of Alcibiades, intent alone on gratifying their resentment, without regarding the public interest, took advantage of his absence to renew against him an accusation of having in a debauch profaned the mysteries of Proserpine and Ceres ; and they prosecuted the accusation with the most inveterate malice and animosity. Many persons were accused, and thrown into prison, without being even permitted to be heard ; and a vessel was dispatched to bring Alcibiades to stand trial before the people. To this he apparently consented, and went on board of the galley ; but on arriving at Thurium, he disappeared. Not having therefore obeyed the summons within the limited time, he was condemned to death for contumacy, and his effects were confiscated. (Thucydides, l. vi.) The departure of Alcibiades spread apprehension through the army. Nicias, now chief commander, by his irresolute conduct, suffered the ardour of the Athenians to cool, and he spent the greatest part of the summer inactive at Catana. The Athenian soldiers, impatient of such dilatory proceedings, reproached their general, who, to please the army, resolved to besiege Syracuse. Though slow in counsel, yet vigorous in conduct, he conducted his attacks with so much ability, that the inhabitants were inclined to surrender. Already several states of Sicily and Italy had declared in his favour, when a Lacedæmonian general named Gylippus entered the besieged city, with a few troops which he had brought from Peloponnesus, or collected in Sicily. Nicias might have prevented him from landing in the island, but lost the opportunity ; an irreparable fault, which proved the source of all his misfortunes. Gylippus revived the courage of the Syracusans, defeated the Athenians, and held them blocked up in their intrenchments. Athens sent to Sicily another fleet consisting of about seventy-three gallees, under the command of Demosthenes and Eurymedon, and a second army of five thousand men heavily armed, and some light troops. Demosthenes having lost two thousand men at the attack of an important post, and considering that the sea would soon be no longer navigable, and that the troops were wasting away by disorders, proposed to abandon the enterprise, or transport the army to some healthier situation. When they were on the point of setting sail, Nicias, terrified at an eclipse of the moon, which spread consternation through the camp, consulted the augurs, who directed him to wait twenty-seven days longer. Before the expiration of his time, the Athenians, vanquished by sea and land, no longer able to remain under the walls of Syracuse for want of provisions, nor to escape out of the harbour, the mouth

mouth of which was shut up by the Syracusans, took the resolution to abandon their camp, their sick, and their ships, and retire by land into some town of Sicily. They began their march to the number of forty thousand men, including not only the troops furnished them by the states of Italy and Sicily, but the crews of the galleys, the workmen, and slaves. The Syracusans, by seizing the defiles, and breaking down bridges, and other obstructions, impeded the retreat of the Athenians, while at every step they harassed their flank and rear. The retiring forces for eight whole days had to struggle against new obstacles continually increasing. But Demosthenes, who commanded the rear-guard, composed of six thousand men, losing way in his march, was pushed into a confined place, and, after prodigies of valour, obliged to surrender on condition that his soldiers should have their lives granted them, and be spared the horrors of a dungeon. Nicias, having failed in a negotiation he had entered into, conducted the remainder of the army as far as the river Assinarus. On his arrival there, the greater part of the soldiers, tormented by a burning thirst, rushed in confusion into the river, while others were driven into it by the enemy. Such as attempted to save themselves by swimming found on the opposite shore steep banks lined with darts, who made a terrible slaughter of them. Eight thousand men perished in the attack; till at length Nicias thus addressed Gylippus: "Dispose of me as you shall think proper; but shew mercy at least to these unhappy soldiers." Gylippus immediately put an end to the carnage. The Syracusans returned to their city, bringing back with them seven thousand prisoners, who were thrown into the quarries, where for many months they experienced inconceivable miseries. Numbers of them perished there, and others were sold as slaves. Nicias and Demosthenes were among the massacred. A few escaped both death and bondage through the charms of dramatic poetry, by reciting passages from the beautiful and pathetic tragedies of Euripides.

The discomfiture of the expedition to Sicily filled Athens with consternation and dismay, and she had reason to dread still greater calamities. Her allies were ready to shake off the yoke; the other states of Greece were conspiring her ruin; the Peloponnesians already thought themselves justified by her example in breaking the truce. Already she discovered in their operations, more skilfully planned and conducted, the spirit of vengeance, and the superior genius by which they were directed. Alcibiades enjoyed at Lacedæmon that respect and influence he every where obtained. It was by his advice that the Lacedæmonians adopted the resolution of sending succours to the Syracusans, renewing their inroads into Attica, and fortifying, at the distance of one hundred and twenty stadia from Athens, the post of Decelia, which held that city blocked on the land side. To annihilate the power of Athens, it was necessary to favour the revolt of her allies, and destroy her navy. Alcibiades repaired to the coasts of Asia Minor; and Chios, Miletus, and other flourishing cities, declared for the Lacedæmonians. By his accomplishments he captivated Tissaphernes, the governor of Sardis; and the king of Persia engaged to pay the fleet of Peloponnesus. This second war, conducted with more regularity than the former, would quickly have been terminated, had not Alcibiades, pursued by Agis, king of Lacedæmon, whose wife he had seduced, and by the other chiefs of the league, who took umbrage at his glory, at length considered that, after avenging himself on his country, it now only remained for him to protect it from inevitable ruin. With this view, he contrived to suspend the operations of Tissaphernes, and the departure of the

Persian succours, under the pretext that it was the interest of the great king to suffer the nations of Greece mutually to enfeeble each other. The Athenians having soon after revoked the decree for his banishment, he put himself at their head, reduced the strong holds of the Hellespont, forced one of the Persian governors to sign an advantageous treaty with the Athenians, and the Lacedæmonians to sue for peace. Their demand was rejected; for, deeming themselves invincible henceforward under Alcibiades, the Athenians made a rapid transition from the most profound consternation to the most insolent presumption. The hatred with which they were animated against that general was as quickly succeeded by the most extravagant gratitude, and the most unbounded affection. When he returned to his own country, his arrival, and the pains he took to justify his conduct, were a series of triumphs for himself, and of public rejoicings for the multitude. When, amidst the acclamations of the whole city, they saw him sail from the Piræus with a fleet of a hundred ships, no doubt was entertained but that his rapid victories would soon force the inhabitants of the Peloponnesus to submit to the law of the conqueror; the arrival of a courier was every moment expected with the news of the destruction of the enemy, and the conquest of Ionia. In the midst of these flattering expectations, they learnt that fifteen of the Athenian galleys had fallen into the hands of the Lacedæmonians. The engagement took place during the absence, and in contempt of the precise orders, of Alcibiades, who had been obliged to pass into Ionia to levy contributions for the subsistence of his troops. On the first intelligence of this check, he instantly returned, and offered battle to the victor, who did not venture to accept it. He had retrieved the honour of Athens; the loss was trifling, but it sufficed for the jealousy of his enemies. They exasperated the people, who stripped him of the general command of the armies with as much precipitation as they had manifested in investing him with that dignity. After the second exile of Alcibiades, the war continued for several years, the Spartans being now commanded by Lysander, after Alcibiades the first general of Greece. Till the twenty-seventh year of the war, the success was various, and operations were principally maritime. The great object of the Peloponnesians was the reduction of the Athenian colonies; and the northern parts of the Ægean sea were the chief scenes of warfare. In the twenty-seventh campaign, a large Athenian fleet was stationed at the mouth of the river Ægos. Considering themselves as incontrovertibly superior to the enemy, many of the Athenian soldiers left the ships, and were carelessly dispersed on shore. Alcibiades, being in that neighbourhood, and, though in banishment, anxious for the welfare of his country, warned the Athenian generals of their hazardous position, and the want of discipline among their soldiers and seamen; after representing to them the danger of their situation, on an inhospitable coast, without either harbours or cities to which they might retire in case of necessity, he offered to co-operate with them, by falling upon the enemy at land, with some Thracian troops under his command. But the generals despised his advice, and refused, out of jealousy, to accept of his service. Lysander, in the mean time, prepared to attack the Athenians when totally off their guard. Having learned from his scouts, that the enemy were straggling with even more than their usual carelessness, Lysander embraced the opportunity, and bore down upon the ships thus deserted by the chief portion of the fighting men. The victory was complete, if that can be called a victory where there was scarcely any resistance. The vigilant activity of Conon endeavoured seasonably to assemble the strength of

the Athenians; but his advice was disdained by officers incapable and unworthy of command, and his orders were despised by seamen unaccustomed and unwilling to obey. At length they became sensible of the danger, when it was too late to avoid it. Their ships were taken, either altogether empty, or manned with such feeble crews as were unable to work, much less to defend them. The troops and sailors who flocked to the shore from different quarters, and with disordered precipitation, were attacked by the regular onset and disciplined valour of the Peloponnesians. Those who fought were slain; the remainder fled into the utmost recesses of the Chersonesus, or took refuge in the Athenian fortresses, which were scattered over that peninsula. Out of a fleet of an hundred and eighty sail, only nine vessels had escaped, eight of which were conducted by Conon to the friendly island of Cyprus, while the ninth carried to Athens the melancholy news of a disaster equally unexpected and fatal. Lysander proposed to pursue his blow to the destruction of the Athenians, reduced all the colonies of Athens under the dominion of Sparta, and proceeded to the siege of Athens. While he invested this city by sea, a powerful army co-operated with him by land. The Athenians, having defended themselves for three months, were reduced to the extremity of distress, and at length this celebrated city was captured, dismantled, and rendered a dependency of Sparta. Such was the ruinous termination of the Peloponnesian war. (B. C. 404.) The conquerors placed the government in the hands of thirty persons, who, from their rapacity and cruelty, earned and acquired the name of the thirty tyrants. During their sway Athens had scarcely any political existence, and its history is only marked by domestic injustice and misery. The unhappy Athenians cast their eyes on Alcibiades, in the confidence that he could, and the hopes that he would, effect their deliverance. But Lysander, entertaining a similar idea of the powers and disposition of that illustrious exile, prevailed on Pharnabazus, the Persian satrap, to perpetrate his murder. The thirty tyrants, freed from the fear of such an avenger, proceeded to greater enormity than ever; until Thrasybulus, inheriting the magnanimous spirit of a free Athenian, put himself at the head of his injured countrymen, expelled the tyrants (B. C. 401), and, favoured by the dissensions of the Spartan leaders, re-established a free government in Athens. Deprived, however, of her colonial, naval, and many of her commercial resources, Athens continued of little importance in the public transactions of Greece. The chief domestic event which distinguishes this part of Athenian history, is the fate of Socrates; but of the life as well as of the death of this extraordinary sage, a full account will be given under the appropriate article.

While the Athenians had thus lost not only pre-eminence but independence and political importance, they were still distinguished for good and bad qualities, which had shone so conspicuously in the days of their prosperity. Genius was still transcendent, though directed to different objects from those which had employed a Themistocles and a Cimon. Instead of active efforts for aggrandizing their country, Athenian talents were now chiefly employed in pursuits destined to delight and instruct all the enlightened world. Poetry, history, and philosophy by different means pursued the same end, the promotion of wisdom, virtue, and happiness. But as epic and dramatic excellence had been already carried to the highest conceivable perfection; the poetry of Athens at this period was less supereminent than her history and philosophy. Thucydides and Socrates being dead, Xenophon and Plato occupied the highest rank.

The over-bearing insolence with which the Spartans exer-

cised their supremacy over the Grecian states proved ultimately the means of their degradation, and enabled the Athenians to recover a certain portion of their political power, and their consequence among their neighbours. The confederacy which was formed against Sparta enabled the Athenians to defeat the Lacedæmonians at sea, to regain their naval superiority, and to rebuild their harbour and walls. (B. C. 394.) This revolution from dependency to maritime supremacy they owed to the courage and policy of the celebrated Conon. (See CONON.) Thrasybulus seconded the exploits of Conon, and the Athenians resumed the command of maritime settlements, which had been wrested from them ten years before by the victorious Spartans. The reviving fortune of the Athenians recalled their military energies, and various commanders started up, not unworthy of the native country of Pericles and Alcibiades. Iphicrates, Chabrias, and Timotheus, gave glorious specimens of valour and conduct; but the peace of Antalcidas (B. C. 387.) suspended their exertions. For several years after this treaty, the Spartans endeavoured by stratagem and surprise to re-establish their predominancy; they seized the citadel of Thebes, and attempted to make themselves masters of the harbour of Athens, though nominally at peace with both countries. The Athenians joined with the Thebans in revenging this outrage: Chabrias repulsed the army of Sparta, while Iphicrates and Timotheus destroyed her fleets, and Athens rose to an equality with her rival. Peace being again concluded between the Spartans and Athenians, the latter were spectators of the contest between Sparta and Thebes, where the renowned Epaminondas gave at Leuctra (B. C. 371) such a blow to Spartan power; the Athenians were invited by the victors to join in an alliance for crushing their ancient enemies; but they regarded sound policy more than resentment, and would not throw their weight into the Theban scale, already preponderant. The Theban hero having still farther reduced the Spartans, and invaded Laconia, the Athenians took active steps for rendering assistance to the now weaker party, and sent an army to defend Peloponnesus; but the battle of Mantinea (B. C. 363) arrested Epaminondas in the career of victory. After him no Theban arose fit for imitating his example, or executing his designs. The Thebans became languid; the Spartans on the other hand were exhausted. Athens did not fail to take advantage of the contests which had weakened her two successors in the dominion of Greece. Taught by experience, they did not attempt to subdue the territories of her warlike neighbours; but the numerous islands of the Ægean and Ionian seas, the remote coasts of Thrace and Asia, invited the activity of their fleet, which they might now employ in foreign conquests, fearless of domestic envy. It appears, that soon after the death of Epaminondas, Eubœa again acknowledged the authority of Athens, an event facilitated by the destruction of the Theban partisans belonging to that place, in the battle of Mantinea. From the Thracian Bosphorus to Rhodes, several places along both shores submitted (B. C. 360.) to the arms of Timotheus, Chabrias, and Iphicrates; men, who, having survived Agesilaus and Epaminondas, were far superior in abilities and in virtue, to the contemporary generals of other republics. The Cyclades and Corcyra courted the friendship of a people able to interrupt their navigation, and to destroy their commerce: Byzantium had become their ally; and there was reason to hope that Amphipolis would soon be reduced to subjection. Such multiplied advantages revived the ancient grandeur of Athens, which once more commanded the sea, with a fleet of near three hundred sail, and employed the best half of her citizens and subjects in ships of war or commerce. This tide

of prosperity, flowing so grateful after adversity and oppression, proved eventually the cause of their ruin. The populace abandoned themselves to idleness, dissipation, and sensuality; and to supply their extravagance, sought projects of injustice and rapacity. To direct the formation, and lead the execution of such schemes, a daring and profligate leader presented himself in Chares, whose soldier-like appearance, blunt address, and bold impetuous valour, masked his selfish ambition, and rendered him the idol of the populace. His person was gigantic and robust, his voice commanding, his manners haughty; he asserted positively, and promised boldly; and his presumption was so excessive, that it concealed his incapacity, not only from others, but from himself. Though an enterprising and successful partisan, he was unacquainted with the great duties of a general; and his defects appear the more striking and palpable, when compared with the abilities of Iphicrates and Timotheus, his contemporaries, who prevailed as often by address as by force, and whose conquests were secured to the republic by the moderation, justice, and humanity with which they had been obtained, and with which they continued to be governed. Chares proposed a very different mode of administration; he exhorted his countrymen to supply the defects of their treasury, and to acquire the materials of those pleasures which they regarded as essential to their happiness by plundering the wealth of their allies and colonies. This counsel was too faithfully obeyed; the vexations anciently exercised against the tributary and dependent states, were renewed and exceeded. The weaker communities complained and remonstrated against this intolerable rapacity and oppression; while the islands of Chios, Coos, Rhodes, as well as the city of Byzantium, prepared openly to revolt, and engaged with each other to repel force by force, until they should obtain peace and independence (B.C. 358). Chares, probably the chief instrument as well as the adviser of the arbitrary measures which had occasioned the revolt, was sent out with a powerful fleet and army to quash at once the hopes of the insurgents. He sailed towards Chios, with an intention to seize the capital of that island, which was supposed to be the centre and prime mover of rebellion. The confederates, informed of his motions, had already drawn thither the greatest part of their force; the city of Chios was besieged by sea and land; the islanders defended themselves with vigour; Chares found it difficult to repulse their sallies: his fleet attempted to enter their harbour without success; the ship of Chabrias alone penetrated thus far; and that able commander, whose valour and integrity merited a better fortune, though deserted by the fleet, yet forsook not the ship entrusted to him by the republic. His companions threw away their shields, and saved themselves by swimming to the Athenian squadron, which was still within their reach; but Chabrias, fighting bravely, fell by the darts of the Chians, preferring an honourable death to a disgraceful life. Encouraged by advantages over their enemy, who had at first affected to despise them, the insurgents augment their fleet, and ravaged the isles of Lemnos and Samos. The Athenians, indignant that the territories of their faithful allies should fall a prey to the depredations of rebels, fitted out, early in the next year, a new armament under the command of Mnestheus, the son of Iphicrates, and son-in-law to Timotheus, expecting that the new commander would respectfully listen to the advice of those great men, who perhaps declined acting as principals in an expedition where Chares possessed any share of authority. That general had raised the siege of Chios, and now cruised in the Hellespont; where, being joined by Mnestheus, the united squadrons amounted to an hundred and twenty sail. It was imme-

diately determined to cause a diversion of the enemy's forces from Samos and Lemnos, by laying siege to Byzantium. The design succeeded; the allies withdrew from these islands, collected their whole naval strength, and prepared vigorously for defending the principal city in their confederacy. The hostile armaments approached each other with a resolution to join battles, when a sudden and violent storm arose, which rendered it impossible for the Athenians to bear up to the enemy, or even to keep the sea, without being exposed to shipwreck. Chares alone confidently insisted on commencing the attack, while the other commanders, more cautious and experienced, perceived the disadvantage, and declined the unequal danger. His impetuosity, thus overruled by the prudence of his colleagues, was converted into resentment and fury; he called the sailors and soldiers to witness their opposition, which he branded with every odious epithet of reproach; and with the first opportunity, dispatched proper messengers to Athens, to accuse them of incapacity, cowardice, and total neglect of duty. The accusation was supported by venal orators in the pay of Chares; Timotheus and Iphicrates were tried capitally. The former trusted to his innocence and eloquence; the latter used a very extraordinary expedient to sway the judges, conformable, however, to the spirit of that age, when courts of justice were frequently instruments of oppression, governed by every species of undue influence, easily corrupted and easily intimidated. The targeteers, or light infantry, who had been armed, disciplined, and long commanded by Iphicrates, enjoyed the same reputation in Greece, which the "Fabian" soldiers afterwards did in Italy. They were called "Iphicratensian" troops, from the name of this commander, to whom they owed their merit and their fame, and to whose person (notwithstanding the strictness of his discipline) they were strongly attached by the ties of gratitude and esteem. The youngest and bravest of this celebrated band readily obeyed the injunctions of their admired general; surrounded, on the day of trial, the benches of the magistrates, and took care seasonably to display the points of their daggers. It was the law of Athens, that after preliminaries had been adjusted, and the judges assembled, the parties should be heard, and the trial begun and ended on the same day; nor could any person be tried twice for the same offence. The rapidity of this mode of procedure favoured the views of Iphicrates; the magistrates were overawed by the imminence of a danger which they had neither strength to resist nor time to elude; they were compelled to an immediate decision; but instead of the sentence of death, which was expected, they imposed a fine on the delinquents, which no Athenian citizen in that age was in condition to pay. This severity drove into banishment those able and illustrious commanders. Timotheus sailed to Chalcis, in Eubœa, and afterwards to the isle of Lesbos, both which places his valour and abilities had recovered for the republic, and which, being chosen as his residence in disgrace, sufficiently evince the mildness of his government, and his moderation in prosperity. Iphicrates travelled into Thrace, where he long resided; he had formerly married the daughter of Cotys, the most considerable of the Thracian princes, yet he lived and died in obscurity; nor did either he or Timotheus thenceforth take any share in the affairs of their ungrateful country. Thus did the social war destroy or remove Iphicrates, Chabrias, and Timotheus, the best generals whom Greece could boast; and, honest Phocion excepted, the last venerable remains of Athenian virtue. (See Gillies, vol. iii. p. 484.)

Sunk in idleness, amusement, and vice, the Athenians wanted nothing to complete their destruction but an ambitious and enterprising foreign enemy. This they found in Philip,

Philip, king of Macedon, who first extended his power in countries not immediately connected with Greece, and at the same time increased the means of farther extension. Meanwhile a war broke out in Greece; first between the Thebans and Phocians, concerning lands annexed to the temple of Delphi, which afterwards involved the greater part of Greece, and among others the Athenians. Philip, taking advantage of these dissensions, marched towards the interior of Greece, knowing that the Athenians were the most immediately interested to oppose his progress, and the ablest, if they exerted themselves, to do it effectually; he directed a great part of his policy to the prevention of those exertions. He was aware that in a democracy the governors are the tools of the demagogues; by flattery, by caresses, and by bribery, he effectually procured the favour of those leaders of the populace. One patriot, however, he could never corrupt; Demosthenes exerted the whole force of his energetic eloquence (from B.C. 356 to 336) to rouse the Athenians to a sense of their danger, from the encroachments of Philip. (For the nature and character of Demosthenes's eloquence, see article DEMOSTHENES.) This powerful orator occasionally roused his countrymen from their lethargy, but never to such great exertions as he declared necessary, and as the circumstances required: on gaining some partial advantages, they returned to their indolence and licentiousness. Philip amused them by embassies, seduced them by their demagogues, and continued his encroachments: when they should have been sending powerful armaments, they sent ambassadors: these, Demosthenes excepted, Philip corrupted; and the interests of the Athenians were betrayed. In vain Demosthenes demonstrated the views of Philip, and treachery of the demagogues: he could not stimulate them to vigorous and persevering efforts, until Philip's power became too formidable for resistance. A combination of the states of Greece was at length formed against Philip; but too late to be successful. The allies were totally defeated at Chæronea (B.C. 338), and the Athenians became a dependency of Macedon. A popular writer (see Travels of Anacharsis, vol. i. p. 112.) observes, that the history of the Athenians, properly speaking, commences about 150 years after the first olympiad; and concluded at the battle of Chæronea, it contains scarcely more than 300 years. In this series of years it is easy to discover certain important intervals, which mark the rise, progress, and decline of their empire; and if these æras be distinguished by characteristic names, the first may be called the age of Solon, or of the laws; the second, the age of Themistocles and Aristides, or the age of glory; and the third, that of Pericles, or the age of luxury and the arts.

The Athenians after the battle of Chæronea never recovered their importance. During the contests of Alexander's successors, they followed the fortunes of different chieftains, but chiefly adhered to the side of Demetrius and his descendants, who established themselves on the throne of Macedon. When the intrigues of the second Philip with the renowned Hannibal provoked the Romans to invade Greece, the Athenians joined the invaders, and Athens became the dependent ally of the conquerors. In the Mithridatic war, Athens having been conquered by the Asiatic monarch, was besieged by Sylla (B.C. 87), who took and plundered their city, demolished its walls and fortifications, butchered its inhabitants, and reduced it to a state of desolation. When this storm subsided, Athens enjoyed profound tranquillity till the civil war broke out between Cæsar and Pompey, when it took part with the latter, and was reduced to great straits by Calenus, the lieutenant of Cæsar. Disappointed in their hopes of being relieved by

Pompey, the Athenians surrendered at discretion, and were more kindly treated than they expected; for Cæsar not only pardoned them, but took them under his protection, alleging "that he spared the living for the sake of the dead." But averse from servitude, they no sooner heard of Cæsar's death than they openly declared for his murderers; receiving Brutus and Cassius into their city, and even erecting statues to them, which were placed next to those of Harmodius and Aristogiton. After the defeat of Brutus and Cassius, they attached themselves to Antony, who restored them to their former privileges, and enlarged their dominions, by subjecting to Athens the islands of Cea, Sciathus, Paparathus, and Ægina. Of this island, however, they were deprived by Augustus, and forbidden to sell the freedom of their city, as a punishment which he inflicted upon them for their ingratitude to Julius Cæsar. Towards the latter end of the reign of Augustus, they revolted, but were soon reduced to their former obedience. Germanicus, the adopted son of Tiberius, honoured them with the privilege of having a lictor, which was considered as a mark of sovereign power. This grant was confirmed to them by Tiberius and his successors, under whose protection they maintained their ancient form of government till the reign of Vespasian, who reduced Attica, with the rest of Greece, to a Roman province, saying, "that the Greeks knew not how to enjoy their liberty." But the emperor Adrian, who had been prætor of Athens before his accession to the imperial dignity, restored them to the full enjoyment of their former privileges. He repaired the two ports of the Piræus and Munychia, and added a whole district of new buildings to the old city. This quarter was called Adrianopolis, from Adrian, whom the Athenians styled the second founder of their city. The privileges granted by Adrian were confirmed and extended by his successors M. Antoninus Pius and M. Antoninus the philosopher. Severus abridged them of many privileges in revenge for an affront which he received at Athens, while he studied in that city. They were favoured by Valerian; but the city was taken and plundered by the Goths in the reign of Gallienus, or of Claudius (A.D. 267 or 268); but the invaders were soon obliged, by a precipitate flight, to abandon their new conquest. Constantine the Great was a peculiar patron and benefactor of the Athenians. He honoured their chief magistrates with the title of grand duke, an office at first annual, but afterwards hereditary; and granted them many privileges, which were confirmed and enlarged by Constantius, who also put them in possession of several islands in the Archipelago. In the time of Theodosius I. 380 years after Christ, the Goths laid waste Thessaly and Epirus; but Theodore, general of the Aethians, preserved the cities of Greece from pillage; and a statue of marble was erected to him at Athens by order of the city. During the reigns of Arcadius and Honorius, the Athenians were cruelly harassed and pillaged by the Goths under Alaric (A.D. 396), who reduced all their stately and magnificent structures into heaps of ruins, and removed the invaluable treasures of antiquity. Synæsius, a writer of that age, says, that Athens resembled the bleeding and empty skin of a slaughtered victim. After Athens became only part of a Roman province, it still remained the central point in the republic of letters, and continued to be frequented by all who desired to acquire that atticism so highly valued by the ancients, and that standard taste which enabled them to estimate, with peculiar accuracy, the real beauties of every work of genius and art. Here too, and here only, were to be learned the true principles of eloquence. All, therefore, who applied themselves to public speaking, and

Cicero in particular, repaired to Athens, to study under the ablest masters of oratory. Thither did the same Cicero send his son to hear the lectures of Cratippus; thither Horace was sent by his father; every Roman of any rank or consideration followed the same course; and Greek learning, according to the testimony of Plutarch, was accounted so requisite a branch of education among that judicious people, that a Roman who did not understand the Greek language, never arrived at any high degree of estimation. When St. Paul visited Athens, it was the seat of philosophy; and we cannot enough admire the superior eloquence of that apostle, in his manner of addressing so intelligent an audience. He adapted his discourse to the character of his hearers, by the sublimity of its exordium; and he very properly mentioned the altar which he found there (see *ALTAR*); and his quotation from Aratus, one of their well-known poets, was particularly pertinent. Nor was Athens only celebrated for the residence of philosophers, and the institution of youth; men of rank and fortune found pleasure in a retreat which contributed so much to their liberal enjoyment. The progressive state of literature and philosophy at Athens, is thus described by a popular historian:

"Athens, after her Persian triumphs, adopted the philosophy of Ionia and the rhetoric of Sicily; and these studies became the patrimony of a city, whose inhabitants, about thirty thousand males, condensed, within the period of a single life, the genius of ages and millions. Our sense of the dignity of human nature, is exalted by the simple recollection, that Isocrates was the companion of Plato and Xenophon; that he assisted, perhaps with the historian Thucydides, at the first representations of the Oedipus of Sophocles and the Iphigenia of Enripides; and that his pupils Æschines and Demosthenes contended for the crown of patriotism in the presence of Aristotle, the master of Theophrastus, who taught at Athens with the founders of the Stoic and Epicurean sects. The ingenious youth of Attica enjoyed the benefits of their domestic education, which was communicated without envy to the rival cities. Two thousand disciples heard the lessons of Theophrastus; the schools of rhetoric must have been still more populous than those of philosophy; and a rapid succession of students diffused the fame of their teachers, as far as the utmost limits of the Grecian language and name. Those limits were enlarged by the victories of Alexander; the arts of Athens survived her freedom and dominion; and the Greek colonies which the Macedonians planted in Egypt, and scattered over Asia, undertook long and frequent pilgrimages to worship the muses in their favourite temple on the banks of the Ilissus. The Latin conquerors respectfully listened to the instructions of their subjects and captives; the names of Cicero and Horace were enrolled in the schools of Athens; and after the perfect settlement of the Roman empire, the natives of Italy, of Africa, and of Britain, conversed in the groves of the academy with their fellow-students of the East. The studies of philosophy and eloquence are congenial to a popular state, which encourages the freedom of inquiry, and submits only to the force of persuasion. In the republics of Greece and Rome, the art of speaking was the powerful engine of patriotism or ambition; and the schools of rhetoric poured forth a colony of statesmen and legislators. When the liberty of public debate was suppressed, the orator, in the honourable profession of an advocate, might plead the cause of innocence and justice; he might abuse his talents in the more profitable trade of panegyric; and the same precepts continued to dictate the fanciful declamations of the sophist, and the

character beauties of historical composition. The systems which professed to unfold the nature of God, of man, and of the universe, entertained the curiosity of the philosophic student; and according to the temper of his mind, he might doubt with the sceptics, or decide with the stoics, sublimely speculate with Plato, or severely argue with Aristotle. The pride of the adverse sects had fixed an unattainable term of moral happiness and perfection: but the race was glorious and salutary; the disciples of Zeno, and even those of Epicurus, were taught both to act and to suffer; and the death of Petronius was not less effectual than that of Seneca, to humble a tyrant by the discovery of his impotence. The light of science could not indeed be confined within the walls of Athens. Her incomparable writers address themselves to the human race; the living masters emigrated to Italy and Asia; Berytus, in later times, was devoted to the study of the law; astronomy and physic were cultivated in the museum of Alexandria; but the Attic schools of rhetoric and philosophy maintained their superior reputation from the Peloponnesian war to the reign of Justinian. Athens, though situate in a barren soil, possessed a pure air, a free navigation, and the monuments of ancient art. That sacred retirement was seldom disturbed by the business of trade or government; and the last of the Athenians were distinguished by their lively wit, the purity of their taste and language, their social manners, and some traces, at least in discourse, of the magnanimity of their fathers. In the suburbs of the city, the academy of the Platonists, the lyceum of the Peripatetics, the portico of the Stoics, and the garden of the Epicureans, were planted with trees and decorated with statues; and the philosophers, instead of being immured in a cloyster, delivered their instructions in spacious and pleasant walks, which, at different hours, were consecrated to the exercises of the mind and body. The genius of the founders still lived in those venerable seats; the ambition of succeeding to the masters of human reason, excited a generous emulation; and the merit of the candidates was determined, on each vacancy, by the free voices of an enlightened people. The Athenian professors were paid by their disciples, according to their mutual wants and abilities; the price appears to have varied from a mina to a talent; and Isocrates himself, who derides the avarice of the sophists, required in his school of rhetoric, about thirty pounds from each of his hundred pupils. The wages of industry are just and honourable, yet the same Isocrates shed tears at the first receipt of a stipend; the Stoic might blush when he was hired to preach the contempt of money; and I should be sorry to discover, that Aristotle or Plato so far degenerated from the example of Socrates, as to exchange knowledge for gold. But some property of lands and houses was settled by the permission of the laws, and the legacies of deceased friends, on the philosophic chairs of Athens. Epicurus bequeathed to his disciples the garden which he had purchased for eighty minæ or two hundred and fifty pounds, with a fund sufficient for their frugal subsistence and monthly festivals; and the patrimony of Plato afforded an annual rent, which, in eight centuries, was gradually increased from three to one thousand pieces of gold. The schools of Athens were protected by the wisest and most virtuous of the Roman princes. The library which Hadrian founded, was placed in a portico adorned with pictures, statues, and a roof of alabaster, and supported by one hundred columns of Phrygian marble. The public salaries were assigned by the generous spirit of the Antonines; and each professor, of politics, of rhetoric, of the Platonic, the Peripatetic, the Stoic, and the Epicurean philosophy, received an annual stipend of ten thousand drachmæ, or more than three hundred

dred pounds sterling. After the death of Marcus, these liberal donations, and the privileges attached to the thrones of science, were abolished and revived, diminished and enlarged: but some vestige of royal bounty may be found under the successors of Constantine; and their arbitrary choice of an unworthy candidate might tempt the philosophers of Athens to regret the days of independence and poverty. It is remarkable, that the impartial favour of the Antonines was bestowed on the four adverse sects of philosophy, which they considered as equally useful, or at least as equally innocent. Socrates had formerly been the glory and the reproach of his country; and the first lessons of Epicurus so strangely scandalized the pious ears of the Athenians, that by his exile, and that of his antagonists, they silenced all vain disputes concerning the nature of the gods. But in the ensuing year they recalled the hasty decree, restored the liberty of the schools, and were convinced by the experience of ages, that the moral character of philosophers is not affected by the diversity of their theological speculations."

But the schools of Athens were suppressed by an edict of Justinian; an edict, which excited the grief and indignation of the few remaining votaries of Grecian science and superstition. Seven friends and philosophers, Diogenes and Hermias, Eulalius and Priscian, Damascius, Isidore, and Simplicius, who dissented from the religion of their sovereign, resolved to seek in a foreign land the freedom of which they were deprived in their native country. Accordingly the seven sages sought an asylum in Persia, under the protection of Chosroes; but, disgusted and disappointed, they hastily returned, and declared that they had rather die on the borders of the empire, than enjoy the wealth and favour of the barbarian. These associates ended their lives in peace and obscurity; and as they left no disciples, they terminate the long list of Grecian philosophers, who may be justly praised, notwithstanding their defects, as the wisest and most virtuous of their contemporaries.

From the time of Arcadius and Honorius, nothing memorable concerning the Athenian state has been recorded in history till the thirteenth century, when it was in the possession of Baldwin, as Nicetas informs us, and unsuccessfully besieged by Theodorus Lascaris, one of the generals of the Greek emperor. In the 252 years, from A. D. 1204 to A. D. 1456, that elapsed between the first and last conquest of Constantinople; the possession of Greece was disputed by a multitude of petty tyrants. However, in the partition of the empire, the principality of Athens and Thebes was assigned to Otho de la Roche, a noble warrior of Burgundy, with the title of great duke. Otho followed the standard of Boniface, the Marquis of Montferrat; and the ample state which he acquired, was peaceably inherited by his son and two grandsons, till the family was changed by the marriage of an heiress into the elder branch of the house of Brienne. The son of that marriage, Walter de Brienne, succeeded to the duchy of Athens: but his family and nation were expelled by the Catalans, who seized possession of Attica and Boeotia. During fourteen years they were the terror of the Grecian states. Their factions drove them to acknowledge the sovereignty of the house of Arragon; and, during the remainder of the fourteenth century, Athens, as a government or an appendage, was successively bestowed by the kings of Sicily. After the French and Catalans, the third dynasty was that of the Acciaïoli, a family, plebeian at Florence, potent at Naples, and sovereign in Greece. Athens, which they embellished with new buildings, became the capital of a state, that extended over Thebes, Argos, Corinth, Delphi, and a part of Thessaly;

and their reign was finally determined by Mahomet the second, about the year 1455, who strangled the last duke, and educated his sons in the discipline and religion of the seraglio. This fatal catastrophe, which happened near 2000 years after the time of Pisistratus, brought Athens, together with the whole of Greece, under the despotic dominion of the Turks. In 1464, the Venetians landed at the Piræus, surprised the city, and carried off their plunder and captives to Eubœa. In 1687, it was taken, after a short siege, by the Venetians; and not many years after, retaken by the Turks, under whose yoke it has ever since continued.

"As to the present state of Athens, though no more than the shadow of its former self, it still contains about 8 or 10,000 inhabitants: of these, three fourths are Greeks in religion and language; and the Turks, who compose the remainder, have relaxed, in their intercourse with the citizens, somewhat of the pride and gravity of their national character. The olive-tree, the gift of Minerva, flourishes in Attica; nor has the honey of mount Hymettus lost any part of its exquisite flavour: but the languid trade is monopolized by strangers: and the agriculture of a barren land is abandoned to the vagrant Walachians. The Athenians are still distinguished by the subtlety and acuteness of their understanding: but these qualities, unless ennobled by freedom and enlightened by study, will degenerate into a low and selfish cunning: and it is a proverbial saying of the country, "From the Jews of Thessalonica, the Turks of Negropont, and the Greeks of Athens, good Lord deliver us!" This artful people has eluded the tyranny of the Turkish bashaws, by an expedient which alleviates their servitude and aggravates their shame. About the middle of the last century (the 17th) the Athenians chose for their protector the Kissar Aga or chief black eunuch of the seraglio. This Ethiopian slave, who possesses the sultan's ear, condescends to accept the tribute of 30,000 crowns: his lieutenant, the Waywode, whom he annually confirms, may reserve for his own about five or six thousand more; and such is the policy of the citizens, that they seldom fail to remove and punish an oppressive governor. Their private differences are decided by the archbishop, one of the richest prelates of the Greek church, since he possesses a revenue of 1000l. sterling; and by a tribunal of the eight geronti or elders, chosen in the eight quarters of the city: the noble families cannot trace their pedigree above 300 years; but their principal members are distinguished by a grave demeanour, a fur-cap, and the lofty appellation of archon. By some, who delight in the contrast, the modern language of Athens is represented as the most corrupt and barbarous of the seventy dialects of the vulgar Greek: this picture is too darkly coloured; but it would not be easy, in the country of Plato and Demosthenes, to find a reader, or a copy of their works. The Athenians walk with supine indifference among the glorious ruins of antiquity; and such is the debasement of their character, that they are incapable of admiring the genius of their predecessors." Gibbon's Hist. vol. xi. p. 355, &c. For the modern account of Athens and the Athenians, see Spon, Voyage en Grèce, t. ii. p. 79—199; Wheeler's Travels into Greece, p. 337—414; Stuart and Rivett's Antiquities of Athens, vols. i. ii. and iii. passim; and Chandler's Travels into Grèce, p. 23—172. It is now called ATHINI, and SETINES; which see.

ATHENIANS, *Character and Manners of the*. These people were highly susceptible of lively and transient sensations, and, accordingly, they stand distinguished beyond all other nations for uniting the most discordant qualities, and such as were often perverted and made occasions of misleading them. History represents them to us (see the authorities

ties cited in the "Travels of Anacharsis," vol. ii. p. 260.), sometimes as an old dotard, who may be deceived with impunity; or as an infant who requires continual amusement; and sometimes as displaying the discernment and sentiments of elevated minds; as passionately fond of pleasure and of liberty, of indolence and of glory; or intoxicated with flattery, and yet receiving merited reproach with applause; as possessing penetration to apprehend at a word the plans proposed to them, but too impatient to listen to the particulars, or to foresee their consequences; as making their magistrates tremble before them, and at the same moment pardoning their most bitter enemies; as passing with the rapidity of lightning from rage to compassion, from despondence to insolence, from injustice to repentance; as beyond conception fickle; and so frivolous, that in the most furious, and even the most desperate situation of their affairs, a single word spoken at random, a happy fall of pleasantry, the smallest object, the most trivial incident, provided it were unexpected, sufficed to dispel their fears, or to divert them from attention to their most important interests. As nothing was more easy than to excite and inflame the passions of such a people, it was equally easy to acquire, and also to lose, their confidence. A popular leader, whilst in favour with them, might without difficulty persuade them to adopt good or evil measures with an equal degree of ardour. When guided by firm and virtuous men, they bestowed public offices of trust or power on those, who united great abilities with eminent virtue: at other times, they made a choice at which they ought to have blushed; and they were thus frequently the sport of flattering orators and ambitious tyrants. Such, however, was their inherent detestation of tyranny, that they were extremely jealous, on many memorable occasions, of their privileges, and both zealous and active in defence of their liberty, whenever they thought it attacked and violated by men in power. Indeed, an ardent love of liberty was their predominant quality, and the main spring of their government. They left, without hesitation, their cities and their houses, to fight at sea or by land the common enemy, who threatened them with the danger of servitude. It was a glorious day for Athens, when, all her allies yielding to the advantageous offers of the king of Persia, she replied by Aristides to the ambassadors of that monarch; "that it was impossible for all the gold in the world to tempt the republic of Athens, and to prevail with her to sell her liberty, and that of Greece." By such sentiments, and a conduct actuated by them, the Athenians not only became the bulwark of Greece, but likewise guarded the rest of Europe from a Persian invasion. The Athenians, however, notwithstanding their attachment to the rights of their country, and the jealousy with which they watched over them, were volatile, capricious, and inconstant; and this disposition betrayed them into errors, incompatible with true patriotism. Whilst the Athenians indulged views of conquest that were extensive and astonishing, they were, in private life, and in their domestic arrangements and expenditure, frugal, simple, and unostentatious; but when the honour of the state required it, sumptuous and magnificent. Their conquests, their riches, and their connections with the inhabitants of Asia Minor, never betrayed them into luxury, pomp, and profusion. Xenophon observes, that a citizen was not distinguished from a slave by his dress: and it is remarked with approbation by Demosthenes, that in the best times of the republic, the houses of Themistocles and Aristides could not be distinguished from those of their neighbours. The wealthiest citizen, and the most renowned general, were not ashamed to go themselves to market. In the form and disposition of the several articles of dress, the men

were expected to study decency, and the women to unite elegance with taste. The latter, whenever they went out, wore a veil over their heads: and they painted their eye-brows black, and applied to their faces a layer of ceruse or white lead, with deep tinge of rouge. Their hair, which they crowned with flowers, was sprinkled over with a yellow-coloured powder. Shut up in their apartments, they never participated in the pleasures of the companies assembled by their husbands. In the day, the law permitted them to go out only on certain occasions, and never in the night time, but in a carriage, and with a flambeau to light them; but notwithstanding the restraint of this law, the women of the lower classes indulged themselves with greater liberty. In public festivals they were present at the spectacles as well as the ceremonies of the temple; but they were generally attended by eunuchs, or female slaves. At an early period the Athenians were so jealous, that they would not permit their women to show themselves at the window; but this restraint was gradually relaxed, and several laws were introduced to guard against seduction and infidelity. (See ADULTERY.) M. de Pauw, in his "Recherches Philosophiques sur les Grecs," on the authority of Athenæus and Plutarch, represents the Athenian matrons as addicted to drunkenness, and the most dissolute sensuality: he says that they were turbulent and quarrelsome, and that, notwithstanding all the concessions of their husbands, domestic peace was very seldom found in their habitations. It is certain, that the feasts of Bacchus, and some other religious institutions which the women claimed a right to celebrate, could not tend to inspire either gentleness of manners or purity of morals. Courtezans were protected at Athens by the laws, but the public manners were contaminated by this licence. Females of this description, however, were not allowed to appear in the streets with rich trinkets or jewels, nor were men in office permitted to appear with them in public. The Athenians were naturally abstemious; their chief food consisted of salt meat and vegetables. The necessities of the poor were supplied either from the public treasury, or other means. In Athens there were several societies, the members of which entered into a solemn engagement to assist each other in cases of judicial prosecution; and there was one society, whose only object was to observe and collect every species of ridiculous absurdity, and to divert itself with pleasantries and bon-mots. At Athens, a small number of citizens enriched themselves by commerce, and by silver mines which they possessed at Laurium. Others deemed themselves masters of a decent fortune when they possessed estates to the value of fifteen or twenty talents (the talent being equal to about 225 l. sterling), and when they were able to give their daughters a marriage portion of 100 minæ, or about 375 l. sterling.

The taste of the Athenians for literature and science is well known. The inhabitants of Athens, says Cicero (De Orat. and Orat. pro Flacco), were the inventors of all learning, the men who invented and perfected eloquence, and from whom humanity, learning, religion, and laws were dispersed through the whole world; nevertheless, he adds, "they only knew what was right, but would not do it." When the Athenians, says the ingenious Mr. Harris (Philosophical Inquiries, part. iii. c. 3.), had delivered themselves from the tyranny of Pisistratus, and after this had defeated the vast efforts of the Persians under Darius and Xerxes, they may be considered as at the summit of their national glory; and for more than half a century afterwards, they maintained, without control, the sovereignty of Greece. As their taste was naturally good, arts of every kind soon arose among them, and flourished.

Valour had given them reputation; reputation gave them an ascendant; and that ascendant produced a security, which left their minds at ease, and gave them leisure to cultivate every thing liberal or elegant. It was then that Pericles adorned the city with temples, theatres, and other beautiful public buildings. Phidias, the great sculptor, was employed as his architect, who, when he had erected edifices, adorned them himself, and added statues and basso-relievos, the admiration of every beholder. It was then that Polygnotus and Myro painted; that Sophocles and Euripides wrote; and not long after that they saw the "divine" Socrates. Although their military strength and political sovereignty were impaired by the Lacedæmonians, humiliated by the Thebans under Epaminondas, and wholly crushed by Philip the Macedonian; yet, happily for mankind, their love of literature and arts did not sink along with it. Just at the close of their golden days of empire, flourished Xenophon and Plato, the disciples of Socrates, and from Plato descended that race of philosophers called the "Old Academy," which was succeeded by the "New Academy." (See ACADEMY.) With the study of philosophy was united that of rhetoric, upon which treatises were written by the ablest Greek philosophers. To this object they were incited by the intrinsic beauty of their language, as it was then spoken among the learned and polite. The same love of elegance which made them attend to their style, made them attend even to the places where their philosophy was taught. Such was the Academy of Plato; the Lyceum of Aristotle; the portico or colonnade of Zeno, the walls of which were decorated by various paintings of Polygnotus and Myro; and the gardens of Epicurus. These public institutions were called among the Greeks by the name of *Gymnasia*, in which were taught all those exercises, and all those arts, which tended to cultivate not only the body but the mind. Dr. Gillies, in his, "History of Greece," has dwelt with a degree of enthusiasm on the advantages, both natural and moral, resulting from the gymnastic exercises and public games; but M. de Pauw (*ubi supra*), differs in opinion, asserting that nothing could be more pernicious, or tend more to enervate the human race, than these exercises. As to the moral advantages of these public games, it is not very easy to decide; but their physiological effect is much less questionable, and cannot be justly disputed.

ATHENS, *Population of*. From comparing the several accounts of the population of Attica in the time of Pericles, of Demosthenes, and of Demetrius Phalereus, M. de Pauw (*ubi supra*) conjectures, that the number of citizens was preserved nearly at the same level, in consequence of the adoption of strangers, to repair the extraordinary devastations of war and disease, and of emigrations, when the number exceeded that which the rules of policy had established; this was 20,000 men; and he supposes that there was an equal number of women. In the time of Demetrius Phalereus, the strangers settled in Attica amounted to 10,000, and the slaves to 400,000; so that the whole number may be estimated at 450,000 to about eighty-six square leagues of territory, or above 5000 on an average to each square league. This, he observes, is a much greater population than that of France, which, according to M. Nicer's calculations, contains not more than 900 inhabitants to a square league.

The people of Athens were comprehended under the classes of freemen or citizens, *Πολῖται*; sojourners, or *Μετοικοί*; and slaves, or *Δουλοι*. Cecrops distributed them into four *φυλæ*, or tribes, each tribe being subdivided into three parts, and each of these into thirty families. The names of the tribes

were different at different æras: and their number was increased by Clithenes to ten; and they were afterwards augmented to twelve. These tribes had public feasts, at which they met to promote friendship and good neighbourhood. To each tribe belonged several little boroughs in Attica, called *ἄμμοι*; of these there were 174, besides other boroughs that belonged to no particular tribes. It was enacted, that all strangers who intended to live at Athens, should be compelled, after a short residence, to enroll their names among the free citizens, and that none but persons of eminent meritorious character should be citizens. This privilege was conferred by the popular assembly. It was also enacted, that none should reside as free citizens at Athens, except those who were banished from their own country, or who voluntarily settled there with their whole families. They were admitted to their rights by certain ceremonies, and enrolled in a certain tribe. Solon decreed, that none should be accounted free but such as were Athenians both by father and mother: this regulation was revived, after dispute, by Pericles, and at his motion repealed; and after the expulsion of the thirty tyrants, Solon's law was restored. In the Cynosarges there was a court of judicature, to which causes of illegitimacy belonged; and great care was taken that none should be enrolled as citizens, whose title was not examined and proved.

The *Μετοικοί*, or sojourners, were those who came from a foreign country and settled in Attica, being admitted by the council of Areopagus, and publicly registered. Of these, several services were required; and both men and women paid an annual tax. Those who failed to pay it were seized and exposed to sale by the officers of the public revenue: such, according to Diogenes, was the fate of Xenocrates, the philosopher; but those who rendered any service to the public, were exempted from the payment of all imposts, except such as were demanded of free citizens. Such persons as did not constantly reside at Athens, were called *ξένοι*, or strangers.

The slaves were of two sorts; such as became so from poverty, the chance of war, or the perfidy of those who trafficked in them, and who were at liberty to change their masters, and to release themselves from servitude; and such as were at the absolute disposal of their masters. Slaves were not allowed to imitate freemen in their dress and manners. They were forbidden to wear long hair, and what is more astonishing, Solon prohibited them to love boys, as if this practice were honourable: they were not permitted to plead for themselves, or to be witnesses in any cause; confession was extorted from them by torture; nor were they allowed to worship certain deities, to be called by honourable names, and to bear arms. They were reduced to obedience, and punished by corporal severities; they were sometimes marked on the forehead, or stigmatized in any other part of the body. Nevertheless they were allowed at Athens to take refuge in the temple of Theseus, when they were oppressed, and it was sacrilege to force them from it. They were allowed to bring an action against their masters for ill treatment, and against those who injured them; and in various respects their condition was preferable to that of slaves in other places, as they might purchase their freedom, and were sometimes advanced to the dignity of citizens. In the first day of every month, the merchants, called *αιδεκαποδοκαπηλοι*, exposed them for sale in the slave-market. In the time of Adrian, masters were prohibited from putting their slaves to death.

ATHENS, *Magistrates and Government of*. By the law of Solon no man who had not a good estate, could bear the office of a magistrate; but by the law of Aristides, every man

man was admitted to a share in the commonwealth; but before he was admitted, he was obliged to give an account of his past life before judges in that part of the forum called Δοκιμασία. It was a capital crime for a person to enter on his office in debt. The magistrates of Athens were of three sorts, viz. Χειροτονήτοι, who were elected by the people, and so called because chosen by holding up of hands; Κληρωτοί, who were promoted by lots drawn by the Thesmothetæ, in the temple of Theseus; and Αἰετοί, who were extraordinary officers appointed by particular tribes, to superintend public affairs. The magistrates entered on their office on the first day of the month Hecatombæon. The first and most important of these magistracies was that of the archons. (See ARCHON.) Among the inferior magistrates may be reckoned the NOMOPHYLACES, PHYLARCHI, PHYLOBASILES, PHRATRIARCHI, DEMARCHI, LEXIARCHI, ΤΟΧΟΤÆ, and NOMOTHETÆ, to whom were added the RHETORES; which see respectively. There were other magistrates who had the superintendence and regulation of the general assembly of the people called ECCLESIA; such as the EPISTATES, PRYTNES, and PROEDRI. (See also SENATE, and PRYTANEUM.) The courts of justice, exclusive of the AREOPAGUS, were ten in number, of which four had cognizance of criminal, and six of civil causes. These courts were painted with various colours, and on each was engraven one of the ten first letters of the Greek alphabet; and hence they were denominated Alpha, Beta, &c. The names of those who were to hear and determine causes, and the names also of their father and borough, inscribed upon a tablet, were delivered to the Thesmothetæ, who returned it with another tablet on which was inscribed the letter of one of the courts according to the lots. These tablets were carried to the crier of the several courts directed by the letters, who gave to every man a tablet inscribed with his own name and the name of the court in which he was to sit; and having received a sceptre, the usual ensign of judicial power, they were severally admitted into the court. When their respective causes were determined, they returned the sceptre to the Prytanes, from whom they received their due reward, sometimes one obolus, and sometimes three oboli. No man was allowed to sit in more than one court in a day; and if they were convicted of bribery, they were fined. The first criminal court after the Areopagus was that of the ΕΡΗΤÆ; the second was called DELPHINIUM; the third, PRYTANEUM; and the last PHREATUM; see the respective articles. Of the judicatory courts for civil causes, the first was the PARABUSTON; the second, the CAINON; the third, TRIGONON; the fourth, the court of LYCUS; the fifth, that of METICHUS; and the sixth, HELIÆA. All the Athenians who were free citizens were allowed to sit in these courts as judges; but they were previously obliged to take a solemn oath, by Apollo Patrius, Ceres, and Jupiter the king, that they would pass a just sentence, and according to law, and to the best of their judgment. This oath was administered near the river Ilysus, in a place called "Ardettus" from a person of that name, who, in a public sedition, united the contending parties, and engaged them to confirm their treaties of peace by mutual oaths in this place; whence common swearers were called ἀρδῆται. There were other courts of less consequence, where the δικάστηται, or τεσσαροκόνται, or other magistrates, took cognizance of causes belonging to their several offices. Such were the courts at Cynofarges, Odeum, the temple of Theseus, Bucleum, &c. In the judicial process, the plaintiff delivered to the magistrate the name of the person against whom he brought his action, with an account of his offence; this was followed by an inquiry on the part of the magistrate, whether

it belonged to his cognizance, and whether it ought to be tried, called "Anacrisis;" the plaintiff then, with permission of the magistrate, summoned his adversary to appear; but if he refused to appear, he was dragged by force. When both plaintiff and defendant were before the magistrate, he inquired of the former whether the witnesses were all ready, which was the second "Anacrisis;" when no plea was urged on the part of either plaintiff or defendant for putting off the trial, an oath was administered to both parties. These oaths, with those of the witnesses, and other matters relating to the action, were written upon tablets, and deposited in a vessel, which was delivered to the judges. The judges, being appointed by lots, took their places at the assigned day in the tribunal. The magistrate then proposed the cause to them, and gave them authority to determine it. The public crier read the indictment containing the grounds of the accusation which were noted down by the judges. If the defendant did not appear, sentence was immediately passed against him; but if he presented himself within ten days, assigning reasons for his absence, the former sentence was reversed, and the trial was to be brought forward by the defendant within two months; but if it was not brought on, the former sentence was confirmed. Before trial, both parties deposited a sum of money in the hands of the magistrate, who introduced their cause into the court, who, if the money was not paid, erased their cause from the roll. The deposit, which was 3 drachmas for a cause of the value of 100 drachmas to 1000; and 30 for more than 1000 and less than 10,000; was divided among the judges; and the person who lost his cause, restored the money to his adversary, and paid the charges. The witnesses in the trial were to be free-born, and deserving of credit; and they were considered as infamous if they had forfeited their privileges by misconduct. The testimony was sometimes given aloud in open court, and sometimes in writing upon a tablet of wax. If the parties required it, they were allowed advocates, whose speeches were limited as to length of time, measured by a water-glass. When the parties had finished, the crier was commanded by the presiding magistrate, to order the judges to bring in their verdict; and where the law had provided penalties, a verdict of guilty or not guilty was sufficient; but where the laws were silent, another sentence was necessary, determining the punishment due to the offence. When the laws were silent, the judges might limit the punishment; sentence was at first given by black and white sea-shells called χοῖναι, or pebbles called ἄμφι; balls of brass were afterwards used, and then beans; the white beans were whole, and used to acquit; the black were bored through, to condemn. The cause while pending was engraved on a tablet and exposed to public view, and hung up at the statue of the heroes named Εὔωνμοι. If the person convicted was guilty, he was delivered to the Εὐδικα to receive punishment; but if he was fined, the Ταμίαι τοῦ βίου saw the fine paid; if unable to pay it, he was doomed to perpetual imprisonment. If the plaintiff had unjustly accused his adversary, he was sentenced to suffer that punishment which the law inflicted on the crime with which his adversary was accused. The plaintiff was called δικάων, the cause itself δίκη, and the accused φεύγων. Αἴτις was the name of the indictment before conviction, and εἰρηχός; after it. When the trial was closed the judges went to the temple of Lycus, returned their slaves, and received their money.

The Athenian judgments were of two kinds: public, concerning those crimes that affected the state, called κατήγορια, and all persons were encouraged by law to avenge the public wrong, by bringing the criminal to punishment; and private, concerning all controversies between private persons,

called *δικαι*; and no one could prosecute an offender except he who was injured, or some of his family. The public judgments were murder, malicious wounding, a conflagration of the city, poison, conspiracy against the life of another, sacrilege, punished with death, impiety, treason, fornication; whoredom, punishable by fine; celibacy; refusing to serve in war, and cowardice, punishable with infamy; desertion of the fleet and of the army, punished by fine; desertion from their post, as leaving the infantry for the cavalry; refusing to serve in the fleet, or losing their shield, punished with infamy; charging men with debts already paid, punished by fine; an action for false arrests, for beating a free-man or reducing him to slavery, assault or frivolous accusation, punished by a fine; receiving bribes for any public affair, or perverting justice, fined ten times the value of what they received, and punished with the greatest degree of infamy; for offering bribes for the perversion of justice, and particularly in causes relating to the freedom of the city; for erasing a name out of the public debt-book before the debt was discharged; digging a mine without the public knowledge, a twenty-fourth part of the metal belonging to the public; against magistrates who had neglected to surrender their accounts; for proposing a new law, and acting contrary to the established laws; against magistrates, ambassadors, and other public officers, who had misemployed the public money, or otherwise offended; against ambassadors who had forfeited their trust; against disaffected tumultuous persons; an action for debts due to the public, falsely charged upon those who had never paid the fines imposed upon them; for the discovery of any secret injury; and against such as exported corn from Attica, appropriated the public money or land, or for misapplying the property of orphans; against those who confessed their crimes without standing a trial; against those who protected murderers; and against such as had been guilty of certain state offences. Of private judgments, which were very numerous, the principal were against those who had done an injury punished with fine, an action of assault, a lawsuit generally for the recovery of an estate, a suit concerning relationship, an action of divorce, an action by a master or patron against his clients who were freed slaves, and who refused to perform the services incumbent upon them, an action against sojourners who neglected to chuse a patron, an action of ingratitude, against those who had violated the chastity of women, or injured the persons of men, an action concerning nuisance, against those who would not divide their property among just claimants, for demanding rent, against guardians who had defrauded their wards, of slander, by which the criminal was fined 500 drachmas, against those who had suborned false witnesses, against thieves, an action claiming an estate against those who refused to restore that with which they were entrusted, against those who would not fulfil their contracts, and a suit between debtors and creditors.

The criminal punishments of the Athenians were *αἰμίς*, infamy or disgrace; *βαρεθρον*, a deep pit into which condemned persons were cast headlong (See *BARATHRUM*); *βροχός*, or the ignominious punishment of hanging or strangling; *δεσμός*, the punishment of fetters or imprisonment; *δουλεία*, servitude, by which a criminal was reduced to the condition of a slave; *ζημία*, a peculiar fine laid upon the criminal, according to the nature of his offence; death inflicted for various offences; *κρημνός*, a precipice from which the malefactor was thrown headlong; *κνῶν*, a collar usually made of wood; *λιθοβολία*, lapidation, a common punishment for adultery; *ξίφος*, with which the criminal was beheaded; fetters with five holes; *πανσικκητή*, a round instrument to confine the hand; a cross, consisting of two beams laid

across one another, to which the malefactor was nailed; *σῆλη*, a pillar, on which the crimes of the offender were engraved; *σημάτα*, marks impressed with a hot iron upon slaves; *τυπάνη*, or *τυμπανα*, clubs, with which malefactors were beaten to death; *σχῶναι*, small cords, by which criminals were stretched upon the rack; *φαρμακόν*, poison, of which various sorts were used, but the most common was the juice of hemlock; *φύση*, or banishment, of which there were several sorts; *χωνίς*, the fetters, in which the legs were fastened; *σάνις*, a piece of wood to which the criminal was bound; *κνταποντισμός*, drowning in the sea; and *πῦρ*, or burning. Public honours and rewards were *ατελεία* (see *ATELEIA*), or an immunity from taxes and other public duties; *εἰκὼν*, the honour of a statue erected in any public place; *προεδρία*, or the liberty of the first seats at public entertainments; *σιτία*, an entertainment at the public expence, given to those who had deserved well of their country; and *σεφάνοι*, crowns conferred by the vote of the people in their public assembly, by the senators in council, by the tribes to their own members, and by the demotai in their own *δημός*, or borough.

As to the laws of the Athenians, it was a received opinion that they were taught the use of laws by Ceres; but it is certain that Theseus retained the privilege of making and preserving laws. Draco was the next law-giver, and his laws were called *θεσμοί*; these were all, except those of murder, repealed by Solon, whose laws were distinguished by the term *νόμοι*. The thesmothetæ swore to the observance of them, on the penalty of dedicating a statue as large as life to the Delphian Apollo; and the people were bound to obey them for a hundred years. Pisistratus afterwards assumed for himself, and left to his sons, the authority of a law-giver; but the laws of Solon were in some degree enforced by Cleisthenes, who himself added new ones. These continued in force till the Peloponnesian war, when the government was altered by the four hundred, and afterwards by the thirty tyrants. The ancient laws were again restored by Euclides, and others by the influence of Diocles, Aristophan, and afterwards by Demetrius Phalereus; and these, with Æschylus and Thales, were the chief legislators of Athens. (Suidas.) The laws were annually revised; and a new law was to be proposed before an old one could be repealed. Solon, and other law-givers who succeeded him, committed their laws to writing. The laws of Solon were engraved on tablets of wood; and some affirm, that the original in his hand-writing were always kept in the citadel, and copies of them in the prytaneum. The laws were all engraven on the wall in the *βασιλική σόα*, or royal portico, for the inspection of the public. This was the custom after the expulsion of the thirty tyrants.

ATHENIANS, Commerce of the. The harbour of Piræus was much frequented, not only by Grecian vessels, but also by those of the nations which the Greeks denominated Barbarians. But as the Athenians were actuated by the spirit of conquest, and aspired to the sovereignty of the sea, in order to obtain that of the land, they directed their attention to the navy with this view; and therefore their commerce was restrained to the procuring from other countries the commodities and productions necessary to their subsistence. Nevertheless, the Athenians adopted a variety of regulations, and enacted many laws for extending commerce, and preventing as much as possible the litigations and obstacles which impeded its operations. They inflicted a fine of a thousand drachmas (about 37l. 10s.), and sometimes the punishment of imprisonment, on him who accused a merchant of any crime which he was unable to prove. As Attica produced but little corn, the exportation of it

was prohibited; and those who fetched it from foreign countries were forbidden, under rigorous penalties, to carry it to any other market but that of Athens. A great quantity was brought from Egypt and Sicily; and a greater quantity, from Panticapæum and Theodosia, cities of the Chersonesus Taurica, because the sovereign of that country, the master of the Cimmerian Bosphorus, exempted the Athenian vessels from paying the duty which he levied on the exportation of that commodity. In consequence of this privilege, they traded in preference to the Cimmerian Bosphorus, from which Athens received annually 400,000 medimni of corn. The Athenians also imported from Panticapæum, and the different coasts of the Euxine sea, timber for building, slaves, salt, honey, wax, wool, leather, and goat-skins; from Byzantium, and other parts of Thrace and Macedonia, salt-fish and wood; from Phrygia and Miletus, carpets, coverlets for beds, and the fine wool of which they made their cloths; from the islands of the Ægean sea, wines of the various kinds of fruits which they produce; and from Thrace, Thessaly, Phrygia, and many other countries, a great number of slaves. Oil was the only commodity which Solon allowed them to exchange for foreign merchandize; the exportation of all other productions from Attica was prohibited; nor was it permitted to carry out of their country, without paying heavy duties, the timber of the fir, the cypress, the plane, and other trees which grew in the environs of Athens. In their silver mines the Athenians found a great resource for their commerce. As several states debased their coin, the money of Athens, in greater estimation than that of other countries, procured for them an advantageous exchange. In general, they purchased wines in the islands of the Ægean sea, or on the coasts of Thrace; for it was principally by means of this commodity that they trafficked with the people who inhabited the borders of the Euxine sea. The taste conspicuous in the works of their artists, rendered the productions of their skill and industry desirable; so that they exported to distant countries swords and arms of different kinds, cloths, beds, and various utensils. Books were with them also an article of trade. They maintained correspondents in almost all the places to which they were attracted by the hope of gain; and, on the other hand, many of the states of Greece appointed agents at Athens to superintend the interests of their trade. The Athenians for the most part employed their money in trade; but they were not allowed to lend it for any place but Athens. The lender had his security on the merchandize or goods of the borrower; and as the dangers of the sea were partly risked by the former, and the profit of the latter might be very considerable, the interest of money thus lent might rise as high as 30 per cent. more or less, according to the length and hazards of the voyage. The landed interest amounted to 12 per cent. per annum, sometimes to 16 per cent. monthly, and among the lower classes of the people, the quarter of the principal was exacted for daily interest. Commerce, by increasing the circulation of wealth, gave rise to the occupation of bankers, and thus its circulation was still more facilitated.

ATHENS, *Money of*, was of three sorts. Silver was first coined, afterwards gold, and lastly copper. The most common coins were those of silver, and they were of different value. Above the drachma (qd. English), consisting of six oboli, was the didrachma, or double drachma, and the tetradrachma, or quadruple drachma; below it were the pieces of 4, 3, and 2 oboli; after which were the obolus and semiobolus (i. e. 6d. $\frac{1}{2}$ d. 3d. $\frac{1}{2}$ d. and $\frac{3}{4}$ d. English). The latter being found inconvenient for common use, copper money was coined about the beginning of the Peloponnesian war, and pieces of that metal were struck, which were not

worth more than the eighth part of an obolus. The largest piece of gold weighed two drachmas, and was worth twenty silver drachmas (i. e. fifteen shillings English). Gold was very scarce in Greece; it was brought from Lydia and Macedonia, where the peasants collected the small pieces which the rains washed down from the neighbouring mountains. See MONEY.

ATHENS, *Revenues of*, sometimes amounted to the sum of 2000 talents or 450,000l. and these revenues were of two kinds; those which were raised in the country itself, and those that were drawn from the tributary cities and states. The first class comprehended the product of the houses, lands, and woods, appertaining to the republic, and farmed out for a certain sum; the twenty-fourth part reserved from the silver mines, payable by individuals who had permission to work them; the annual tribute received from freedmen and the 10,000 foreigners settled in Attica; the fines and confiscations, the principal of which went into the treasury of the state; the fifth; levied on corn and other merchandize imported, and also on several commodities that were exported from the Piræus; which, during the Peloponnesian war, were farmed at thirty-six talents (8100l.); and a number of other taxes of less importance, yielded by commodities sold in the market, and levied on such as kept courtezans in their houses. Most of these duties were farmed; and the farmers remitted, before the ninth month of the year, the sum stipulated to the receivers of the revenue. The second and principal branch of the revenues of the state, consisted in the tributes which were paid by a number of cities and islands dependent upon it. Its claims of this kind were founded on the abuse of power. After the battle of Platæa, the conquerors having resolved to revenge on Persia the insults offered to Greece, the inhabitants of the islands who had entered into the league agreed to set apart every year a considerable sum to defray the expences of the war. The Athenians collected in different places 460 talents (103,500l.); and by degrees, as their power increased, they changed the gratuitous contributions of the allied cities, into an humiliating exaction, imposing on some the obligation to provide ships whenever they should be called upon, and demanding of others the annual tribute to which they had formerly subjected themselves. In the same manner they taxed their new conquests, and the sum total of the foreign contributions amounted, at the beginning of the Peloponnesian war, to 600 talents (135,000l.); and towards the middle of the same war, to twelve or thirteen hundred. The conquests of Philip reduced this sum to 400 talents, and the Athenians flattered themselves they should again be able to advance it to 1200 (270,000l.). The 460 talents drawn annually from the states leagued against the Persians, and deposited by the Athenians in the citadel, at first amounted to the sum of 10,000 talents (2,250,000l.) according to Isocrates (t. i. p. 395.); or 9700 (2,182,500l.) according to Thucydides (l. ii. c. 13.). Pericles, during his administration, had laid up 8000; but having expended 3700, either in the embellishment of the city, or the expences of the siege of Potidæa, the 9700 were reduced to 6000 (1,350,000l.) at the beginning of the Peloponnesian war. This war was suspended by a truce, which the Athenians entered into with the Lacedæmonians, and the contributions which they had then received amounted to 12 or 1300 talents; and during the seven years of the truce, they placed 7000 talents (1,575,000l.) in the public treasury. These revenues, however considerable, were insufficient to defray the expences of the state; and recourse was frequently had to free gifts and forced contributions. Of all the branches of public expenditure, the maintenance of the navy was the most heavy; when an armament was

to be fitted out, each of the ten tribes levied in its district the same number of talents as there were galleys to be equipped, and demanded them from the same number of companies, composed sometimes of sixteen persons liable to contribute. Demosthenes made an amendment in the mode of assessing this tax. The decree proposed by him for this purpose was as follows: every citizen, whose fortune amounted to ten talents, was to furnish the state with one galley; if he possessed twenty talents, with two; and however rich he might be, no more should be required of him than three galleys and a shallop. Those whose substance was less than ten talents were to join in contributing a galley.

ATHENIANS, Religion of the. From the earliest times the objects of religious worship multiplied among the Athenians. They received the twelve principal divinities from the Egyptians, and others from the Libyans and different nations; and they were so fearful of omitting religious worship, that they even erected altars to the unknown God. (Pausan. in Attic.) See ALTAR. In process of time a law was enacted, prohibiting, under pain of death, the introduction of any foreign worship, without a decree of the areopagus. It was an ancient practice, to consecrate, by monuments and festivals, the memory of kings, and other distinguished persons, who had rendered essential service to their country, or to mankind. To this class the Athenians referred Theseus, Erechtheus, such as deserved to have their names appropriated to the ten tribes, and many others, as Hercules, &c. But the worship of the latter differed from that of the gods, in the ceremonies that accompanied it, as well as in the object to which it was directed. Before the deity they prostrated themselves, imploring his protection, thanking him for his bounties, and acknowledging their dependence. In honour of the heroes, and as a memorial of their illustrious deeds, they consecrated temples, altars, and groves, and celebrated festivals and games. Incense was burnt on their altars, and libations were poured over their tombs to procure repose to their manes. The religion of the common people entirely consisted in prayers, sacrifices, and purifications. Individuals presented their prayers to the gods at the commencement of any undertaking: and they offered up their addresses in the morning, the evening, at the rising and setting of the sun and moon. Sometimes they repaired to the temple with downcast eyes and dejected countenances; they kissed the ground, offered their prayers standing, on their knees, and prostrate, and held branches in their hands, which they lifted up towards heaven, or stretched out towards the statue of the god, after applying it to their mouths. In addressing the infernal deities, they struck the earth with their feet or hands. Some pronounced their devout addresses in a low voice; but Pythagoras wished them always to be uttered aloud, that nothing might be asked which could excite a blush. At the seasons of worship, the space before the temple, and the porticoes that surrounded it, were full of people; so justly has the apostle Paul characterised the Athenians, when he called them (Acts, xvii. 22.), *δεισιδαίμονες εσσι*, "too superstitious," as the common translation renders it, or perhaps as it might be rendered less offensively and more conformably to the conciliatory address, which the apostle would have used on such an occasion, and also to the frequent use of the term, "very devout." See Lardner's Works, vol. i. p. 193. The priests were the principal ministers of religion; and they were next in precedence to the kings and chief magistrates. They obtained their office by inheritance, sometimes by lot, by the appointment of the prince, or by popular election: and they were required to be unmarried in body, chaste and uncontaminated by the pleasures of the world in their disposition and character, and in their habits devoted to retire-

ment and piety. Of these priests there were several orders, and among them there was one, denominated *Ἀρχιερεὺς*, high priest, who had the superintendence of the rest. Some temples were served by priestesses, as particularly that of Bacchus in the quarter of the marshes. The revenues assigned for the maintenance of the priests and temples were derived from different sources, as a certain part of the produce of penalties and confiscations, and of the spoils taken from the enemy, and the offerings of individuals. They formed, however, no separate and independent body; nor had the ministers of different temples any common interest: and in causes which respected them personally, they were amenable to the ordinary tribunals. Functions of inferior sanctity, that related to the service of the temple, were intrusted to lay officers: some of whom were guardians of the treasury, and others assisted as witnesses and inspectors at solemn sacrifices. Next to the priests, were the soothsayers and interpreters of omens. The worship of the Athenians was originally performed in the open air, upon the tops of mountains; and on these spots temples were afterwards erected, and dedicated to Jupiter, Apollo, and the other gods. Their altars were, also, constructed of various materials, and of different dimensions, according to the variety of gods to whom they were consecrated. Both temples and altars were places of refuge or asylum for malefactors and criminals of all descriptions: and it was deemed an act of sacrilege to force them from their sanctuary. See ASYLUM. Their sacrifices were also of various kinds, as to their object and design, the materials of which they consisted, and the places in which they were offered, and the ceremonies that attended them. (See SACRIFICE.) As public worship was prescribed by one of the fundamental laws, and therefore closely connected with the constitution, it was impossible to attack religion, without endangering that constitution. It was consequently the duty of the magistrates to maintain it, and to oppose all innovations visibly tending to its destruction. Hence the poet Æschylus was accused of having, in one of his tragedies, revealed the doctrine of the mysteries; Diagoras, under a similar charge, saved himself by flight; Protagoras was criminally prosecuted, and obliged to fly; Prodicus of Ceos was condemned to drink poison; Anaxagoras was imprisoned, and his life was preserved by the interposition and influence of Pericles; and the life of Alcibiades was endangered by a charge of his having been concerned in the mutilation of the statues of Mercury. See each of these biographical articles.

ATHENS, in *Geography*, a township of America, in Windham county, Vermont, thirty-two miles north-east from Bennington, and about six west from Connecticut river, having 450 inhabitants.

ATHENS, in the state of Ohio and county of Washington, lies on the great Hockhocking river, 40 miles by water from the Ohio, in the election district of Middletown. This settlement, which commenced it 1797, is in a healthy situation; and the town, which is seated on elevated ground of easy ascent, is abundantly supplied with springs of excellent water. The adjacent country is deemed superior to any in the state for pleasantness and fertility. An act passed in 1801 for establishing an university in this town, which is called "The Ohio University," and endowed with two townships of land, amounting to 46,080 acres, within which the town of Athens is situated.

ATHERDEE. See ARDEE.

ATHERINA, or **ATHERINE**, in *Ichthyology*, one of the Linnæan genera of abdominal fishes; and distinguished by having the upper jaw rather flat, six rays in the gill-membrane, and a silvery stripe on each side of the body. Gmel.

fin notices five species of this genus, viz. *Hepsetus*, *Menidia*, *Sihama*, *Japonica*, and *Brownii*; which see respectively.

ATHERINOIDES, a species of *CLUPEA*, distinguished from the other fishes of the same genus by having a silvery lateral line. Gmelin observes, that this fish from its broad silvery line appears to belong to the genus *Atherina*; but having a compressed body, and small ventral fins, approaches nearer to the *Clupea* genus, in which he places it. This kind is a native of Surinam.

In the dorsal fin are twelve rays; fourteen in the pectoral fins; eight in the ventral fins; thirty-two in the anal fin; and eighteen in the tail.

ATHEROMA, in *Surgery*, is a soft, pultaceous, uninfamed tumour; generally contained within a CYST, or membranous bag. The cure of this swelling consists in its removal with a scalpel. See **TUMOUR**, and **EXTIRPATION**.

ATHERSTON, in *Geography*, a market town in the county of Warwick, situated upon the Wailing Street way, consisting principally of one long street, excepting two small avenues or streets on the north side leading to the market-place and the chapel, the mother church being at Mancetter, now a small village about a mile to the south, on the road leading to Coventry. The liberty is bounded on the north by the river Anker, which separates it from Leicestershire. The market is on Tuesday. The trade consists principally in the hat manufacture, wool-combers, ribband-weavers, and the cotton trade has been likewise lately introduced. It contains about 2600 inhabitants. Distance from London 108 miles.

ATHESIS. See **ADIGE**.

ATHIAS, in *Biography*, a Jew, was a famous printer of Amsterdam, in the seventeenth century; and in 1661, and 1667, he printed two editions of the Hebrew bible, in two volumes 8vo., for which he obtained of the States-general an honorary recompence of a medal, and a chain of gold. He also printed the bible in Spanish, German, and English. He died in 1700. Dict. Hist.

ATHIE, in *Geography*, a town of France, in the department of the Somme, and chief place of a canton in the district of Peronne, two leagues S.S.E. of Peronne.

ATHINI, or **SETINES**, the modern **ATHENS**, is not inconsiderable, says Chandler (*Travels in Greece*), either in extent, or in the number of its inhabitants. It enjoys a fine temperature, and a serene sky; the air is clear and wholesome. The town stands beneath the acropolis or citadel, and does not encompass the rock as it formerly did, but spreads into the plain, chiefly on the west or north-west. The houses are mostly mean and straggling, with many large areas or courts before them. The water is conveyed to them in channels from mount Hymettus, and in the market-place is a large fountain. The Turks have several mosques, and public baths. The Greeks have convents for men and women, with many churches, in which service is regularly performed, and oratories, or chapels, frequented on the anniversaries of the saints to whom they are dedicated. Besides the more stable antiquities, of which some notice has been taken under **ATHENS**, there are many detached pieces that have been found in the town, near the fountains, and also in the streets, the walls, the houses, and the churches. Among these are fragments of sculpture, a marble chair or two, which probably belonged to the gymnasium or theatres, a sun-dial at the cathedral or cathedral, inscribed, as it is said, with the name of Euclid; and at the archiepiscopal house, a curious vessel of marble, used as a cistern for receiving water, but once, probably, serving as a public standard or measure. Many columns, maimed statues, and pedestals, are scattered about; and also a fine mutilated Herma. The acropolis, or citadel, is now a fortress, with a thick irregular wall, standing on the brink of precipices,

and inclosing a large area, about twice as long as broad. Some portions of the ancient wall remain, and it is repaired with patches of pieces of columns, and with marbles taken from the ruins. The garrison consists of a few Turks, who reside there with their families, and are called by the Greeks "*Castriani*," or soldiers of the castle. Their houses overlook the city, plain, and gulf; but the situation is as airy as pleasant; the rock is lofty, abrupt, and inaccessible, except the front, which is towards the Piræus; and on that quarter is a mountainous ridge, within cannon shot. The acropolis furnished, says Chandler, an ample field to the ancient virtuosi. It was filled with monuments of ancient glory, and exhibited an amazing display of beauty, of opulence, and of art; each contending, as it were, for the superiority. Heliodorus, named Periegetes or the guide, employed in this place fifteen books. Polemio Periegetes, four volumes; and Strabo, in the Augustan age, affirms, that as many would be required in treating of other portions of Athens and of Attica. The number of statues, in particular, was prodigious. Tiberius Nero, who was fond of images, plundered the acropolis, as well as Delphi and Olympia; and yet Athens, and each of these places, had not fewer than 3000 remaining in the time of Pliny. This banquet of the senses, continues this traveller, has long been withdrawn; and is now become like the tale of vision. The spectator views with concern the marble ruins intermixed with mean flat-roofed cottages, and extant amid rubbish; the sad memorials of a nobler people. The antiquities of this city have been also described by Wheeler and Spon, who visited it in the time of Charles II.; and by Mr. le Roy and many others. Mr. Stuart, however, who resided there between three and four years, has surpassed others in the accuracy and elegance of his plans and of his description. Spon, in speaking of Attica, says, that the road near Athens was pleasing, and the very peasants polished. Wheeler, his fellow-traveller, speaking of the civilization of the Athenians, observes, that even the shepherds bid them welcome, and wished them a good journey; and that their bad fortune had not been able to deprive them of that subtlety of wit which they possessed by nature; and that, notwithstanding the barbarism that hath long prevailed, they seem to be much more polished in their manners and conversation than any others in those parts. Stuart confirms, with regard to the present Athenians, the account given by Spon and Wheeler of their ancestors; as he found among them the same address, and the same natural acuteness, though severely curbed by their despotic masters. At their convivial meetings, it was a frequent custom for one of them to take a lyre, or a species of guitar, and after a short prelude on the instrument, to accompany the instrumental music with his voice; suddenly chanting some extempore verses, seldom exceeding two or three distichs; this performer delivered the lyre to his neighbour; who, after he has done, delivers it to another; and thus the instrument circulated, till it had passed round the table. He adds, that, notwithstanding the various fortune of Athens as a city, Attica was still famous for olives, and mount Hymettus for honey. Thus "*human institutions perish, but nature is permanent.*"

The present Athens, Athini, or Setines, is the capital of Livadia, a province of European Turkey, the see of an archbishop; and contains, as some say, 10,000, or, according to others, 15 or 16,000 inhabitants, chiefly Greeks. The chief articles of trade are silk, wax, wool, and oil. It is a sea-port, and situated on the north-east coast of the gulf of Engia in the archipelago, with a safe and large harbour, narrow at the entrance, and commanded by the citadel. N. lat. 38° 5'. E. long. 23° 57'.

ATHIS, a town of France, in the department of the Orne,

Orne, and chief place of a canton in the district of Domfront; thirteen miles south-west of Falaise. The place contains 3351, and the canton 15,877, inhabitants: the territory includes 185 kilometres and 20 communes.

ATHIS, in *Ancient Geography*, a town of Asia, situate on the western bank of the Euphrates, south-west of Nicephorium.

ATHLETÆ, in *Antiquity*, persons of strength and agility, disciplined to perform in the public games. The word is formed from *αθλος*, *certamen*, *combat*; whence also *αθλον*, *the prize*, or *reward*, adjudged to the victor.

Under *athletæ* were comprehended wrestlers, boxers, runners, leapers, throwers of the disk, and those practised in other exercises exhibited in the Olympic, Pythian, and other solemn sports; for the conquerors in which there were established prizes.

From the five usual exercises, the *athletæ* were also denominated *πενθελοι*, and by the Latins *quinquertiones*; at least such as professed them all.

Those who were designed for this profession, frequented the gymnasia or palaestra from their youth; and they were obliged to submit to the most strict discipline and abstemious regimen. Their fare was coarse and scanty; they were prohibited the use of wine, and enjoined continence; and thus Horace (*Art. Poet.* v. 412.) describes them:

“ Qui fludet optatam curfu contingere metam,
Multa tulit fecitque puer; sudavit et alsit;
Abstinit vncere, et vino.”

The apostle Paul, in his first epistle to the Corinthians (*ch. ix. 25.*) enforces temperance by an allusion to the *athletæ*; and Tertullian encourages the martyrs by the same reference. But when the privilege of being supported at the public expence, was granted to such of the *athletæ* as were victorious, they abandoned their habits of abstinence and exercise, and indulged themselves to a very shameful degree of indolence and of gluttony. Before their exercises, their bodies were rubbed with oils and various unguents, in order to render them supple and vigorous; and they practised a kind of noviciate in the gymnasia for several months, that by previous application and practice they might be fit for the contests in which they engaged. At first they made use of a belt, with an apron annexed to it, for the sake of decency; but they afterwards laid aside this covering, and engaged in several of the combats naked. To this insult on public decency, some of the best writers of antiquity have attributed that infamous passion, to the indulgence of which the Greeks were notoriously addicted. The women, indeed, were prohibited from approaching the places where these public games were celebrated. Before they were admitted to the combat, they were examined as to their birth, for none but Greeks were admitted; as to their condition, which was required to be free; and as to their manners, which were to be irreproachable. The name and country of each champion were registered, and a herald, before the commencement of the contest, proclaimed their names. They solemnly vowed not to employ any unfair means, and to conform to the established regulations by which the games were conducted.

ATHLETIC CROWN. See CROWN.

ATHLETIC Habit denotes a strong hale constitution of body, which was the object the *athletæ* aimed at, and to which their diet corresponded.

ATHLETIC Weight. See WEIGHT.

ATHLONE, in *Geography*, the most considerable town of the county of Westmeath, in Ireland, situated on the river Shannon, over which it has a long bridge of many arches, so that it was formerly an important pass into the western province. It is partly in the county of Roscommon, and is the most

central town in the island. Notwithstanding its advantageous situation for trade and improvement, it is said to be in many parts a poor, ruinous, dirty looking place. In the middle of the bridge is a monument, with some figures, together with queen Elizabeth's escutcheon of arms, and some inscriptions declaring the time and founders of the building. The castle, which was on the Roscommon side, called the Irish town, was built by king John, on a high raised round hill resembling a Danish rath or fort, so as to command the bridge and the adjacent country. This was long the residence of the lord presidents of Connaught, who held in it their courts of justice. In the time of the civil war, it was strongly fortified on both sides of the river; and the English under the lord president stood a long siege in the castle, in 1641 and 1642. During the whole of this melancholy period, it was a place of great strength and importance, generally in the possession of the Irish or Catholic party; till, in 1651 it was taken by sir Charles Coote, at the head of the parliamentary forces. After the defeat of James the Second at the Boyne, his adherents remained at Athlone, and having destroyed the English town which was east of the Shannon, and broken the bridge, resolved to maintain the Irish district on the west. For this purpose they strongly entrenched themselves; and in the following year the general St. Ruth took his station with the main army behind the town. The English, under Ginckle, succeeded however in passing the river after many unsuccessful attempts, and by a surprising effort of valour got possession of the town and castle, which was in great measure to be attributed to the carelessness and confidence of St. Ruth, the French general. General Ginckle received a title from the town, which is still enjoyed by his descendants. W. long. 7° 49'. N. lat. 53° 21' 30".

ATHLOTHETA, in *Antiquity*, an officer appointed to superintend the public games, and adjudge the prizes.

The *athlotheta* was the same with what was otherwise called *εσμνκτη*, *brabeuta*, *agonarcha*, *agonotheta*, &c.

ATHNACH, the name of one of the principal of the Hebrew accents, which serves not only to regulate the voice, but to distinguish the members of a sentence, whence its name *athnach*, i. e. *respiratio*: on this account it is called *king*, and *pause*, and answers to our colon, and sometimes to a note of interrogation: it is marked under a letter thus (א).

ATHOL, in *Geography*, the most northern district of Perthshire, in Scotland; extending about 43 miles in length, and 30 in breadth, and bounded on the north by Badenoch, on the west by Lochaber, on the east and south-east by Mar and Gowrie, on the south by Strathern and Perth proper, and on the south-west by Braidalbane. It is mountainous, and contains part of the ancient Caledonian forest; but the mountains are interspersed with fruitful vallies. It has several villages, but no towns of any importance. The most famous places are Blair castle, seated on the river Tilt, near its influx into the Gurry, an agreeable stream that flows into the Tay, and belonging to the duke of Athol, whose title is derived from the district; and the pass of Gillicranky, memorable on account of the battle fought here in the beginning of king William's reign, between his general M'Kay, and the highlanders who adhered to king James.

ATHOL, a township of America, in Worcester county, Massachusetts, comprehending 16,000 acres of rocky land, and watered with streams and rivers, and containing 848 inhabitants; 35 miles N.W. from Worcester, and 72 from Boston.

ATHOR, or ΑΤΗΥΡ, in *Mythology*, the name of one of the most ancient divinities of Egypt; signifying in the Coptic language, “night.” By this name the priests did not originally mean to denote the obscurity which is occasioned

stoned by the disappearance of the sun, but the darkness which overspread chaos previously to the creation, and from which the Almighty Creator called forth into an habitable state the material universe. This mysterious night was in their opinion the origin of things. Orpheus, initiated in the mysteries of the Egyptians, communicated them to the Greeks, and recommended them by the harmony of his verses. Pausanias, when he visited Greece, saw at Megara "the oracle of the night," where every thing was taught that related to Athor. This symbolical deity, by which the Egyptians characterized the principle of things, became, in the language of the Greek philosopher, the "Venus Cœlestis," or the mother of the world. Orpheus taught them this part of their theogony in his hymn to the night, where he says, "I shall sing the night, mother of gods and men, the origin of the creation, whom we shall call Venus." The poets soon took possession of this metaphysical idea, and as they must have a deity for embellishing their poems, they made her spring from the froth of the sea, and represented her as animating the world, and giving life to every thing that breathed. See Ovid de Fast. l. iv. v. 91. and Lucretius, l. i. v. 1. &c. The Egyptian priests, who had painted night as a divinity, apprized that the minds of the vulgar required sensible objects, made another metamorphosis of night into the moon, the planet of the night, and the moon was represented by the cow, whose horns exhibited, as their imagination suggested, her first phasis. The philosophers farther extended this doctrine; and they bestowed the name of night, Athor, and Venus, on the period during which the sun, having passed the equator, remains in the southern hemisphere, when the days are shortest and the nights longest. See Macrobius, l. i. c. 21. The following passage from Plutarch (*De Isid. & Osir.*) proves that this opinion originated in Egypt. "In the month of Athyr (the third month of the Egyptian year), the Egyptians say that Osiris (or the sun), is dead. Then the nights become longer, the darkness increases, and the force of the light is diminished. On this occasion, the priests perform mournful ceremonies. They expose to the people a gilded ox covered with a black veil, in token of the grief of the goddess Isis (or the moon): for in Egypt the ox is the symbol of Osiris, and of the earth."

Athor had temples in Egypt. Herodotus mentions "Athor-Beki," the city of Athor, which Strabo (l. 17.) and Diodorus (l. i.) render by the name of Aphroditopolis, the city of Venus. Ælian (*De Anim.* l. ii. c. 27.) speaking of Chufas, a town of the Hermopolitan nome, says, that in this town they worship Venus; and that a peculiar worship was also paid to the cow. He also informs us, that Isis, or the moon, was represented by the horns of the cow. Jablonski, *Pantheon Ægypt.* vol. i. Savary's *Letters*, vol. ii. p. 354—364.

ATHOS, in *Geography*, a famous mountain of Greece, in the Chalcidian region of Macedonia, seated on a peninsula, the coasts of which form the Sinus Strymonicus, or gulf of Contessa, and the Sinus Singiticus, or gulf of Monte Sancto, and joined to the land by an isthmus about twelve leagues broad. The circuit of this peninsula, and of the base of mount Athos, is commonly reckoned to contain about forty leagues. N. lat. 40° 10'. E. long. 24° 45'. This mountain consists of a chain of eminences or summits, seven or eight leagues long, and three or four broad, one of which attracts particular attention on account of its height and habitations, and is denominated Athos Agioforos or the holy mountain, and Monte Sancto. Of its elevation very extravagant and incredible accounts have been given by some ancient writers. Mela reports, that it is so high as

to reach above the clouds. Martianus Capellus affirmed that it was six miles high; and it was believed that no rain fell upon it, as the ashes left on the altars erected near its summit remained dry and undispersed. Plutarch and Pliny have asserted, that it projected its shadow, at the summer solstice, on the market-place of Myrina, the principal city of the island Lemnos. On this account, it is said the inhabitants of the city erected a brazen cow at the termination of the shadow, on which was inscribed this verse:

"Αθως καλυψει πλευρα Λειμνωσ βοως."

"Half Lemnos' calf doth Athos' shadow hide."

According to Pliny, the distance between the foot of mount Athos and the island of Lemnos was 87000 paces; and according to Belon (*Observ.* l. i. c. 25.), eight leagues. The Greeks, struck with the singular situation and towering ascent of this mountain, erected upon it so many churches, monasteries, and hermitages, that it became almost wholly inhabited by devotees; and this circumstance gave occasion to its being denominated "the holy mountain;" which it still retains, though many of the consecrated buildings are decayed. Among modern travellers, there is a considerable difference of opinion about its height: some make it thirty miles in circumference, and two in perpendicular elevation; and add, that it may be travelled over in three days, and seen at the distance of ninety miles: others state the altitude of its conical summit at 3300 feet. The cold on its summit is extreme; nevertheless it abounds with many different kinds of plants and trees, particularly the pine and fir, and it supplies a multitude of springs and streams. Its variety of monasteries and churches gives it a picturesque appearance. It is now inhabited by Caloyers, a sort of Greek monks, of the order of St. Basil, who never marry, and fare hardly, as they abstain from flesh, and subsist chiefly on olives pickled when they are ripe. Their number is reckoned about 6000, and they inhabit several parts of the mountain, on which are twenty-four monasteries, raised to the height of five or six stories, and surrounded with high walls, flanked with towers, and guarded with artillery against the assaults of banditti and robbers. They are much respected by the Turks, and receive alms from them. They have the character of being very industrious, and they clothe themselves like hermits. They had formerly several valuable Greek manuscripts, and employed themselves in writing copies of the Greek Testament (see *ALEXANDRIAN Manuscript*), but they are now become so illiterate, that they can scarcely read or write.

As the sea on this coast is very tempestuous, and the Persian fleet had suffered shipwreck in doubling this promontory, Xerxes is said, for preventing a similar disaster, to have cut a passage through the mountain of sufficient width to admit two galleys, with three banks of oars each, to pass in front: by these means he severed from the continent the cities of Dion, Olophyxus, Acrothoon, Thyfus, and Cleone. Before he began his works, he is said to have written a letter, addressed to the mountain, in the following terms: "Athos, thou proud and aspiring mountain, that liftest up thy head to the skies, I advise thee not to be so audacious, as to put rocks and stones in the way of my workmen: if thou thus opposest me, I will cut thee entirely down, and throw thee headlong into the sea." Modern travellers inform us, that they perceive no traces of this work: and many of them are of Juvenal's opinion:

"Perforatus Athos, et quicquid Græcia mendax

Audet in historia."

Dinocrates, an architect in the suit of Alexander, proposed to his conqueror to perpetuate his memory by forming

ing a statue of this mountain, holding in one hand a city, and representing a river as flowing from the other. But the extravagant proposal was not accepted.

ATHOTIS, or *THOT*, in *Biography*, king of Thebes, and according to the practice of the early ages, priest and physician, is said to have cultivated, and written on anatomy. The precise time in which he lived is not known, though supposed to be about 2000 years before the birth of Christ.

ATHULIA, in *Entomology*, a very little species of *PAPILIO* (*Nymph. Phal.* Gmel.) found in the northern parts of Russia. The wings are fulvous, dotted with black, the lower ones white on the under side, dotted with black, and marked with two fulvous bands. This is *Papilio Phabe* of Esper, and belongs to the family *Satyri* in the Fabrician system. *Obs.* *Papilio Athulia* minor of Esper, Pap. t. 89. is a variety of the *Papilio Dictynna* of Fabricius.

ATHWART, in *Navigation*, is synonymous with across the line of the course.

ATHWART the *fore-foot*, is a phrase that denotes the flight of a cannon-ball from one ship across the course of another to intercept the latter, and oblige her to shorten sail, that the former may come near enough to examine her.

ATHWART-haulse, expresses the situation of a ship, when she is driven by wind or tide, or any other accident, across the fore-part of another.

ATHWART-ships, reaching across the ships from one side to the other.

ATHY, in *Geography*, a town of the county of Kildare, near the borders of the Queen's county, 32 miles from Dublin, at which the assizes are held alternately with Naas. It is situated on the river Barrow, which is navigable hence to the sea, and which a branch of the grand canal from Dublin to the Shannon meets at this town. It was founded in the twelfth century, on account of a ford over the river; and became of importance as a pass, and sometimes as a frontier town of the English pale, in the dissensions which harassed the country for many centuries, whilst the old towns of Ardree and Ardscoil in its neighbourhood gradually decayed; and the position of either can now only be ascertained from a Danish rath, and some ruins. It was early granted the immunities of a merchant or market town, being mentioned as such in a statute of Henry VI.; and it was made a borough by James I. in 1615, in consequence of which two members were returned to parliament previously to the union, under the patronage of the duke of Leinster. Athy contained 550 houses in 1793, of which 160 were slated and built of lime and stone, and 390 thatched cabins; the population of which might be estimated at about 3300. There were at that time no manufactories which deserved the name, notwithstanding the advantages derived from the canal; and the unhappy state of that part of the country since gives too much reason to suppose that no improvement has yet taken place. The exports from the neighbouring country to Dublin, by the canal, consisted of coals, corn, flour, butter, and potatoes, to the amount of above 20,000 pounds per annum. N. lat. 52° 59'. W. long. 7° 1'. *Antholog. Hibern.* vol. i. Dr. Beaufort's Map and Memoir.

ATHYNA, a small town of Hungary, in Slavonia proper, and county of Possega, beyond the Drave.

ATI, or *ATY*, a small canton of Africa, in Guinea, upon the Golden Coast, north of Fautin, and to the east of Abramboe.

ATIA. See *ODIO* et *ATIA*.

ATIBAR, a name given by the inhabitants of the kingdom of Gago, in Africa, to gold-dust; from which word the Europeans, and especially the French,

have composed the word *tiver*, which also signifies gold-dust among those who trade in that commodity.

ATICHY, in *Geography*, a town of France, in the department of the Oise, and chief place of a canton in the district of Noyon, eight miles east of Compiègne.

ATICK-OOM-ASHISH, in *Ornithology*, the name by which the species of *LOXIA Hudsonica* is known in Hudson's bay. Latham. Sonnini, in his "Additions à l'Histoire Naturelle de Buffon," adopts the first part of this long denomination, Atick, as the name of this species. See *Hudsonica Loxia*.

ATIENÇA, in *Geography*, a town of Spain, in Old Castile, with an ancient castle, situate among the mountains called "Sierra d'Atiença," between Siguença and Borgo d'Oña.

ATIMIA, *infamy* or *disgrace*, in *Antiquity*, a punishment among the Athenians, inflicted for various crimes. A person suffered this punishment, when, retaining his property, he was deprived of some privilege, enjoyed in common with other citizens: and also, when he suffered a temporary deprivation of the privilege of free citizens, and his goods were confiscated. Those who were indebted to the public treasury, till their debts were paid, incurred this penalty. Also, when the criminal and his posterity were deprived of every right of a free citizen. This was incurred by those that were guilty of theft or perjury, or other similar offences. Infamous persons were not allowed to give evidence.

ATINGA, in *Ichthyology*, a species of *Diodon*, of an oblong form, and beset with rounded spines. Gmelin, &c. In Mus. Ad. Fr. it is described as ostracion diodon corpore spinis undique armato; and in Amoen. Ac. ostracion conico-oblongus, aculeis undique longis teretifimbriis, in primis in lateribus. It is called *Marcgraave guamajacu atinga*, and is *l'atingue*, or *poisson armé* of French writers. In England it is known by the name of porcupine fish.

This species lives in the American seas, and about the cape of Good Hope: and keeps the shores for the sake of its food, which consists of crabs and testaceous vermes or shell-fish. The length rather exceeds twelve inches; the body is compressed at the sides, and bluish; the back rather broad, round, and dusky; belly broad, long, white, and spotted all over with black. The head is small, broad above, and rather compressed on the sides; eyes large, iris yellow; nostrils simple and tubular; mouth narrow; upper jaw rather longest, and angular in the middle; fins yellow, spotted with black; margin brownish, and the rays ramose. This creature has the power of dilating its body, and erecting its spines at pleasure. It is usually taken in nets, but will also take bait, which is commonly the tail of a crab, fastened on the hook. The flesh is eatable; but if the relation of Piso may be depended upon, it should be prepared for the table with the utmost caution; he tells us that the gall is very poisonous, and that should the flesh become impregnated with it (which must be the case if the gall-bladder burst in gutting of the fish), the most dangerous consequences might ensue to those who eat of it; the senses of the afflicted persons fail, their limbs become languid, and their tongue immovable, cold sweats succeed, and in this state they die, unless some speedy remedy be applied.

Gmelin deems *diodon holocanthus aculeis capitis colloque longioribus* of Lin. Syst. Nat. and *histris alter* of Willughby, to be a variety of the preceding species; it is distinguished by having the spines of the head and neck longer than in the other.

ATINGACU CAMUCU, in *Ornithology*, the name assigned by Marcgraave in "The history of Brasil," Ray, Willughby,

Willughby, and others, to the bird described under the title of *cuculus cornutus* by Gmelin. Buffon calls it *atingacu du Bréfil*, and Latham the *horned cuckoo*. See *CORNUTUS CUCULUS*.

ATINO, in *Geography*, a town of Italy, in the kingdom of Naples, and country of Lavora, once the see of a bishop, suppressed by Leo III.; three leagues north of Aquino. This was the ancient Atina or Atinum, situate in the north-east part of Latium, and south-east of Sora. It belonged to the Samnites; and Frontinus says, that Nero Claudius Cæsar established a colony in this place.

ATINTANES, in *Ancient Geography*, a people of Europe, who, according to Thucydides, inhabited the eastern part of Illyria. Their country, however, is joined, by Livy and Polybius, to Macedonia. They submitted to the Romans, commanded by Posthumus.

ATISIS, or ATISO, a river of Italy, in Infubria, which discharged itself into the lake Verbanus.

ATITLAN, in *Geography*, a lake of America, in Mexico, in the government of Guatimala, and the country of the Choutales. It is about ten leagues in circuit.

ATIZOE, in the writings of the *Ancient Naturalists*, a name of a stone used in the consecration and anointing of kings. Pliny describes it to have been of a lenticular figure, and of the size of three fingers, of a bright silvery colour, and of a pleasant smell. He says it was found in India, and in some other places. Agricola is of opinion it was a kind of bitumen.

ATKINS, RICHARD, in *Biography*, the descendant of a good family at Tuffleigh, in Gloucestershire, finished his education at Baliol college in Oxford. From thence he removed to Lincoln's Inn; and, after a short interval, during which he travelled into France, he became an accomplished courtier. In the civil war, he joined the king's party, and was a considerable sufferer. After the restoration, he was appointed one of the deputy lieutenants of the county of Gloucester. But being imprisoned in the Marshalsea gaol of Southwark for debt, he died there in 1677. He was the author of several pieces; and particularly of a treatise "Of the origin and growth of Printing;" in which he gives an extract from an old MS. chronicle, said to be preserved in the palace of the archbishop at Lambeth, containing an historical account of the introduction of this valuable art into our country. The authority of this chronicle has been much disputed by Mr. Palmer, in his "General History of Printing;" and also by Dr. Middleton: and vindicated by Mr. Bowyer, in the notes to his abridgment of Dr. Middleton's "Dissertation on the origin of printing in England." See *PRINTING*.

ATKINSON, in *Geography*, a township of America, in Rockingham county, New Hampshire, incorporated in 1767, and containing, in the year 1790, 479 inhabitants. It is distant from Portsmouth thirty miles; and has an academy, founded in 1789 by the hon. N. Peabody, and endowed with 1000 acres of Land.

ATKYNS, SIR ROBERT, in *Biography*, an eminent and patriotic English lawyer, descended of an ancient family in Gloucestershire, and born in 1621, was the son of sir Edward Atkyns, one of the barons of the exchequer. Having finished his academical course of education at Baliol college Oxford, and entered for the study of the law at Lincoln's Inn, he afterwards became eminent in his profession. Distinguished by his professional reputation and his loyalty, he was soon after the restoration created a knight of the bath, and in 1672 appointed one of the judges of the court of common pleas. In 1679, disgusted by the arbitrary measures of the existing government, he resigned his post and retired into the country. On occasion of the trial of lord William Russell, he gave his advice, and afterwards wrote free re-

marks on this subject. He then avowed the maxim, "that there neither is, nor ought to be, constructive treason; it defeats the very scope and design of the statute 25 Edw. III. which is to make a plain declaration what shall be adjudged treason by the ordinary courts of justice." His argument in favour of sir William Williams, speaker of the commons' house of parliament, who was prosecuted by the crown for signing an order for the printing of Dangerfield's narrative concerning the popish plot, was afterwards printed under the title of "The power, jurisdiction, and privilege of parliament, and the antiquity of the house of commons asserted." In the reign of James II. his attachment to the constitution was manifested by an argument on the case of sir Edward Hales, which was printed under the title of "An Inquiry into the Power of dispensing with Penal Statutes." The doctrine of dispensations was further discussed in his "Discourse concerning the ecclesiastical jurisdiction in the realm of England." After the accession of king William III. this friend to the revolution was appointed, in 1689, lord chief baron of the exchequer. He then wrote two pieces in defence of the memory of lord Russell, whose attainder was reversed by parliament. In 1689, he was advanced to the office of speaker of the house of lords, and retained it till the year 1693. The last public act of his life was his memorable speech addressed to sir William Athurst, lord mayor of London, on occasion of his being sworn into his office, in October 1693. This speech, referring to the alarming projects of Lewis XIV. and the designs of Charles II. and James II. to establish absolute power, and to introduce popery, was very favourably received; it passed through several editions, and was thought to have been eminently serviceable to the government. In 1695, he resigned his offices, and retired to his seat in Gloucestershire, where he died in 1709, at the age of 88 years. "He was a man of great probity, as well as of great skill in his profession; and a warm friend to the constitution, which he was ready to maintain against all opponents." "In whatever view we consider him," says his biographer, "in his private, or in his public station; as a gentleman, or as a judge; as an eminent lawyer, or a distinguished patriot; as a statesman, or an author; we shall find nothing but what is great and amiable, worthy of love and respect, and of that veneration which is due to virtuous men from posterity." Besides his valuable "Tracts," which were collected and published in one volume, he is said to have been the author of a treatise against the exorbitant power of the court of chancery. *Biog. Brit.*

His only son, sir Robert Atkyns, who was born in 1646, and died in 1711, differed from his father in his opinions, but inherited his prudence and probity, and was equally esteemed and beloved by men of all parties. As he preferred the character of a country gentleman, he is chiefly known as the author of a topographical work, intitled "The ancient and present State of Gloucestershire," which was published after his death. A great part of the copies of this work was destroyed by a fire in the printer's warehouse, so that those which remained became scarce and dear. *Biog. Brit.*

ATLANTA, in *Ancient Geography*, a town of Greece, in the country of the Locrii, destroyed by an earthquake before the birth of Plato.

ATLANTES, a people of ancient Libya, of whom no record now remains but the name.

ATLANTIC OCEAN, in *Geography*, a name given to the sea which separates Europe and Africa on the east from America to the west. Mr. Kirwan, conceiving that at the time of the deluge the water of the great southern ocean below the equator, rushed on the northern hemisphere,

ascribes the formation of the bed of the Atlantic, from lat. 20° south up to the north pole, to the concussion of these enormous masses of water. The bare inspection of a map, he says, is sufficient to show that this vast space was hollowed by the impression of water: the protuberance from cape Frio to the river of the Amazons, or La Plata, in South America, corresponding with the incavation on the African side, from the river of Congo to cape Palmas; and the African protuberance from the straits of Gibraltar to cape Palmas, answering to the immense cavity between New York and cape St. Roque. The depression of such a vast tract of land cannot appear improbable, adds this author, when we consider the shock it must have received, and the most enormous load with which it was charged. Nor are such depression and absorption unexampled, since we have had frequent instances of mountains swallowed up, and some very lately in Calabria. Irish Transf. vol. vi. p. 228. See OCEAN.

ATLANTIDES, in *Astronomy*, a denomination given to the Pleiades, or seven stars, sometimes also called *virgiliae*. They are thus called, as being supposed by the poets to have been the daughters either of Atlas, or his brother Hesperus, who were translated into heaven. See ATLAS.

ATLANTIS, in *Antiquity*, an island spoken of by Plato, and many other writers, under some extraordinary circumstances; and rendered famous by a controversy among the moderns, concerning its place and existence. The Atlantis took its name from Atlas, Neptune's eldest son, who, they tell us, succeeded his father in the government of it.

The most distinct account of this celebrated country is given us in Plato's *Timæus* and *Critias*; which amounts, in a few words, to what follows. "The Atlantis was a large island in the Western ocean, situate before, or opposite to, the straits of Gades. Out of this island there was an easy passage into some others, which lay near a large continent, exceeding all Libya and Asia. Neptune settled in this island, which he distributed among his ten sons; to the youngest fell the extremity of the island called *Gadir*, which in the language of the country signifies *fertile*, or *abundant in sheep*. The descendants of Neptune reigned here from father to son, for a great number of generations, in the order of primogeniture, during the space of 9000 years. They also possessed several other islands; and passing into Europe and Africa, subdued all Libya as far as Egypt, and all Europe to Asia Minor. At length the island sunk under water; and, for a long time afterwards, the sea thereabouts was full of flats and shelves."

This island was 30,000 stadia in length, and 2000 in breadth; it was in a very high degree fertile and productive, abounding with pasture and arable, and in metals and trees. The northern part of it had various mountains, which were stored with villages and magnificent habitations. The inhabitants were numerous and powerful, and distinguished both by arts and arms. It was governed by ten archons, who, in their respective districts, adhered to established customs, and were invested with the power of life and death over their subjects. This federative republic was established, according to Plato, in a dialogue of which only a fragment remains, by a law derived from Neptune himself, its first founder, engraved upon a column and placed in a temple. Assemblies were held alternately every five years, in which all public affairs were the subjects of deliberation. The offences of citizens were examined by the archons and punished according to the degree of their aggravation. Plato in this dialogue has recited several ceremonies which were ob-

served by the archons in the exercise of their legislative and judicial offices.

The actual existence and local situation of the Atlantic island has given occasion to many different opinions. The reality of Plato's Atlantis has had many advocates. Buffon (*Nat. Hist.* by Smellie, vol. i. p. 507.), after citing the passage relating to it from Plato's *Timæus*, adds; "this ancient tradition is not devoid of probability. The lands swallowed up by the waters, were, perhaps, those which united Ireland to the Azores, and the Azores to the continent of America, for in Ireland there are the same fossils, the same shells, and the same sea-bodies, as appear in America, and some of them are found in no other part of Europe."

M. Bailly, in his "*Lettres sur l'Atlantide de Platon, &c.*" published at Paris, in 1779, 8vo., maintains the existence of the Atlantes, and their island Atlantis, by the authorities of Homer, Sanchoniathon, and Diodorus Siculus, in addition to that of Plato. In proof of the opinion that Plato's account of the Atlantic island is not a fiction of his own devising, a late writer (see Taylor's translation of the *Cratylus*, *Phædo*, *Parmenides*, and *Timæus* of Plato, 1793) alleges the following relation of one Marcellus who wrote an history of Ethiopian affairs, according to Proclus in *Tim.* p. 55. "That such and so great an island once existed is evinced by those who have composed histories of things relative to the external sea; for they relate that in their times there were seven islands in the Atlantic sea sacred to Proserpine; and besides these, three others of an immense magnitude, one of which was sacred to Pluto, another to Ammon, and another, which is the middle of these, and is of a thousand stadia, to Neptune. And besides this, that the inhabitants of this last island preserved the memory of the prodigious magnitude of the Atlantic island, as related by their ancestors, and of its governing for many periods all the islands in the Atlantic sea; and such is the relation of Marcellus in his *Ethiopic history*."

The learned Rudbeck, professor in the university of Upsal, in an express treatise, intitled, "*Atlantica, five Manheim*," maintains, very strenuously, that Plato's Atlantis is Sweden and Norway; and attributes to his country whatever the ancients have said of their Atlantis or Atlantic island.

M. Bailly (*ubi supra*, letter 24.), after citing many ancient testimonies which concur in placing this famous isle in the north, quotes that of Plutarch, who confirms these testimonies by a circumstantial description of the isle of Ogygia, or the Atlantis, which he represents as situated in the north of Europe, and as having near it three islands more, in one of which the inhabitants of the country say, that Saturn is kept prisoner by Jupiter. These four islands may, as M. Bailly conjectures, be Iceland, Greenland, Spitzberg, and Nova Zembla, or some others near the Pole. He controverts the opinion of Rudbeck as not conformable with the account of Plato, who represents the Atlantis as an island, which Sweden is not. Adhering still to his system, M. Bailly, persuaded by a variety of plausible circumstances, which he has ingeniously combined, places that famous island among those of the Frozen ocean. In this he is strongly seconded by Plutarch, who tells us that the Atlantis is in a region where "the sun during a whole summer month is scarcely an hour below the horizon, and where that short night had its darkness diminished by a twilight." This, it may be said, is a palpable indication of a northern climate; but how is this situation reconcileable with the fertility of the soil, the mildness of the air, particularly the strait called the columns of Hercules, which Plutarch and Plato mention among the circumstances pertaining to the abode

abode of the Atlantis? how is it also possible to conceive astronomy cultivated in a frozen and cloudy region, where the observations of the heavenly bodies must have been inconvenient and impracticable? These difficulties, says our fanciful author, cannot be removed without supposing a change of air and climate in those regions by the gradual cooling of the earth, and its progressive motion towards universal congelation. Such is the "fairy tale" of this learned and ingenious author. Sir W. Jones, the learned president of the Asiatic Society, in his elaborate account of the Persians (*Asiatic Researches*, vol. ii. p. 44.); suggests that one may consider "Iran" as the noblest island, for so the Greeks and Arabs would have called it, or at least as the noblest peninsula in this habitable globe; and he adds, "if M. Bailly had fixed on it as the Atlantis of Plato, he might have supported this opinion with far stronger arguments than any that he has adduced in favour of Nova Zembla. If the account indeed, of the Atlantes," says this writer, "be not surely an Egyptian or an Utopian fable, I should be more inclined to place them in Iran than in any region with which I am acquainted."

Others will have America to be the Atlantis; and hence infer that the new world was not unknown to the ancients; but what Plato says, does by no means support this supposition. America should rather seem to be the vast continent beyond the Atlantis, and the other islands mentioned by Plato.

Kircher, in his *Mundus Subterraneus*; and Beckman, in his *History of Islands*, chap. v. advance the most probable opinion, if the reality of this island be admitted.—The Atlantis, according to them, was a large island which extended from the Canaries to the Azores; and these islands are the remains thereof not swallowed up by the sea.

ATLANTIS, *New*, is the name of a fictitious, philosophical commonwealth, of which a description has been given by lord Bacon.

The new Atlantis is supposed to be an island in the South-sea, to which the author was driven in a voyage from Peru to Japan. The composition is an ingenious fable, formed after the manner of the *Utopia* of Sir Thomas More, or Campanella's *City of the Sun*. Its chief design is to exhibit a model or description of a college, instituted for the interpretation of nature, and the production of great and marvellous works, for the benefit of men, under the name of Solomon's house, or the college of the six days work. Thus much, at least, is finished; and with great beauty and magnificence. The author also proposes a frame of laws, or of the best state or mould of a commonwealth; but this part is not executed. *Bac. Works*, tom. iii. p. 235.

ATLAS, in *Biography* and *Mythology*, an ancient king of Mauritania, the son of Uranus and brother of Prometheus, who is said to have lived about the time of Moses, or about 1582 years B. C. He is represented as having been an excellent astronomer, as an observer of the stars, and as the inventor of the sphere. The poets have exhibited him as bearing the heavens on his shoulders, and thus he is seen in the famous statue at the Farnese palace in Rome; and one of them represents him as groaning under the burden, on account of the multitude of gods whom superstition had placed in this elevated mansion. He was metamorphosed into a mountain for his inhospitality to Perseus. His daughters, it is said, were transformed into stars, in complement to his astronomical talents and observations; seven of them forming the Pleiades, and the other seven the Hyades.

ATLAS, in *Geography*, a celebrated mountain or rather

chain of mountains, in Africa, which is so high, that it seems to bear the heavens. Hence the fable, in which Atlas, the king of this country, is said to bear the heavens on his shoulders.

The ancients, however, ascribed to this mountain a magnitude and an elevation to which it has no claim; as it can no where stand in competition with the Alps or the Apennines. They seem to have considered it as one high mountain, not as a ridge. Thus Pliny (l. v. c. 1.), describes it as a detached mountain, rising from the sands to a great height on the shores of the ocean to which it gave its name; and yet, in the same chapter, he represents it as a range passed by Suetonius Paulinus on his progress to the Niger. Strabo (l. xvii.) mentions its being called Dyris, (see ADIRIS) by the ancients, and as being beyond the pillars of Hercules, on turning to the left or south. Dr. Shaw (*Trav.* p. 5.) represents it as a remarkable chain of eminences, which sometimes borders upon the Sahara, and sometimes lies within the Tell. He adds, "that if we conceive, in an easy ascent, a number of hills, usually of the perpendicular height of 4, 5, or 600 yards, with a succession of several groves, and ranges of fruit and forest-trees, growing one behind another, upon them; and if to this prospect we sometimes add a rocky precipice of superior eminence, and more difficult access, and place upon the side, or summit of it, a mud-walled *Dashkrah* of the Kabyles, we shall then have a just and lively picture of mount Atlas, without giving the least credit to the nocturnal flames, the melodious sounds, or lascivious revels of such imaginary beings, as Pliny, Solinus, and others, have in a peculiar manner attributed to it." According to some modern accounts, this ridge divides the kingdom of Algiers from Zaab and Biledulgerid, or its direction is south-west and north-east; and therefore it may be considered as extending from Cape Geer in a north-east direction, and giving source to many rivers flowing north and south, till it terminates in the kingdom of Tunis. This main ridge in some places may present a double chain, and in others diverge its branches. Its structure towards the western extremity is granite and primitive. M. Lempriere, in his journey to Morocco, seems to have clearly ascertained the range of Atlas. The town of Santa Cruz stands near its furthest extremity; while Tarudant, to which he passes through an open plain, lies on the south of the Atlas. Hence it appears, that Cape Geer is its termination, or the great Atlas of Ptolemy, while the smaller Atlas is a branch extending towards Saffi or Cape Cantin; and another branch, now called the Lesser Atlas, reaches to Tangier. According to Chenier (*Present State of Morocco*, vol. i. p. 13.), Mount Atlas is the eastern boundary of all the western provinces of Morocco. He represents it as formed by an endless chain of lofty eminences, divided into different countries, inhabited by a multitude of tribes, whose ferocity permits no stranger to approach. He professes to be unable to describe these mountains accurately; but adds, that nothing would be more interesting to the curiosity of the philosopher, or conduce more to the improvement of our knowledge in Natural History, than a journey over mount Atlas. The climate, though extremely cold in winter, is very healthy and pleasant, the vallies are well cultivated, abound in fruits, and are diversified with forests and plentiful springs, the streams of which, uniting at a little distance, form great rivers, and lose themselves in the ocean. According to the reports of the Moors, there are many quarries of marble, granite, and other valuable stone, in these mountains; and it is probable, there are also mines, but the inhabitants have no idea

of these riches: they consider their liberty, which their situation enables them to defend, as the most inestimable of all treasures.

As the province of Morocco lies to the west of mount Atlas, part of the ancient Numidia, called the kingdom of Tafilet, situate in a sandy plain, lies to the east: and from Morocco to this province there is no way but by crossing one of the extremities of the Atlas, either by the side of the province of Sus, or by that of Fez; the latter road, being less sultry than the other, is most frequented.

ATLAS, in *Anatomy*, the name of the first vertebra of the neck, which supports the head. See VERTEBRA, and SKELETON.

ATLAS, in *Commerce*, a silk satin manufactured in the East Indies. It must be owned that the manufacture of these silks is wonderful, especially of the flowered atlasses; in which the gold and silk are wrought together in such a manner, as no workman in Europe can imitate: yet they are far from having that fine gloss and lustre, which the French know how to give their silks.

In the Chinese manufactures of this sort, they gild paper on one side with gold leaf, then cut it into long slips, and weave it into their silks; which makes them with very little cost look very rich and fine. The same long slips are twisted or turned about silk threads so artificially, as to look finer than gold thread, though it be of no great value.

ATLAS, in *Entomology*, a species of PHALÆNA, belonging to the *Bombyx* tribe. The wings are falcated or hooked, yellow-brown and varied; a transparent spot in the middle of each wing, with a smaller one next that on the anterior pair. Linn. Fabr. &c.

"Phalæna Atlas is the largest insect of the moth tribe hitherto discovered, and is indeed a gigantic creature. The species is common in China, but is not peculiar to that country, being found in other parts of Asia, and in America. The influence of climate may be easily traced on the varieties from different countries; that from Surinam is the largest, and of the deepest colours. The Chinese kind is the next in size; the colours incline to orange, and the anterior wings are more falcated or hooked at the ends; there are two other Asiatic varieties known, that are still smaller, and have the wings extremely falcated.

"The larva of Phalæna Atlas is figured by M. Merian in her *Insecta Surinamensia*, Plate 52; it is about four inches in length, green, with a yellow stripe disposed longitudinally. Upon each segment are four distinct round tubercles, of a coral-like orange colour, which are surrounded with very delicate hairs. The pupa is large, and is inclosed in a web of an ochraceous colour. The silk of this web is of a strong texture, and it has been imagined, if woven, would be superior in durability to that of the common silk-worm. Seba has also represented the larva, (f. i. pl. 57. vol. 4.), in his *Thesaurus Naturæ*. It is figured by him nearly six inches in length, and bulky in proportion; the Phalæna or Moth is also larger than that figured by Merian, which is a small specimen of the Surinam kind. According to Merian, there are three broods of this insect in a year; they are very common, and feed on the orange trees. Linnæus says, that they adhere so tenaciously to the leaves, that they can scarcely be taken off. An opinion has been long prevalent, that the web of this insect might easily be manufactured into a very durable silk; and it certainly admits of doubt whether the Chinese do not actually rear the moth for this purpose. Silk is an important article in China, and other Eastern countries, where the use of linen is little known; the Jesuit missionaries mention several sorts in use among the Chinese, some

of which is admired for its beauty, and others for durability; these kinds are probably the produce of different insects, and Phalæna Atlas may be of that number. Lefser and Lyonet, in their "*Theologie des Insectes*," say, that at this day there are to be found in China, in the province of Canton, silk worms in a wild state, which, without any care being taken of them, make in the woods a kind of silk, which the inhabitants afterwards gather from the trees; it is grey, without lustre, and is used to make a very thick and strong cloth, named there Kien Tcheon; and by some European naturalists, it is imagined to be the product of this very species." Vide DONOV. *Inf. China* (Atlas). We shall again resume this subject under the articles PHALÆNA, SILK-WORMS, &c. in treating of those analogous creatures which produce a silk of such strength or beauty as to be useful, or promise to become so, in the concerns of man: a subject this that highly merits consideration; and which we shall endeavour to elucidate as copiously and accurately, as the magnitude and importance of the article demand.

ATLAS, a species of SCARABÆUS, found in South America. The thorax is armed with three horns, the middle one of which is very short; horn on the head recurved. Linn. and Fabr. *Ent. Syst.*

ATLAS *Amboinensis* (*Papilio f.*) a name given by some Entomological writers to the Linnæan *Papilio Priamus*. Muf. petrop. 644, &c.

ATLAS is also a title given to books of universal geography, containing maps of the known parts of the world; as if they were viewed from the top of that celebrated mountain, which the ancients esteemed the highest in the world; or rather on account of their holding the whole world like Atlas. The same name is given to maps of the stars.

ATLENBURG, or ATTELNBURGH, in *Geography*, a town of Germany, in the circle of Lower Saxony, and duchy of Lauenburg, on the Elbe; four miles west of Lauenburg.

ATLITA, in *Entomology*, a species of PAPILIO found in the East Indies. This butterfly is indented, brown, glossed with blue; beneath fulvous, with undulated glaucous streaks, and five blind-eye shaped spots. Fabricius and DONOV. *Inf. India*. Gmelin has overlooked this species in his *Syst. Nat.*

ATLITES, a name under which the species of PAPILIO LAOMEDIA, was at first described in *Amoen. Acad.* 6. p. 407. 72.

ATMOSPHERE, formed of ἀήρ, *vapour*, and σφαῖρα, *a sphere*, an appendage of our earth; consisting of a thin, fluid, elastic substance, called *air*, which surrounds the terraqueous globe to a considerable height, gravitates towards its centre, on its surface, is carried along with it round the sun, and partakes of all its motions both annual and diurnal.

By atmosphere is understood the whole mass, or assemblage of ambient air: though among some of the more accurate writers, the atmosphere is restrained to that part of the air next the earth, which receives vapours and exhalations, and refracts the rays of light.

The farther or higher spaces, though perhaps not wholly destitute of air, are supposed to be possessed by a finer substitute called *ether*, and are hence called *etherial regions*.

For the nature, constitution, properties, and different states and uses of the atmosphere, see AIR, the sequel of this article, EUDIOMETER, and EUDIOMETRY; where this subject will be treated of at large as its importance requires.

A late eminent author considers the atmosphere as a large chemical

chemical vessel, wherein the matter of all the kinds of sub-lunary bodies is copiously floating; and thus exposed to the continual action of that immense furnace the sun; whence proceed innumerable operations, sublimate, separations, compositions, digestions, fermentations, putrefactions, &c.

We have a large apparatus of instruments, contrived for indicating and measuring the state and alterations of the atmosphere; as ANEMOMETERS, BAROMETERS, EUDIOMETERS, HYGROMETERS, MANOMETERS, THERMOMETERS, &c.

ATMOSPHERE, Electricity of the. Beside those large quantities of the electric matter, with which the clouds are charged in a thunder-storm, it has been observed first by M. Monnier in 1752, and afterwards repeatedly and with peculiar attention by others, particularly by the abbé Mazeas in 1753, and Mr. Kinnerley, that the atmosphere is never wholly destitute of the electrical fluid. A person electrified negatively may satisfy himself of this, by extending his arm in the open air, and presenting a long sharp needle with its point upwards; for the electric matter collected from the remoter air will appear luminous, as it converges to the point of the needle. Mr. Canton's balls are likewise an excellent contrivance for the same purpose, and may be made use of, not only for determining the electricity of the atmosphere in general, but the positive or negative quality of it. According to this ingenious philosopher, deiccated atmospheric air, when heated, becomes negatively electric; and when cooled, the electricity is of the positive kind, even when the air is not permitted to expand or contract; and the expansion or contraction of atmospheric air occasions changes in its electrical state. But no electrician, in the earlier stage of this science, conducted his observations in this way with greater accuracy and farther pursued them, than S. Beccaria. (See "*Beccaria's Essay on Atmospheric Electricity*," annexed to the English translation of his *Artificial Electricity*," p. 421, &c.) From him we learn, that the atmosphere discovers no signs of electricity in windy and clear weather, nor in moist weather without rain, nor when the sky is covered with distinct and black clouds with a slow motion; but he always observed a moderate, though interrupted electricity, for the most part of the positive kind, in a clear sky, when the weather was calm; and in rainy weather without lightning, a little before the rain fell, and during the continuance of it, till the rain was almost over. The electricity of the atmosphere, according to Beccaria, was always positive, during the day and in dry weather, but always negative, when a bright or serene atmosphere succeeded dark and moist weather. The quantity of atmospherical electricity was found to increase after the rising of the sun, and during his progress; and its augmentation was the more considerable, as the moisture of the air was diminished; but it decreased in the evening. In days equally dry, the degree of electricity at noon was proportional to the degree of heat; and in a serene atmosphere, with little wind, a considerable quantity of the electrical matter commonly arose after sun-set, during the precipitation of dew. Thick fogs were observed, during their ascent into dry air, to carry with them a considerable quantity of the electric matter. And the electricity was stronger, as his rods were higher, and the strings, which were extended and insulated in the open air, were longer.

Mr. Cavallo (*Complete Treatise on Electricity*, vol. ii. p. 42. ed. 4.) deduces the following conclusions from his experiments and observations on this subject; viz. that there is in the atmosphere at all times a quantity of electric matter:—that the electricity of the atmosphere, and of fogs, is always positive:—that, in general, the strongest electricity

is observable in thick fogs, and also in frosty weather; and the weakest, when it is cloudy and warm, and rain approaches:—that it does not seem to be less by night than in the day:—and that the electricity is stronger in places more elevated than in those that are lower; and therefore, according to this rule, if it may be extended to any distance from the earth, the electricity in the higher regions of the atmosphere must be exceedingly strong. Mr. Read, in his "*Summary View of the Spontaneous Electricity of the Earth and Atmosphere*," observes that the electricity of the atmosphere in moderate weather, was always found to be positive; in storms and disturbed states of the air, frequently negative; and suddenly and repeatedly changing from one state to the other. Warm small rain was found to be very slightly electric; large drops, strongly; hail showers, the most intensely of all. In an easterly wind of long continuance, and reckoned unhealthful, the electricity was so faint, as to require the nicest of all known tests for discovering its existence. The vapour of water, as soon as it had attained the height of five or six inches of insulation in the air, was found to be permanently and positively electrified; and the surface from which it evaporated, negatively. Vapour has a greater capacity for electricity, or absorbs and requires more of this fluid, than water in its dense state; and therefore rarefaction must diminish, and condensation increase, the sensible electric charge of the vapour. Hence, in serene weather, the atmosphere is subject to a regular flux and reflux, or increase and diminution of electricity, twice in every twenty-four hours, depending on the action of the sun, and the consequent evaporation and state of the vapours. This diligent observer and judicious reasoner further observes, that a limited portion of the earth's surface is often sensibly electrified; over it, there is always a proportionate quantity of the contrary electricity in the atmosphere; and when an electrified cloud is carried forward by wind, an equal and opposite electric charge keeps pace with it on the earth, till the two charges, becoming more augmented, or approaching nearer to one another, or meeting with some conducting eminence, rush together, and produce an explosion.

The subject of atmospherical electricity has engaged the particular attention of M. Saussure; and few persons have had more favourable opportunities for observing the phenomena that attend it, or possessed a more extensive acquaintance with meteorology in general, for enabling him to illustrate these phenomena by apposite observations, than this author. He confirms the fact noticed by others, and previously known, that aerial electricity varies according to the situation, being generally strongest in elevated and insulated situations, and not observable under trees, in streets, houses, or inclosed places. But it is not so much the height, as the situation of the places, which determines the degree of electricity: for the projecting angle of a high hill will often exhibit a stronger electricity than the plain at the top of the hill, as there are fewer points in the former to deprive the air of its electricity. The intensity of the atmospherical electricity is subject to a great variety of changes, of which some depend on obvious circumstances and others are altogether inexplicable. These changes, according to M. Saussure, were sometimes so rapid in their succession, that he had not time to note them down. When rain falls without a storm, these changes are not so sudden; but with respect to the intensity of the electric force, they are very irregular; whilst the quality of it is more constant. Rain or snow almost always gives positive electricity. In cloudy weather, without rains or storms, the electricity generally follows the same laws as in serene weather. Its intensity

A T M O S P H E R E .

intensity is generally diminished by strong winds, which blend the different strata of the atmosphere, cause them to subside towards the ground, and thus distribute the electricity uniformly between the earth and the air. M. Saussure has observed a strong electricity, with a strong north wind. In foggy weather, the electricity is the strongest, unless the fog is about to be dissolved into rain. The various modifications of electricity in the atmosphere are observed with the greatest advantage in serene weather. M. Saussure found, in winter and in such weather, that the electricity was generally weakest in the evening, when the dew had fallen, and so continued till sun-rise; afterwards its intensity augmented by degrees, sometimes sooner and sometimes later; but usually before noon it attained a certain maximum, from which it again declined till the fall of the dew, when it would be sometimes stronger than it had been during the whole day; after which it would again gradually decrease during the whole night; but it was never quite destroyed in weather perfectly serene. Hence it may be inferred, that atmospherical electricity, like the water of the ocean, is subject to a flux and reflux, which produce an increase and diminution twice in twenty four-hours. The moments of its greatest force are some hours after the rising and setting of the sun; and those in which it is weakest precede its rising and setting. Of this periodical flux, M. Saussure has given a remarkable instance, deduced from his observations in an extraordinary degree of cold, and at an elevation of sixty feet above the level of the lake of Geneva. From the result of eighteen of these observations, made during three successive days, when the sky was quite serene, we learn, that the electricity was pretty strong at nine in the morning; that from this time it gradually decreased till about six in the evening, which was its first minimum; after which it increased again till eight, its second maximum; it then gradually declined till six in the morning, which was the period of its second minimum; after which, it again increased till ten in the morning, which was the first maximum of the following day: but as this day was cloudy, its periods were less regular. The electricity of serene weather is less easily observed in summer than in winter. In summer, if the ground has been dry for some days, and the air is also dry, the electricity increases from the rising of the sun, till three or four in the afternoon, when it is strongest: it then decreases till the dew begins to fall, when it again increases: but after this it declines and is almost reduced to nothing during the night. However, the serene days that succeed rainy weather in summer generally exhibit the same diurnal periods or states of electricity, with those that are observable in winter. The electricity of the air is invariably positive in serene weather, both in winter and summer, in the day and in the night, in the sun and in the dew. Hence it should seem, that the electricity of the air is essentially positive; and that whenever it appears to be negative, as in particular rains or storms, this state is produced by some clouds which have been exposed to the pressure of the electric fluid contained in the upper part of the atmosphere, or to more elevated clouds that have discharged a part of their fluid upon the earth, or upon other clouds. M. Saussure, having collected these and similar phenomena, as the result of numerous and repeated observations, instituted a set of experiments on evaporation, in order to investigate and ascertain their cause. These our limits will not allow us to detail; but the general result was, that evaporation, which seems to be the vehicle that conveys electric matter into the atmosphere, from china and silver always produced negative electricity; and from iron and copper, generally positive electricity; and hence it may be inferred, that electricity is positive with those bodies that

are capable of decomposing water, or of being decomposed themselves by their contact with the water; and negative, with all those which are not at all decomposed or altered. As to the producing causes or sources of atmospherical electricity, we may observe in general, that they may be reduced to four, viz. friction, evaporation, heat and cold, and condensation and expansion: and with respect to the changes and modifications to which the atmospherical electricity is continually subject, they may be attributed to the operation of the various causes that produce it, and to the chemical processes that are constantly carried on by means of the various ingredients that compose the atmosphere. M. Volta (Phil. Trans. vol. lxxii. p. 32), in reference to this subject observes, that as the vapours on their condensing lose part of their latent heat, on account of their capacity being diminished they part with some electric fluid. Hence (he says) originates the positive electricity which is always more or less predominant in the atmosphere, when the sky is clear, viz. at that height where the vapours begin to be condensed. Accordingly the atmospherical electricity is stronger in fogs, in which case the vapours are more condensed, so as to be almost reduced to drops, and is still stronger when thick fogs become clouds. In accounting for clouds, negatively electrified, he supposes that when a cloud, positively electrified, has been once formed, its sphere of action is extended a great way round, so that if another cloud comes within that sphere, its electric fluid, according to the well known laws of electric atmospheres, must retire to the parts of it which are most remote from the first cloud: and from thence the electric fluid may be communicated to other clouds, or vapours, or terrestrial prominences: thus, a cloud may be electrified negatively, which cloud may, after the same manner, occasion a positive electricity in another cloud, &c. This explains not only the negative electricity, which is often obtained from the atmosphere in cloudy weather; and the frequent changes from positive to negative electricity, and contrarywise, in stormy weather; but also the waving motion observed in the clouds, and the hanging down of them, so as nearly to touch the earth. For an account of the instruments that are used for discovering and estimating the electricity of the atmosphere, see COLLECTOR, CONDENSER, CONDUCTORS, and ELECTROMETER: and for further observations on this subject, see also ELECTRICITY, EVAPORATION, LIGHTNING, RAIN, VAPOUR, &c.

ATMOSPHERE, Figure of the. The atmosphere envelopes all parts of the surface of our globe; if therefore both the one and the other continued at rest, and were not endowed with a diurnal motion round their axis, then the atmosphere would be exactly spherical, according to all the laws of gravity; for all the points of the surface of a fluid in a state of rest, must be equally removed from its centre. But the earth and the ambient atmosphere are invested with a diurnal motion, which carries both the one and the other round their axis: and the different parts of both having a centrifugal force, the tendency of which is more considerable and that of the centripetal less, as the parts are more remote from the axis; the figure of the atmosphere must become an oblate spheroid, because the parts that correspond to the equator are farther removed from the axis, than the parts which correspond to the poles.

Besides, the figure of the atmosphere must represent such a spheroid, because the sun strikes more directly on the air which encompasses the equator, and is comprehended between the two tropics, than on that which pertains to the polar regions. Whence it follows, that the mass of air, or part of the atmosphere, adjoining to the poles, being less heated, cannot expand so much, nor reach so high. Nevertheless,

theless, as the same force which contributes to elevate the air, diminishes the pressure on the surface of the earth, higher columns of it at or nearer the equator, all other circumstances being the same, may not be heavier than those that are lower at or near the poles.

Mr. Kirwan (Irish Trans. for 1788. p. 61.), stating the height of the mercury in the barometer on the level of the sea, indicating the natural state of the atmosphere, to be thirty inches under the equator and under the poles, observes, that in order to produce this state, the weight of the atmosphere must be every where equal at the surface of the sea; and as the weight of the atmosphere proceeds from its density and height, this equality of weight requires that the atmosphere should be lowest where its density is greatest, and highest where its density is least. These extremes of density take place in the equatorial and polar regions. Under the equator, the centrifugal force, the distance from the centre of the earth, and the heat are all at their maximum; in the vicinity of the poles, on the contrary, they are at their minimum. From this reasoning it follows, that the atmosphere must be highest under the equator, and lowest under the poles, with several intermediate gradations. Kirwan supposes the rarefactions of the atmosphere in the polar regions to proceed from the aurora borealis and australis, which he takes to be a combustion of inflammable air, caused by electricity; and as this air is lighter than any other, it consequently occupies the highest regions of the atmosphere. See AURORA, and BAROMETER.

ATMOSPHERE, Weight and Pressure of the. The weight of the atmosphere, depending partly upon its height, and partly upon its density, and its consequent pressure, are properties that have been long ascertained by means of the ascent of mercury in the barometer, and of water in pumps, syphons, and other similar engines. (See AIR, Weight of.) The quantity of this pressure may be easily estimated by comparing the weight of a column of atmospherical air with that of a corresponding column of quicksilver, or of water, by which it is counterbalanced. Upon this principle it has been found, that the pressure of the atmosphere sustains a column of quicksilver, in the tube of the barometer, of the height of about thirty inches; and hence it follows, that the whole pressure of the atmosphere is equal to the weight of a column of quicksilver, having an equal base, and about thirty inches in height. But as a cubical inch of quicksilver weighs about 8 oz. 1.45 drams, avoirdupoise, the weight of 30 cubical inches will be 15 pounds, nearly. Such, therefore, is the weight of the atmosphere on every square inch of surface. It has also been found, by pumps and other hydraulical engines, that the pressure of the atmosphere sustains a column of water from 34 to 35 feet, say $34\frac{1}{2}$ feet, high; and as a cubical inch of water weighs 9.25 drams, and a cubical foot 1728×9.25 drams, nearly 1000 ounces avoirdupoise, or $62\frac{1}{2}$ pounds, the amount of the pressure of the atmosphere on a square foot will be $34\frac{1}{2} \times 62\frac{1}{2}$, or $2156\frac{1}{4}$ pounds; and a square foot containing 144 square inches, 2156.25 , or nearly 15 pounds, will be its pressure on a square

144
inch. Hence it follows, that if a man's body contain 15 square feet, which is near the truth, he will sustain a weight equal to $2156\frac{1}{4} \times 15 = 32343\frac{3}{4}$ pounds, or about $14\frac{1}{2}$ tons, when the quicksilver in the barometer stands at 30 inches.

This pressure is so great, that it would be absolutely insupportable, and even fatal to us, if it were not equal in every part, and counterbalanced by the spring of some other elastic fluid within us, which is diffused through the whole body, and re-acts with an equal force against the outward pressure. The nature of this internal elastic fluid is not

clearly understood, nor, indeed, is its existence positively ascertained. But whatever it be, it is such as to counteract the weight of the atmosphere. However, if any considerable pressure be superadded to that of the air, as e. g. by descending into deep water, it is always felt in a greater or less degree (see DIVING), more especially when the change is sudden; and on the other hand, if the pressure of the atmosphere be taken off from any part of the human body, as from the hand placed over the exhausted receiver of an air-pump, the weight of the superincumbent atmosphere is felt, and the flesh of the hand is thrust down, as it were by suction, into the glass. We might add, that the heat of our bodies rarefies the air contiguous to their surfaces, and therefore a living animal does not sustain an equal atmospherical pressure with that of inanimate and cold substances. Moreover, as the earth's surface contains, in round numbers, 200,000,000 square miles, and every square mile $27,878,400$ square feet, there must be $5,575,680,000,000,000$ square feet on the earth's surface; which, multiplied by $2156\frac{1}{4}$ pounds, will give $12,022,560,000,000,000,000$ pounds for the pressure or weight of the whole atmosphere.

Mr. Cotes (Hydrostatical and Pneumatical Lect. p. 112.) mentions the result of a computation which he made of the weight of all the air, which presses upon the whole surface of the earth; and he observes, that it is equal to the pressure of a globe of lead, nearly 60 miles in diameter. The computation proceeds upon these principles; that the weight of a column of air, reaching to the top of the atmosphere, is most commonly equal to a column of water, having the same basis, and the altitude of 34 feet; that the semidiameter of the earth is equal to 20949655 feet; and that the specific gravity of water is to that of lead as 100 to 11,325.

The difference of the weight of the atmosphere, and of its consequent pressure, at different times, and in different situations, is a circumstance that deserves our particular notice. This difference in the same situation arises from changes in the state of the atmosphere; and it chiefly occurs in places at some distance from the equator. It is indicated, and of course easily estimated, by the different height to which the mercury is raised in the barometer. As the greatest variation of the height of the mercury occupies a range of about 3 inches, or from 28 to 31 inches, being $\frac{1}{10}$ th of the whole range, a column of air of any assignable base, equal to the weight of a cylinder of mercury of the same base, and of the altitude of 3 inches, will be taken off from the pressure upon a body of an equal base, at such times as the mercury is three inches lower in the barometer: and therefore every square inch of the surface of our bodies is pressed upon at one time more than another, by a weight of air equal to that of three cubical inches of mercury. As this is about $\frac{1}{10}$ th of the whole quantity, the difference of the pressure, which the human body sustains at one time more than another, amounts to about $1\frac{1}{2}$ ton. The reason why we are not sensible of this pressure is explained in the following manner by Borellus, de Mot. nat. a grav. fac. prop. 29, &c. After saying that sand, perfectly rammed in a hard vessel, is not capable, by any means, of being penetrated or parted, not even by a wedge; and likewise that water, contained in a bladder compressed equally on all sides, cannot yield or give way in any part: he proceeds; "In like manner, within the skin of an animal is contained a diversity of parts, some hard, as bones; others soft, as muscles, nerves, membranes, &c.; others fluid, as blood, fat, &c. Now it is not possible the bones should be broke or displaced in the body, unless the weight lay heavier on one part than on another, as we

sometimes see in porters. If the pressure be subdivided, so that it lie equally all around, upwards, downwards, and sideways, and no part of the skin be exempt therefrom, it is impossible any fracture or luxation should follow. The same may be observed of the muscles and nerves; which though soft, yet being composed of solid fibres, do naturally sustain each other, and resist the common weight. The same holds of blood and other humours; and as water does not admit any manifest condensation, so the animal humours contained in their vessels may suffer an attrition from an impulse made in one or more particular places, but can never be forced out of their vessels by a universal compression. It follows, that as none of the parts undergo either separation, luxation, contusion, or any other change of situation; it is impossible any sense of pain should ensue, which can only be the effect of a solution of continuity. This is confirmed by what we see in divers," &c. See DIVING.

The same is farther confirmed by Mr. Boyle, who, including a young frog in a vessel half full of water, and intruding so much air that the water might sustain eight times the weight it otherwise would; yet the animalcule, notwithstanding the great tenderness of its skin, did not seem at all affected thereby.

Besides, it ought to be considered that the pressure of the atmosphere is uniform and equal on all parts of the body; and that we have been accustomed to it by long experience. It should also be recollected, that when the ordinary weight of the atmosphere is augmented, the weather is commonly dry and serene; the circulation is promoted; the blood is driven to the internal parts; a more abundant secretion of the juices takes place; and the tonic tension of the solid parts is increased; and these circumstances combined produce an additional flow of spirits, and render us more lively and active. The same beneficial effect is observable even in brute animals. On the contrary, when the weight of the air is diminished, the weather is usually moist and foggy, and the animal frame becomes sensible of oppression, listlessness, and inactivity. These changes in the state of the atmosphere, which are felt more or less by persons of all descriptions, and of which valetudinarians frequently complain, would be more sensibly experienced, if they occurred by very sudden transitions: for to this circumstance the sensation of uneasiness and indisposition is chiefly to be attributed; and accordingly great and sudden changes in the state of the barometer and atmosphere, are generally accompanied with a corresponding alteration in the corporeal frame and animal spirits. But when a change of this kind occurs gradually, and when the same state of the atmosphere continues for some time, its effect is less sensibly perceived; as the body possesses a power of accommodating itself to such change. The spring of that elastic fluid, to which we have already referred, serves as a counterpoise to the pressure of the atmosphere, and when this is diminished it becomes more relaxed, so that the equilibrium between the one and the other is maintained. Hence it happens, that in moist foggy weather, when the pressure of the atmosphere is least considerable, our veins never swell, nor are we sensible of any internal expansion of our bodies; but, on the contrary, the vessels are more distended, the circulation becomes more languid, and we seem to be oppressed with a weight. Upon the whole, we may observe, that the pressure of the atmosphere resembles a kind of bandage, which being drawn tighter, as in the case of increased pressure, constricts the vessels of the body, and accelerates the circulation; and which being more relaxed, as in the diminished pressure, occasions a distension of the vessels, and is attended by a more slow and languid circulation. But this is a subject, in the

elucidation of which physiologists are not agreed. As variations of the atmospheric pressure in the same place produce effects that are sensibly felt, particularly by persons of delicate and tender constitution, whatever explication may be given of these effects, and to whatever intermediate causes they may be ascribed, the changes of pressure are also perceived in different situations, as they are more elevated or depressed. Indeed, if the ascent from lower to higher stations, and vice versa, be gradual, the body adapts itself to the changes that attend them, and they are scarcely, if at all, perceivable; but in the case of a more rapid ascent or descent, or when the difference of height is very considerable, the effects are more sensible and apparent. Many facts and observations to this purpose have been furnished by those who have ascended in balloons, or descended in diving-bells. (See AEROSTATION, and DIVING.) The accounts given by persons who have ascended considerable eminences above the level of the sea, have been very various; nor is it certain that the effects they have perceived have been owing wholly or merely to the variation of the atmospheric pressure. Some have complained of a total lassitude, which they have ascribed to the dilatation of the corporeal vessels, of obstructions to the functions of the respiratory organs, of violent reachings and vomitings of blood, and, in some cases, of the extrusion of blood through the fine coats of the lungs, and an ensuing hæmoptysis. M. Saussure, in his ascent to the top of mount Blanc, felt great uneasiness, as he advanced upwards. He informs us, that his respiration was much oppressed, the circulation of blood accelerated, and the pulse quickened, that he was seized with other symptoms of a fever; and that his strength was also very much exhausted. These symptoms of oppression and debility, however, did not begin to appear till he had ascended to the perpendicular height of $2\frac{1}{2}$ miles above the level of the sea, and upon an additional ascent of $\frac{1}{4}$ of a mile, he found the symptoms above recited. To some other concurring cause, besides the rarity of the atmosphere, it is natural to ascribe some of these symptoms; and, indeed, he himself says, that the atmosphere at the top of the mountain was much impregnated with carbonic acid, which is known to be pernicious to animals, and to be productive of some of the above-mentioned effects. In other cases, persons in elevated situations have experienced no effects like those which M. Saussure has related, and which the mechanical theory of diminished pressure would lead us to expect. Mr. Brydone and M. Howel mention no inconvenience of this kind to which they were subject on the top of mount Atna; nor do the French mathematicians, who were for some time on the summit of a very high eminence of the Andes, make any other complaint besides that of the difficulty of respiration. (See ANDES.) But Dr. Heberden, who ascended to the top of Teneriffe, a mountain higher than Atna, makes no mention even of this circumstance. It has also been alleged, that no inconvenience has been experienced by a gradual descent in the diving-bell to considerable depths in the sea, as long as the persons who have descended have remained in the air in the bell; though they have found a very material difference on exposing themselves to the pressure of the water. See DIVING.

It is not easy to assign the true cause of the variations of the atmospheric weight and pressure that occur in the same situation. In places within the tropics, where these variations are not very considerable, the chief cause seems to be the heat of the sun; and its effects are regular and uniform, as the mercury in the barometer subsides about half an inch in the day, and rises again to its former height in the night. But in the temperate zones the range is much greater, extending

tending from 28 to 31 inches, and showing, by its various altitudes, corresponding variations in the weather. The causes that influence the variations of the one, produce also a similar effect on the other; and if the former were known, the latter might be ascertained. The immediate causes may probably be reduced to the two following; *viz.* an emission of latent heat from the vapours of the atmosphere, or of electric fluid from these or from the earth. Both these causes are observed to produce the same effect with the solar heat in the tropical climates, which is that of rarefying the air by blending with it, or setting loose a lighter fluid, which did not previously act with such power in any particular place. For a more particular account of different theories on this subject, see **BAROMETER, HAIL, METEOROLOGY, RAIN, SNOW, WEATHER, and WIND.** Of the importance and utility of this property of the atmosphere, many instances occur in the animal economy, chemical processes, and mechanical operations. See **CUPPING, RESPIRATION, COLOUR, COMBUSTION, VAPOUR, PUMP, and SYPHON.**

With the gravity and pressure of the air are nearly connected its other properties of *density and elasticity*. The density of the atmosphere must principally depend on its gravity; and, in general, increase and decrease in the same proportion. In the lower and intermediate strata of the atmospheric air, this ratio obtains; but it is not uniform and constant in all elevations. In the higher regions of the atmosphere, where the electric fluid abounds, this fluid may diminish the gravity of the atmosphere, without affecting its density. Besides, the density of the atmosphere in the torrid zone will not decrease so fast in proportion to the height of the column, as in the temperate and frigid zones; because the column is longer, and because a greater portion of atmospheric air occupies the higher parts of this column. Consequently, the density of the atmosphere at the equator, which is less at the surface of the earth, must at a certain height equal, and at a greater height exceed, the density of the atmosphere in the temperate zones and at the poles. As a current of atmospheric air is continually ascending at the equator, and part of it occupies the higher regions of the atmosphere, and as its fluidity will prevent its accumulation at the equator, it will of course descend towards the poles; and during our winter a greater portion of the equatorial column will flow to the northern than to the southern hemisphere; but a less portion will pursue this course during the summer. The mercurial column, therefore, will be always highest with us in winter, and the corresponding range of the barometer more considerable than in summer; and vice versa. The density of the atmosphere will be materially affected by the caloric or matter of heat which it contains, and of course it will depend in a great measure on the degree of cold which prevails. Where the cold is greatest, the density of the atmosphere will also be greatest, and its height will be diminished. In those countries which abound with high mountains that are generally covered with snow, the cold will be more intense than in others less elevated, though situate in the same latitude; and of course the height of the atmospheric columns will be proportionally lower. Hence the superior air in its passage to the poles will be retarded, and accumulate over them. Such accumulations will take place over the north-western parts of Asia, and over North America; and on this account the barometer usually stands higher, and its range is more uniform than in Europe. Similar accumulations are also formed in the southern parts of the old continent; for instance, over the mountainous tract of Thibet, Tartary, Turkey in Europe, Africa, and even in some degree on the Pyrenées and Alps.

When these accumulations have for any time prevailed, the density of the atmosphere becomes too considerable to be balanced by the surrounding medium; and of course it will descend towards the regions of the atmosphere that lie over the adjacent countries, and produce cold winds, that will raise the mercury in the barometer. Thus the north-east winds in Europe are occasionally accompanied by a rise of the barometer, because they proceed from accumulations of the atmosphere in the north-west parts of Asia, or about the pole; and hence it is, that the north-west wind from the mountains of Thibet raises the barometer at Calcutta.

As the mean heat of our hemisphere is not permanent, the density of the atmosphere, and consequently the quantity of equatorial air which flows towards the poles, must be subject to corresponding variations. The accumulations of atmospheric air on the mountainous parts of the south of Europe and Asia, occasionally exceed their usual limits, which is partly owing to earlier falls of snow, or to the exclusion of the solar rays by fogs of long continuance. In this case the atmosphere in the polar regions will sustain a corresponding diminution of density. In the torrid zone and equatorial regions the heat is uniform; and the density of the atmosphere, modified by it, as well as the height of the atmosphere, will not be subject to much variation. Kirwan, Irish Transl. for 1788, p. 60. See **DENSITY.** See also **BAROMETER**, under which article the cause of the variations in the weight and pressure of the atmosphere is particularly discussed. For the effects of the removal of the pressure of the atmosphere, see **AIR Pump**, and **VACUUM**. For the elasticity of the atmosphere, see **AIR** and **ELASTICITY of the air**.

ATMOSPHERE, Height of the. The height of the atmosphere has been a subject of particular investigation; more especially since it was discovered by the Torricellian tube, that air is endued with weight and pressure. And, indeed, if the air possessed no elastic power, but were every where of the same density, from the surface of the earth to the extreme limit of the atmosphere, like water, which is equally dense at all depths, the whole height of the atmosphere might be ascertained without difficulty. It has already been observed, that the weight of a column of air, reaching to the top of the atmosphere, is equal to the weight of the mercury contained in the barometer, and counterbalancing it; and the proportion of weight likewise being known between equal bulks of air and mercury; it will be easy to find the height of such a column, and consequently that of the atmosphere itself.—For a column of air, one inch high, being to an equal column of mercury as 1 to 11364.6; it is evident that 11364.6 such columns of air, that is, a column 947 feet high, would be equal in weight to one inch of mercury; and consequently the 30 inches of mercury sustained in the barometer, require a column of air 28410 feet high; whence the height of the atmosphere would only be 28410 feet, or little more than five English miles and a quarter high.

But the air, by its elastic property, expands and contracts: and it being found by repeated experiments in England, France, and Italy, that the spaces it takes up, when compressed by different weights, are reciprocally proportional to those weights themselves; or, that the air takes up the less space, the more it is pressed; it follows, that the air in the upper regions of the atmosphere, where the weight is so much less, must be much rarer than near the surface of the earth; and, consequently, that the height of the atmosphere must be much greater than is above assigned.

Mr. Cotes, in his *Hydrostatical Lectures*, lect. ix. has demon-

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demonstrated, in a very familiar and intelligible manner, that if any number of distances from the surface of the earth be taken in an arithmetical progression, the densities of the air at those distances will be in a geometrical progression. Let *xxxx* (Plate IX. *Pneumatics*, fig. 72.) represent a vessel reaching from the surface of the earth *ax* to the top of the atmosphere *xx*; and let the side *ax* be divided into inches *ab*, *bc*, *cd*, &c. and let the lines *bk*, *cl*, *dm*, &c. be drawn parallel to *ax*. It is evident that the air contained between these parallel lines becomes rarer as we ascend, because every ascending parallel successively is pressed by a less column of superincumbent air than the next below it. Suppose then that the air *ak* is every where uniform, but denser than the air *bl*, and so upwards. Let the air *bl* be reduced into a less space *bq*, so as to become of equal density with the air *ak*, by making the space *bq* less than *bl*, in the proportion that the air *bl* is less dense than the air *ak*. And let a similar construction be continued, so as to reduce every inch breadth of air to the same density with the air *ak*. The spaces *ak*, *bq*, *cr*, &c. will evidently be as the densities of the several inches of air, *ak*, *bl*, *cm*, &c. and the quantity or weight of the superincumbent air belonging to each of these spaces, and reaching to the top of the atmosphere, will always be as the sum of all the spaces situated above any space proposed; the quantity or weight being, by the construction of the figure, as the space which it possesses. Since then the density of the air is as the force which compresses it, and this force is the quantity of superincumbent air, the densities of the air between *ax* and *bk*, *bl* and *cl*, *cl* and *dm*, &c. are to each other as the quantities of air above *ax*, *bk*, *cl*, &c. up to the extremity of the atmosphere. But these densities, by what we have already shown, are as the spaces *ak*, *bq*, *cr*, &c. and the quantities of superincumbent air are as the spaces *xbqgrstvx*, *xcqrstvx*, *xdstvx*, &c. therefore the spaces *ak*, *bq*, *cr*, &c. are to each other respectively as the spaces *xbqgrstvx*, *xcqrstvx*, *xdstvx*, &c. Now the former spaces *ak*, *bq*, *cr*, being the differences of the latter, and mutually proportional, are, by a well known theorem in proportion, in a geometrical progression; as the distances *ab*, *ac*, *ad*, are in an arithmetical progression. And thus the densities of the air belonging to every one of the inches, continued to the extremity of the atmosphere, decrease in the same geometrical progression; and every the least variation of altitude will cause the same proportionable variation of density in the air. As the rarity of the air is reciprocally as its density, we may conclude that if the distances from the earth increase in an arithmetical progression, the different degrees of rarity of the air increase in a geometrical progression. Whence it is obvious, since an arithmetical series, adapted to a geometrical one, is analogous to the logarithms of the said geometrical one, that the distances are every where proportional to the logarithms of the corresponding rarities. It is also plain, that, as the distances or altitudes are proportional to the logarithms of the densities or weights of the air, any height taken from the earth's surface, which is the difference of two altitudes to the top of the atmosphere, is proportional to the difference of the logarithms of the two densities there, or to the logarithm of the ratio of those densities, and their corresponding compressing forces, as measured by the two heights of the barometer there.

This law was first observed and demonstrated by Dr. Halley, from the nature of the hyperbola; and afterwards by Dr. Gregory, by means of the logarithmic line. See Phil. Trans. N° 181. or Abr. ibid. vol. ii. p. 13. and Greg. Astron. lib. v. prop. 3. See the further illustration and proof of it under the article *Atmospherical LOGARITHMIC*.

From this proposition, having made two or three barometrical observations of the rarity or density of the air at two or three different known heights, it is easy to deduce a general rule for determining its rarity or density at any other height, or the height corresponding to any rarity or density; and consequently the altitude of the whole atmosphere, supposing the utmost degree of rarity known, beyond which the air cannot go.

But it is to be observed, that these computations of the rarity of the atmosphere, at different heights, are founded on this principle, that the density of the air is every where proportionable to the superincumbent weight. And this rule holds true only upon the supposition that the heat is uniform at different distances from the earth; for if the air be hotter in one part than in another, the air will be more rarefied in the hotter part than it will be in the cooler, although pressed by the same weight, or at the same altitude above the earth's surface.

It must not be here omitted, that some observations made by Cassini, and his associates, seem to render this method precarious.—In continuing the meridian line of the observatory at Paris, they measured the altitudes of several mountains with great accuracy; noting the height of the barometer at the top of each; and found that the rarefactions of the air, as you ascend from the level of the earth, are much greater than they ought to be, according to this proportion.

Suspecting therefore the justness of the experiments, the Royal Academy made divers others, under great dilatations of air, far exceeding the rarities found on the tops of the mountains; the result whereof was, that they all exactly answered the proportion of the incumbent weights. Whence it should follow, that the higher air about the tops of mountains is of a different nature, and observes a different law from that near the earth.

This may be owing to the great quantity of gross vapours and exhalations here, more than there; which vapours being less elastic, and not capable of so much rarefaction as the pure air above, the rarefactions of the pure air increase in a greater ratio than the weights diminish. M. Fontenelle, however, from the experiments made by M. de la Hire, accounts for the phenomenon in a different manner; alleging, that the elastic power of air is increased by the admixture of humidity therewith; and consequently that the air near the tops of mountains, being moister than that below, becomes thereby more elastic, and rarefies in a greater ratio than naturally and in a drier state it would.—But Dr. Jurin shows, that the experiments produced to support this system are by no means conclusive. Append. ad Varenii Geograph.

M. Bouguer likewise, in the Memoirs of the Royal Academy of Sciences at Paris for the year 1753, intimated his opinion, that the condensations of the atmosphere did not observe the same law at different heights: and endeavoured to account for the variation, by supposing that particles of air at different heights are possessed of unequal degrees of elasticity. If this were the case it would be impossible to apply the barometer to the mensuration of heights with any degree of certainty. But M. de Luc has shown, by his more accurate experiments, that this pretended inequality of spring in the particles of air does not subsist; and that its condensations and dilatations follow the same law uniformly at all heights and in all climates, excepting only the differences that are caused by heat, and other local circumstances. Admitting therefore the principles above stated, as applicable to all altitudes within our reach, or as far as the summits of the highest mountains on earth, when a correction is made merely for the difference of heat or temperature,

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ture, be determined the altitudes of hills both by the barometer and also by geometrical measurement; and showing how to allow for the difference of temperature, he has given a rule for the measurement of heights by the barometer, deduced from a greater number of experiments, and much more accurate than any before published. See his "Recherches sur les Modifications de l'Atmosphère," vol. ii. Similar rules have also been deduced from accurate experiments by sir George Shuckburgh and general Roy, both concurring to show that such a rule for the altitudes and densities holds true for all heights that are accessible to us, when the elasticity of the air is corrected on account of its density; and the result of their experiments showed, that the difference of the logarithms of the heights of the mercury in the barometer at two stations, multiplied by 10,000, is equal to the altitude in English fathoms of the one place above the other; that is, when the temperature of the air is about 31 or 32 degrees of Fahrenheit's thermometer; and a certain quantity more or less, according as the actual temperature is different from that degree. See the principles and application of these rules, detailed more at large, under the article BAROMETER. But it may be here shown, that the same rule may be deduced independently of a train of experiments merely by means of the density of the air at the surface of the earth. Thus, let D denote the density of the air at one place, and d the density at the other; both measured by the column of mercury in the barometer; then the difference of altitude between the two places will be proportional to the log. of D — the log. of d ,

or to the log. of $\frac{D}{d}$. But as this formula expresses only the relation between different altitudes, with respect to their densities, recourse must be had to some experiment in order to obtain the real altitude which corresponds to any given density, or the density which corresponds to a given altitude. The first and most natural is that which results from the known specific gravity of air, with respect to the whole pressure of the atmosphere on the surface of the earth.

Now, as the altitude is always as the log. of $\frac{D}{d}$, assume b , so that a may be $= b \times \log. \frac{D}{d}$, where b will be of one constant value for all altitudes: and to determine that value, suppose a case in which we know the altitude a corresponding to a known density d ; as e. g. take $a = 1$ foot or 1 inch, or some such small altitude; and because the density D may be measured by the pressure of the whole atmosphere, or the uniform column of 27,600 feet, when the temperature is 55° , 27,600 feet will therefore denote the density D at the lower place, and 27,599 the less density d at one foot above it; consequently, we have this equation, viz. $1 = b \times \log. \frac{27600}{27599}$, which by the nature of logarithms is nearly $= b \times \frac{.43429448}{27600} = \frac{b}{63551}$ nearly; and hence $b = 63551$ feet, which gives this formula for any altitude in general; viz. $a = 63551 \times \log. \frac{D}{d}$, or $a =$

$63551 \times \log. \frac{M}{m}$ feet, or dividing by 6, the number of feet in a fathom, $10,592 \times \log. \frac{M}{m}$ fathoms, where M denotes the column of mercury which is equal to the pressure of the atmosphere at the bottom, and m that at the

top of the altitude a ; and where M and m may be taken in any measure, either feet or inches, &c. This formula is adapted to the mean temperature of the air 55° ; but it has been found by the experiments of sir George Shuckburgh and general Roy, that for every degree of temperature, indicated by the thermometer, different from 55° , in the medium between the temperatures at the top and bottom of the altitude a , the altitude a will vary by its 435th part, which must be added when the medium exceeds 55° , and otherwise subtracted. It should also be observed, that a column of 30 inches of mercury varies its length by about the 320th part of an inch for every degree of heat, or rather the 9600th part of the whole volume. This formula may be rendered much more convenient for use by reducing the factor 10,592 to 10,000 by changing the temperature proportionably from 55° : thus, as the difference 592 is the 18th part of the whole factor 10,592, and as 18 is the 24th part of 435; therefore the change of temperature, corresponding to the change of the factor b , is 24° , which reduces the 55° to 31° . Consequently, the formula becomes

$a = 10000 \times \log. \frac{M}{m}$ fathoms, when the temperature is 31° , or nearly the freezing point; and for every degree above that, the result must be increased by so many times its 435th part, and proportionably diminished below it.

This formula may be comprised under the following practical precepts: 1. Observe the height of the barometer at the bottom of any height or depth proposed to be measured, together with the temperature of the mercury by means of the thermometer attached to the barometer, and also the temperature of the air in the shade by another thermometer which is detached from the barometer. 2. Let the same thing be done also at the top of the said height or depth, and as nearly as possible at the same time; reduce these altitudes of the mercury to the same temperature, if it be thought necessary, by correcting either the one or the other, viz. augmenting the height of the mercury in the colder temperature, or diminishing that in the warmer, by its 9600th part for every degree of difference between the two; and the altitudes of the mercury so corrected are those denoted by M and m in the above formula. 3. Take out the common logarithms of the two heights of mercury so corrected, and subtract the less from the greater, cutting off from the right hand side of the remainder three places for decimals, and then those on the left hand will be fathoms in whole numbers, the tables of logarithms being supposed to comprehend seven places of decimals. 4. Correct the number last found for the difference of the temperature of the air, in the following manner; viz. take half the sum of the two temperatures of the air, shown by the detached thermometers, for the mean one; and for every degree by which this differs from the standard temperature of 31° , take so many times the 435th part of the fathoms above found, and add them if the mean temperature be more than 31° , but subtract them if it be below 31° , and the sum or difference will be the true altitude in fathoms, or being multiplied by 6, it will give the true altitude in English feet.

Example I. To find the altitude, when the state of the barometers and thermometers is as follows, viz.

Thermometers		Barometers
detached	attached	
57	57	29.68 lower
42	43	25.28 upper
Mean 49½	Dif. 14	

As

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As 9600 : 14 :: 29.63 : .04

Cor. .04

Mean $49\frac{1}{2}$ logs.
Stand. 31 M = 29.64 . . 4718712
Diff. $18\frac{1}{2}$ m = 25.28 . . 4027771

As 435 : $18\frac{1}{2}$:: 691.011 : 29.388
29.388

The altitude sought is { 720.399 fathoms
or 4322.394 feet.

Example II. To find the altitude of a hill, when the state of the barometer and thermometer, observed at the bottom and top of it, is as follows: viz.

Thermometers		Barometers
detached	attached	
35	41	29.45
31	38	26.82
Mean 33	Diff. 3	

As 9600 : 3 :: 29.45 : .01
.01

Mean 33 logs.
Stand. 31 M = 29.44 . . . 4689438
Diff. 2 m = 26.82 . . . 4284388

As 435 : 2 :: 404.790 : 1.86
1.86

The altitude sought is { 406.65 fathoms,
or 2439.90 feet.

M. De Luc found that the height of the atmosphere, supposing its limits where the mercury would stand only at one line, and the thermometer indicating 0 in his scale, 17° in that of Reaumur, and about 70° in Fahrenheit's, is 25105.45 toises, or 11 leagues and 3 toises; and in the same circumstances, if the mercury in the barometer sunk to $\frac{1}{15}$ of a line, the height of that part of the atmosphere would be 35105.45 toises.

Upon the principles above stated, the following table is calculated; supposing first as a mean of the observations at the Puy de Domme in France, and those on Snowdon hill in Wales, that at the altitude of seven miles, the air is four times rarer than at the surface of the earth.

At the altitude of	7 miles above the surface of the earth, the air is	times rarer than at the earth's surface.
14	- - - -	4
21	- - - -	16
28	- - - -	64
35	- - - -	256
42	- - - -	1024
49	- - - -	4096
56	- - - -	16384
63	- - - -	65536
70	- - - -	262144
77	- - - -	1048576
84	- - - -	4194304
91	- - - -	16777216
98	- - - -	67108864
105	- - - -	268435456
112	- - - -	1073741824
119	- - - -	4294967296
126	- - - -	17179869184
133	- - - -	68719476736
140	- - - -	274877906944
		1099511627776

It might easily be shown by pursuing the calculation in this table, that a cubic inch of the air we breathe would be so much rarefied at the altitude of 500 miles, that it would fill a sphere equal in diameter to the orbit of Saturn.

Hence it appears that the atmosphere, however indefinitely it may be expanded, becomes at a comparatively small distance, so rare and light, as to be utterly imperceptible in its effects as a resisting medium: and if the atmospheres of the planets resemble that of the earth, they must be so attenuated at the distances of the planets from one another, as to give no sensible resistance to their motions round the sun for many ages.

M. de la Hire, after Kepler, recurred to the more ancient method of ascertaining the height of the atmosphere, viz. from the consideration of the crepuscula. It appears, from the observations of astronomers, of the duration of twilight, and of the magnitude of the terrestrial shadow in lunar eclipses, that the effect of the atmosphere to reflect and intercept the light of the sun, is sensible to the altitude of between 40 and 50 miles. So far then we may be certain that the atmosphere reaches; and at that altitude we may collect, from what has been already said, that the air is above 10,000 times rarer than at the surface of the earth. How much farther the atmosphere may extend, we are altogether ignorant. Cotes's Hydrost. Lect. p. 123. and 125.

It is allowed by astronomers, that when the centre of the sun is 18° , or allowing for the refraction $17^\circ 27'$, below the horizon, the twilight begins or ends: now the ray which we see can be no other than a horizontal line, or a tangent to the earth in the place where the observer is; but this ray cannot come directly from the sun, which is under the horizon; and must therefore be a ray reflected to us by the last inner and concave surface of the atmosphere. We are to suppose that the sun when $17^\circ 27'$ below the horizon, emits a ray which is a tangent to the earth, and strikes upon the last surface of the atmosphere, and is thence reflected to our eye, being still a tangent, and horizontal. If there were no atmosphere, there would be no crepusculum; and consequently, if the atmosphere were not so high as it is, the crepusculum would begin and end when the sun is at a less distance from the horizon than $17^\circ 27'$, and contrarily.—Hence we infer, that the extent of the arc by which the sun is depressed when the crepusculum begins or ends, determines the height of the atmosphere. We are to note, however, that $33'$ must be subtracted from the arc of 18° for the refraction which raises the sun so much higher than he would be; and $16'$ more for the height of the upper limb of the sun, which is supposed to send the ray above his centre, so that the arc which determines the height of the atmosphere is only $17^\circ 11'$. Two rays, one direct and the other reflected, but both tangents to the earth, must necessarily meet in the atmosphere at the point of reflection, and comprehend an arc between them of $17^\circ 11'$, of which they are tangents.—Hence it follows, from the nature of the circle, that a line drawn from the centre of the earth, and cutting the arc in two, will go to the point of concurrence of those two rays; and as it is easy to find the excess of this line above the semi-diameter of the earth, which is known, it is easy to find the height of the atmosphere, which is only that excess. See CREPUSCULUM.

On this principle, M. de la Hire discovered the height of the atmosphere to be 37223 fathoms, or near 17 French leagues. The same method was also made use of by Kepler, who only rejected it, because it gave the height of the atmosphere twenty times greater than he otherwise allowed

lowed it. It must be added, that in this calculation, the direct and reflected rays are supposed to be right lines; whereas in fact they are curves, formed by the perpetual refraction which the rays undergo in passing through a series of different densities of air. Computing then upon them, as two similar curves, or rather as a single curve, one extreme whereof is a tangent to the earth; its vertex, equally distant from both the extremes, determines the height of the atmosphere; which therefore will be found somewhat lower than in the former case; the point of concurrence of two right lines, which are here only tangents to the curve, the one at one end, and the other at the other, being higher than the vertex of the curve. In this way, M. de la Hire finds the atmosphere 36362 fathoms, or 16 leagues. *Hist. de l'Acad. Roy. de Scien. an. 1713. p. 71.*

The nature of the curve, which is described by a ray of light in passing through the atmosphere, has been the subject of assiduous investigation. M. De la Hire took great pains to demonstrate, that, supposing the density of the atmosphere proportional to its weight, this curve is a cycloid: and he says, that if the ray be a tangent to the atmosphere, the diameter of its generating circle will be the height of the atmosphere; and that this diameter increases, till at last, when the rays are perpendicular, it becomes infinite, or the circle degenerates into a right line. This reasoning supposes that the surface of the atmosphere is a plane; but since it is a curve, he observes that these cycloids become in fact epicycloids. Hermannus, in his "Phoronomia," has detected the error of M. De la Hire, and shown that this curve is infinitely extended, and has an asymptote: and Dr. Brook Taylor observes, "Method. Increm." p. 168, that it is one of the most intricate and perplexed that can well be proposed. This ingenious author computes the refractive power of the air, to be to the force of gravity at the surface of the earth, as 320,000,000 to 1.

The extreme rarity of the atmosphere at considerable altitudes, such as those of forty or fifty miles, bounding the production of twilight, has perplexed philosophers in accounting for meteors, which, whatever be their origin, whether electrical or otherwise, are observed at a much greater elevation than that to which the refractive power of the atmospherical air extends. A very remarkable one of this kind was observed by Dr. Halley in the month of March 1719; the altitude of which he computed to have been between 69 and 73½ English miles; its diameter being 2300 yards or more than a mile and a half, and its velocity about 350 miles in a minute. Others of a similar kind, but of a greater altitude and velocity, have been observed by others; and particularly one seen in August 1783, whose height above the earth could not be less than ninety miles, and its diameter was not less than the former, whilst its velocity was certainly not less than 1000 miles in a minute. From analogy and reasoning it is very probable, that such meteors are not essentially different from those that are seen near the surface of the earth. Nevertheless in the high regions where they are observed, the atmosphere, according to our computation, ought not to have density sufficient to support flame and to propagate sound; and yet such meteors are commonly succeeded by one or more explosions, and are accompanied, as it has been reported, with a hissing noise as they pass over our heads. The meteor of 1719 was not only very bright, so that for some time it changed the night into day, but was attended with an explosion that was heard over all the island of Britain, occasioning a violent concussion of the atmosphere and seeming to shake the earth itself. And yet, in the regions in which this meteor moved, the air ought to

have been 300 thousand times rarer than the air we breathe, or 1000 times rarer than the vacuum commonly made by a good air-pump. Dr. Halley conjectures, that the immense magnitude of such bodies may compensate for the rarity of the medium in which they move. Allowing them to be electrical phenomena, difficulties occur in explaining several circumstances attending them; and particularly the splendor of their appearance, which requires a circumambient fluid capable of confining and condensing the electric matter of which they are composed. From late experiments, it has been inferred, that the electric fluid cannot pervade a perfect vacuum. See METEOR.

ATMOSPHERE, Refraction and Reflection of the. That the atmosphere has a refractive power, which is the cause of many phenomena, is unquestionable. This power is ascertained by the production of twilight above noticed, and by many other facts and experiments. Alhazen the Arabian, who lived about A. D. 1100, seems to have been more inquisitive into the nature of refraction than the preceding writers. But neither Alhazen, nor his follower Vitellio, knew any thing of its just quantity, which was not known to any tolerable degree of exactness, till Tycho Brahe, with incredible diligence, settled it. But neither Tycho, nor Kepler, discovered in what manner the rays of light were refracted by the atmosphere. Tycho thought the refraction was chiefly caused by dense vapours, very near the earth's surface. Kepler placed the cause wholly in the higher regions of the atmosphere, which he took to be uniformly dense; and thence he determined its altitude to be little more than that of the highest mountains. But the true constitution of the atmosphere, deduced afterwards from the Torricellian experiment, afforded a juster idea of these refractions, especially after it appeared by a repetition of Mr. Lowthorp's experiment, that the air's refractive power is proportionable to its density. By this variation of the air's density, a ray of light, in passing through the atmosphere, is continually refracted at every point, and thereby describes a curve, and not a straight line, as it would have done were there no atmosphere, or were its density uniform. See REFRACTION.

The atmosphere, or air, has also a reflective power; and this power is the cause that enlightens objects so uniformly on all sides. The absence of this power would occasion a strange alteration in the appearance of things; their shadows would be so very dark, and their sides enlightened by the sun so very bright, that probably we could see no more of them than their bright halves; so that, for a view of the other halves, we must turn them half round, or, if immoveable, must wait till the sun could come round upon them. Such a pellucid unreflective atmosphere would indeed have been very commodious for astronomical observations upon the course of the sun and planets among the fixed stars, visible by day as well as by night; but then such a sudden transition from darkness to light, and from light to darkness immediately, upon the rising and setting of the sun, without any twilight, and even upon turning from or to the sun at noon day, would have been very inconvenient and offensive to our eyes.

However, though the atmosphere is greatly assitant to the illumination of objects, yet it must also be observed that it stops a great deal of light. By M. Bouguer's experiments, it seems that the light of the moon is frequently 2000 times weaker in the horizon, than at the altitude of 66 degrees; and that the proportion of her light at the altitudes of 66 and 19 degrees, is about 3 to 2. The lights of the sun must bear the same proportion to each other at those heights, which M. Bouguer made choice of,

as being the meridian heights of the sun, at the summer and winter solstices, in the latitude of Croisie in France. Smith's Optics, Rem. 95. See LIGHT, and REFLECTION.

ATMOSPHERE, *Salubrity of the.* See EUDIOMETRY.

ATMOSPHERE, *Temperature of the.* The variable temperature of the atmosphere, at different seasons and in different situations, has been the subject of elaborate investigation; and many speculations and theories have been proposed in order to account for the changes which it undergoes. That the presence of the sun is the principal source of heat as well as of light, and its absence of cold, is too obvious to have been ever doubted; and the effect produced by the greater or less obliquity of its rays has been long and universally observed and acknowledged. From this fact, however, the ancient philosophers of Greece and Rome too hastily inferred, that the torrid zone, under a vertical sun, and the frigid zone, where its rays fall very obliquely, were uninhabitable. Time corrected this mistake; and presented new phenomena which it has been found difficult to explain. The hottest days are frequently felt in the coldest climates, and the greatest cold, as well as perpetual snow, are found in countries bordering on, or even immediately under, the equator. In the same latitudes, very different temperatures have been observed, not only in different, but even in the same hemisphere. The temperature of the eastern coast of North America differs widely from that of the western opposite coast of Europe, but agrees nearly with that of the eastern coast of Asia lying between the same parallels. Mem. Philad. vol. i. These, and similar circumstances, have made it necessary for meteorologists to recur to other causes of varying temperature, besides the immediate agency or absence of the solar rays. Dr. Halley has, indeed, proved, that, abstracting from the intervention of fogs, mists, and mountains of ice, the hottest weather might, in summer, take place even under the poles, the duration of the sun's light more than compensating for the obliquity of its direction (see HEAT); but as many physical causes obstruct the activity of the solar rays in these and other regions, it was still necessary to recur to some other cause. At length M. de Mairan (Mem. Acad. Par. 1719 and 1767) discovered, that the rigour of the cold of winter is tempered by the heat imparted to the atmosphere by the earth itself; which heat, probably possessed from its origin, is preserved and renewed by the incessant influences of the sun, to which one-half of its surface is constantly exposed. Admitting this fact, the temperature of the atmosphere must depend on the capacity of the earth for receiving and retaining heat, and for communicating it to the surrounding medium. But as the earth is composed of land and water, it should be considered that the capacities of these constituent parts for receiving both heat and cold are very different. Land, particularly when dry, receives heat from the sun's rays very readily, but transmits it through its own substance to great depths very slowly; and, on the other hand, water, by reason of its transparency, receives heat very slowly, but diffuses what it receives more readily. Dr. Hales found, that in the month of August, 1724, when the air, and the surface of the earth, were both at 88° , a thermometer, placed only two inches under the surface, stood at 85° ; another, 16 inches under the surface, indicated 70° , and a third, 24 inches deep, stood at 68° . The two last thermometers preserved the same temperature both day and night, till the end of the month, and then fell to 63° or 61° ; the earth obstinately retaining its heat, at that depth, though the temperature of the air frequently varied. On the 26th of October, a thermometer, exposed to the

air, stood at 35.5° ; but one sunk two inches in the earth was heated to 43.85° ; another at the depth of 16 inches, stood at 48.8° ; and another, 24 inches deep, showed 50° ; and from the 1st to the 12th of November, when the temperature of the external air was 27° , a thermometer placed at the depth of 24 inches, stood at 43.8° ; but from the month of March to that of September in the following year, the external air was constantly warmer than the earth at the depth of 16 inches or 2 feet: the season, however, was very rainy, and the evaporation, thus occasioned, prevented the earth from being warmed so much as it otherwise might have been. Hales Veget. Statics, vol. i. p. 61, &c. From these experiments it may be inferred, that the surface of the earth is much heated during the summer, but that the heat descends very slowly, a great part of it being communicated to the air; that during the winter, the earth gives out to the air the heat which it had received during the summer; and that wet summers must be succeeded by cold winters. The experiments of Dr. Hales furnish nearly the same results with those of Mariotte (Sur le Froid and le Chaud, p. 189.); who found, that the earth is gradually heated during the summer, and as gradually cooled during the winter months; and that, at the distance of a few feet under the surface, it is constantly warmer than the external air; and the excess was found to remain till April, when the surface is again heated by the sun's rays, and slowly transmits its heat downwards. Hence it appears, that at the distance of about 80 or 90 feet below the surface, provided that there be a communication with the external air, or at a less depth if there be no such communication, the temperature of the earth admits of very slight variation, and generally approaches to the mean annual heat. Then the temperature of spring is nearly the same as the annual temperature, and varies very little. M. Van Swinden has observed, that the greatest cold, and even that which exceeds 0 of Fahrenheit's scale, if it lasts no more than a few days, penetrates no deeper than 20 inches when the earth is covered with snow, and not above 10 inches if no snow lies on the surface; and this fact evinces the important and useful purposes answered by this covering in high northern latitudes. Such facts tend to prove, that the heat of the earth does not increase as we descend into it; but at the greatest depths it is nearly the same as the mean annual temperature of the latitude. It has been observed, that land is capable of receiving much more heat or cold than water. To this purpose, Dr. Raymond found, in the neighbourhood of Marseilles, land frequently heated to 160° ; but he never found the sea hotter than 77° ; and in winter he frequently observed the earth cooled down to 14° or 15° , but the sea never lower than 44° or 45° . (Mem. de la Societ. de Med. de Paris, an. 1778. p. 70.) From these facts it is an obvious inference, that the atmosphere which lies over the sea should maintain a more uniform temperature than that over the land; and this is found to be the fact; nor is it difficult to give a satisfactory explication of it. During summer, the temperature of the sea on its surface is constantly diminished by the process of evaporation; and in the winter, when the superficial water is cooled, it descends by its augmented gravity to the bottom, and its place is occupied by water of a higher temperature. This alternate change of this heavier and lighter air proceeds, and the winter elapses before the atmosphere has diminished the temperature of the water below a certain degree. Between the mean annual temperature of the atmosphere over the ocean, and that of countries situated at a considerable distance from it, there is a very perceptible difference. As the sea is never heated to the same degree as the land,

The mean temperature of summer over the sea may be considered as lower than that over the land. In winter, when the force of the sun's rays is weakened, the sea imparts its heat to the atmosphere much more readily than the earth. The mean temperature on sea, is, therefore, at this season higher than on land, and in cold countries this difference in the evolution of heat is so very considerable, that it more than counterbalances the difference which takes place in summer; inasmuch that in high latitudes, the mean annual temperature at sea ought to exceed that on the land. Mr. Kirwan observes, that, in order to find the temperature in any place situate between the latitudes 70° and 35° , the standard temperature for the same latitude should be lowered $\frac{1}{3}$ of a degree for every 50 miles of distance; since in winter the cold always increases in proportion to the distance from the standard. At a less distance than 50 miles the atmosphere on the ocean and land are so blended together by the agency of sea and land winds, that little difference is perceptible in the annual mean temperature. In lower latitudes than 30° , the solar rays even in winter act with no inconsiderable force, the surface of the earth also retains a pretty considerable degree of heat, and consequently the mean annual temperatures of the sea and land preserve a greater equality. In proportion as we approach to the equator, the force of the sun's rays in winter acts with additional energy, and the mean temperature of the land atmosphere at this season approximates nearer and nearer to that of the sea, till at the equator they become equal.

In latitudes distant from the equator, islands are warmer than continents, because they participate more of the temperature of the sea. Countries that lie southward of any sea, are warmer than those that have the same sea to the south of them, at least in our hemisphere, because the winds that should cool them in winter are tempered, by passing to them from that sea; and those that are northward of the sea are cooled in summer by the breezes that issue from it; but a northern or southern bearing of the sea renders a country warmer, than if it lay either to the east or west. Tracts of land which are covered with trees and luxuriant vegetables, are much colder than those which have less surface of vegetable matter: for though living vegetables alter their temperature slowly, and with difficulty, yet the evaporation from their numerous surfaces is much greater than from the same space of land uncovered with vegetables; and besides, when they are tall and close, as forests, they exclude the sun's rays, and shelter the winter snows from the wind and sun. From some experiments of Mr. Williams (Philad. Transf. vol. ii. p. 150.) it appears, that forests discharge one-third more vapour into the atmosphere, than the same space of ground would do if actually covered with water. From this reasoning it appears, that woody countries are much colder than those that are open and cultivated; and it will enable us to account for the amelioration of climate that attends agricultural cultivation. See CLIMATE.

Another principal source of heat, besides the sun's rays and earth, which may be regarded as a repository of heat, is the condensation of vapour. It is well known, that vapour contains a quantity of the matter of heat, which produces no other effect but that of making it assume an aerial expanded state, until the vapour is condensed into a liquid; but during this condensation a quantity of sensible heat is let loose, which warms the surrounding atmosphere. This condensation is frequently occasioned by the attraction of an electrical cloud; and hence proceeds the fulminations which we often experience before rain.

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Notwithstanding the variations of temperature that occur in every climate, and at every season, there is a mean temperature from which the atmosphere seldom deviates beyond a certain number of degrees. In order to determine this Mr. Playfair, professor of mathematics in the university of Edinburgh (See Edinb. Transf. vol. v. part 2. for 1802, p. 193.), divides every month into three parts, and exhibits the state of the barometer and thermometer for each of these divisions. In his tables the three first columns contain the greatest, least, and mean height of the barometer; and the fourth column gives the temperature of the air in the room where the barometer is kept. The fifth and sixth columns show the greatest height of the thermometer in the air, observed during the ten days to which the numbers refer; the next three give the mean heights, as observed at three different times every day; viz. at eight in the morning, ten in the evening, and as nearly as possible to the warmest time of the day, or some time between mid-day and three in the afternoon. The mean of all these is taken for the mean temperature of the day, which being computed for each day, the mean of all these mean temperatures is set down for the mean temperature of the atmosphere for every one of the thirty-six divisions of the year. The mean of the three divisions of every month is given in the next column, under the title of the mean temperature of the month. It is presumed, says Mr. Playfair, that the mean temperatures, which are the points most difficult to be ascertained, are given with tolerable exactness, as they are deduced from three observations made every day, of which the first, viz. that at eight in the morning, is not far from the medium temperature of the whole day, and the other two are as near as circumstances will allow, to the two extremes of greatest heat and greatest cold. At Edinburgh, the mean temperature for the year 1797 was 48.04° ; for 1798, 49.28° ; and for 1799, 46.13° . From a mean of the observations made at the house of the Royal Society, from 1772 to 1780, the annual temperature of London appears to be 51.9° , or in round numbers 52° .

The greatest mean annual temperature prevails at the equator, or in the second degree of north latitude. As we recede from the equator, the mean temperature gradually decreases, and it is most diminished at the poles. This diminution takes place in such a manner, that the mean annual temperatures of all the latitudes are arithmetical means between the mean annual temperatures of the equator and of the pole. The ratio between the decrease of temperature, and the distance from the equator, was first ascertained by Mr. Tobias Mayer of Gottingen (Oper. Ined. vol. i.); and by means of an equation deduced from it, and rendered more clear, accurate, and general, Mr. Kirwan has calculated the mean annual temperature of every degree of latitude between the equator and the pole. He supposes the mean annual heat to be the greatest under the equator, and least under the poles; that at the equator he calls m , and that at the north pole $m-n$, and putting ϕ for any other latitude, the temperature of that latitude will be $m-n \sin \phi^2$. Hence, as the mean annual temperature of lat. 40° , determined by the best observations, is 62° , and the temperature of lat. 50° is found to be 52.9° ; thus the value of m and n being known, the mean annual temperatures of the equator, and of the poles, may be determined; for the square of the sine of 40° is 0.41, and the square of the sine of 50° is 0.58: then,

$$m - 0.41 n = 62$$

$$\text{and } m - 0.58 n = 52.9;$$

$$\text{consequently } 62 + 0.41 n = 52.9 + 0.58 n.$$

Whence the value of n is found to be 53 nearly, and m in the first equation is 84; and therefore the mean temperature of

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the equator is 84, and that of the pole 31. Upon these principles the following table was calculated.

TABLE of the Mean Annual Temperature of the Standard Situation in every Latitude.

Lat.	Temper.	Lat.	Temper.	Lat.	Temper.
90	31	61	43.5	32	69.1
89	31.04	60	44.3	31	69.9
88	31.10	59	45.09	30	70.7
87	31.14	58	45.8	29	71.5
86	31.2	57	46.7	28	72.3
85	31.4	56	47.5	27	72.8
84	31.5	55	48.4	26	73.8
83	31.7	54	49.2	25	74.5
82	32	53	50.2	24	75.4
81	32.2	52	51.1	23	75.9
80	32.6	51	52.4	22	76.5
79	32.9	50	52.9	21	77.2
78	33.2	49	53.8	20	77.8
77	33.7	48	54.7	19	78.3
76	34.1	47	55.6	18	78.9
75	34.5	46	56.4	17	79.4
74	35	45	57.5	16	79.9
73	35.5	44	58.4	15	80.4
72	36	43	59.4	14	80.8
71	36.6	42	60.3	13	81.3
70	37.2	41	61.2	12	81.7
69	37.8	40	62	11	82
68	38.4	39	63	10	82.3
67	39.1	38	63.9	9	82.7
66	39.7	37	64.8	8	82.9
65	40.4	36	65.7	7	83.2
64	41.2	35	66.6	6	83.4
63	41.9	34	67.4	5	83.6
62	42.7	33	68.3	4	84

In forming this table, Mr. Kirwan fought for a standard situation, with whose temperature, in every latitude, we may compare and appreciate the temperature of all other situations in the same latitudes, on water only. Accordingly, he chose that situation for a standard, which is most free from any beside the most permanent causes of alteration, viz. that part of the Atlantic that lies between the 80th degree of northern, and the 45th degree of southern latitude, and extending westward as far as the gulf stream, and to within a few leagues of the coast of America; and all that part of the Pacific ocean, reaching from N. lat. 45° to S. lat. 40° from the 20th to the 275th degree of longitude, east from London, which is by far the greater part of the surface of the globe. Within this space the mean annual temperature is as expressed in the table; and the author has added the temperature of latitudes beyond 80° in the northern hemisphere, though not strictly within the standard.

Mr. Kirwan has also attempted to ascertain the mean monthly temperature of the standard ocean. With this view he states, that in every latitude, the mean temperature of the month of April seems to approach very nearly to the mean annual heat of that latitude; and as far as heat depends on the action of the solar rays, the mean heat of every month is as the mean altitude of the sun, or rather, as the sine of the sun's mean altitude during that month. Hence to find the mean heat of May, say, as the sine of the sun's mean altitude in April is to the mean heat of April, so is the sine of the sun's mean altitude in May to the mean

heat of May. By a similar process, the temperatures of June, July, and August may be found; but this rule would give the temperatures of the succeeding months too low; because it does not comprehend the quantity of heat accruing to the atmosphere by communication of the internal heat of the globe, which in every latitude is nearly the same as the mean annual heat of that latitude. Hence the real temperature of these months must be regarded as an arithmetical mean between the astronomical and terrestrial heats. E. g. In lat. 51°, the astronomical heat of the month of September is 44.66°, and the mean annual heat is 52.4°; consequently the real heat of this month is $\frac{44.6 + 52.4}{2} = 48.4$,

which is more conformable to observation. Mr. Kirwan has with great labour formed a table, showing the monthly mean temperature of the standard ocean from lat. 80° to lat. 10°. Hence he shows, that the coldest weather in all climates prevails in the month of January; and that July is the warmest month in all latitudes above 48°; but in lower latitudes, August is generally the warmest; that December and January, and also June and July, differ but little; that the differences between the hottest and coldest months, within 20° of the equator, are inconsiderable, and that they increase as we recede from the equator; that in the highest latitudes we often meet with a heat of 75 or 80 degrees; that every habitable latitude enjoys for two months a heat of 60 degrees at least, which seems to be necessary for the growth and maturity of corn; and that the quickness of vegetation in the higher latitudes proceeds from the duration of the sun above the horizon; that as the cold of the higher latitudes, and the heat of the lower, are moderated by the vicinity of seas and mountains, these, instead of being irregular and fortuitous, may be regarded as a wise and beneficial provision of nature, in this respect as well as in many others. Mr. Kirwan has also shown, that the greatest cold within the twenty-four hours generally happens half an hour before sun-rise, in all latitudes: the greatest heat in all latitudes between 60° and 45° is found about half past two o'clock in the afternoon; between lat. 45° and 35°, at two o'clock; between lat. 35° and 25°, at half past one; and between lat. 25° and the equator, at one o'clock. On sea, the difference between the heat of day and night is not so great as on land, particularly in low latitudes.

TABLE exhibiting a Comparison of the Temperature of London with that of other noted Places.

	Annual.	Jan.	July.
London	1000	1000	1000
Paris	1028	1040	1037
Edinburgh	923	1040	914
Berlin	942		
Stockholm	811	1583	964
Petersburgh	746	3590	1008
Vienna	987	1305	1037
Pekin	1067	1730	1283
Bordeaux	1090	925	1139
Montpelier	1170	850	1196
Madeira	1319	559	1128
Spanish Town in Jamaica	1557		
Madras	1565	491	1349

The first column of this table exhibits the differences of the annual temperature; the second, that of January; and the third that of July; that of London, as the standard, being

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being estimated at 1000. The degree of cold is estimated in the second column, and the degree of heat in the first and third.

A View of the Annual Temperature of different Places, according to the Order of their Latitude.

	North Lat.	Longitude.	Mean Annual Heat.
Wadso, in Lapland -	70° 5'		36°
Abo -	60 27	22° 18' E.	40
Petersburgh -	59 56	30 24 E.	38.8
Upsal -	59 51	17 47 E.	41.88
Stockholm -	59 20	18 E.	42.39
Solskamski -	59	54 E.	36.2
Edinburgh -	55 57	3 W.	47.7
Franker -	53	5 42 E.	52.6
Berlin -	52 32	13 31 E.	49
Lyndon, in Rutland -	52 30	0 3 W.	48.03
Leyden -	52 10	4 32 E.	52.25
London -	51 31		51.9
Dunkirk -	51 02	2 7 E.	54.9
Manheim -	49 27	9 2 E.	51.5
Rouen -	49 26	1 W.	51
Ratisbon -	48 56	12 05 E.	49.35
Paris -	48 50	2 25 E.	52
Troyes, in Champagne -	48 18	4 10 E.	53.17
Vienna -	48 12	16 22 E.	51.53
Dijon -	47 19	4 57 E.	52.8
Nantes -	47 13	1 28 E.	55.53
Poitiers -	46 39	0 30 E.	53.8
Laufanne -	46 31	6 50 E.	48.87
Padua -	45 23	12 E.	52.2
Rhodez, in Guienne -	45 21	2 39 E.	52.9
Bourdeaux -	44 50	0 36 W.	57.6
Montpelier -	43 36	3 73 E.	60.87
Marseilles -	43 19	5 27 E.	61.8
Mont Louis, in Rouffillon -	42	2 40 E.	44.5
Cambridge, in New Eng- land -	42 25	71 W.	50.3
Philadelphia -	39 56	75 09 W.	52.5
Pekin -	39 54	116 29 W.	55.5
Algiers -	36 49	2 17 E.	72
Grand Cairo -	30	31 23 E.	73
Canton -	23	113 E.	75.14
Tivoli, in St. Domingo -	19		74
Spanish Town, in Jamaica -	18 15	76 38 W.	81
Manilla -	14 36	120 58 E.	78.4
Fort St. George -	13	87 E.	81.3
Ponticherry -	12	67 E.	88
	South Lat.		
Falkland Islands -	51°	66 W.	47.4
Quito -	0 13	77 50 W.	62

As the earth is the chief source of heat in the ambient atmosphere, distance from the earth is a source of cold; and the greatest cold must prevail in the highest regions of the atmosphere, more especially as clear unclouded air seems to receive no heat from the rays of the sun, whether direct or reflected. Thus, if the focus of the most powerful burning glaſs be directed on mere air, it does not produce the smallest degree of heat, because the air being transparent, a free passage is afforded to the sun's rays. At the level of the sea, the temperature corresponds to that of the standard ocean; but as we ascend above the level, the tem-

perature is gradually diminished; but at a certain height we arrive at the region of perpetual congelation, called by M. Bouguer "the lower term of congelation." The height of this varies according to the latitude of the climate, and at that height it constantly freezes at night in every season. At the equator it is at its highest elevation; and it descends towards the earth as we advance towards the poles. On the summit of Pinchinca, one of the Cordilleras, immediately under the line, M. Bouguer found the cold to extend from 7 to 9 degrees below the freezing point every morning before sun-rise. He fixes the height of "the lower term of congelation," between the tropics, at an elevation of 15,577 feet; but in lat. 28° he thinks that it should commence, in summer, at the height of 13,440 feet from the level of the sea. At still greater heights it never freezes, not because the cold decreases, but because vapours do not ascend so high: this height is called by M. Bouguer, "the upper term of congelation," and he fixes it under the equator at the height of 28,000 feet at most. Mr. Kirwan thinks it of importance to adjust the height of both these terms. To this purpose, he observes, that under the equator the height of both is nearly constant; but under other latitudes it is variable both in summer and winter, according to the degree of heat which prevails on the surface of the earth. But as there is a mean annual temperature peculiar to each latitude, so there is a mean height for each of these terms peculiar to each latitude. And if we take the differences between the mean temperatures of every latitude and the point of congelation, it is evident that whatever proportion the difference under the equator bears to the height of either of the above terms, the same proportion will the difference peculiar to every other latitude bear to the height of those terms. Thus, the mean heat of the equator being 84, the difference of this and 32 is 52; and the mean heat of lat. 28° being 72° 3', the difference between this and 32 is 40.3. Then as 52 : 15577 :: 40.3 : 12072. In this manner Mr. Kirwan calculated the following table.

Lat.	Mean height of the Lower Term of Congelation.	Mean height of the Upper Term of Congelation.	Lat.	Mean height of the Lower Term of Congelation.	Mean height of the Upper Term of Congelation.
	Feet.	Feet.		Feet.	Feet.
0°	15577	28000	45°	7658	13730.
5	15457	27784	50	6260	11253
10	15067	27084	55	4912	8830
15	14498	26061	60	3684	6546
20	13719	24661	65	2516	4676
25	13030	23423	70	1557	2809
30	11592	20838	75	748	1346
35	10664	19169	80	120	207
40	9016	16207			

In this manner, the height of both terms of congelation may be calculated in every latitude for every degree of heat observed at the surface of the earth, on which it evidently depends; for when that is at 32°, the lower line of congelation must be also on the surface. Hence if the height of the lower term of congelation in any latitude be known, and also the general temperature at the surface of the earth, the decrement of heat at any lower height may be found. The heat is observed to decrease in ascending into the atmosphere nearly in an arithmetical progression: and thus, having the first and last terms, if we make so many terms in the progression as there are hundreds of feet in the distance of the line of congelation, we shall be able to determine the decre-

ment at each term. Let L = the entire decrement or difference between the heat at the surface and 32° ; D = the distance of the lower line of congelation, in feet; n = the number of terms = $\frac{D}{100}$; d = the first decrement = $\frac{L}{n}$; and

R = the rank of any given term, whose decrement is required. Then the decrement at any given term is $= Rd$; and, subtracting this from the heat at the surface, we have the heat at that given height. The temperature at the upper term of congelation may be investigated in the same manner, or that of any other height in the atmosphere, except over mountains; for the air over mountains is generally warmer than air of the same height over the sea or over plains.

Sometimes the temperature of the upper air is higher than that of the lower, particularly when a large mass of vapour is condensed by electrical agency; for no part of the heat given out by that cause being lost by communication with air much colder, that which surrounds the condensed vapour must be heated to a considerable degree. Air, rendered opaque by clouds, transmits less, and absorbs more light, and is therefore more heated than clear air. Sometimes winds, in opposite directions, and different temperatures, flow at different heights, the uppermost being often the warmest; all which circumstances, especially in cloudy weather, render all calculations of the height of the terms of congelation on any particular day precarious, though when they regard a certain month or season, they may be sufficiently exact.

With regard to the effect of elevation on the temperature of the atmosphere, we may observe, that as heat is propagated through the atmosphere, chiefly by contact and communication with the earth, lofty mountains of limited surface cannot warm it to any considerable degree, as they receive the sun's rays more obliquely, and communicating less with the common mass of the earth, are less heated than plains. Hence it happens that the steepest mountains are always the coldest. Indeed, the coldness of the atmosphere on the tops of mountains has been ascribed, by M. Lambert and M. De Luc, to the greater rarity of the igneous fluid, or elementary fire, in such elevated situations, than on the plains. M. Lambert is of opinion, that it is rarefied above by the action of the air, and that it is condensed below by its own weight. Without absolutely deciding the question, he seems inclined to admit the identity of fire and light. M. De Luc compares elementary fire to a continuous fluid, whose parts are condensed by being mutually compressed: and though he denies that fire and light are the same, yet he supposes that light puts into motion the igneous fluid contained in bodies, and that it acts with greater force near the earth than at a distance from its surface, by means of this fluid, which he calls an heavy and elastic one, by being more condensed there than at a greater height. M. Bouguer has demonstrated, by simple and obvious principles and facts, that in order to account for the diminution of heat on mountains, it is unnecessary to recur to dubious hypothesis. In his account of what was experienced on the mountains of Peru, he says, "it was proper, in order to explain this subject, to insist on the short duration of the sun's rays, which cannot strike the different sides of mountains but for a few hours, and even this not always. A horizontal plain, when the sun is clear, is exposed at mid-day to the perpendicular and undiminished action of these rays, while they fall but obliquely on a plain not much inclined, or on the sides of a high pile of steep rocks. But let us conceive for a moment an insulated point, half the height of the atmosphere, at a distance from all mountains as well as from the clouds which float in the

air. The more a medium is transparent, the less heat it ought to receive by the immediate action of the sun. The free passage which a very transparent body allows to the rays of light, shows that its small particles are hardly touched by them. Indeed what impression could they make on it, when they pass through almost without obstruction? Light, when it consists of parallel rays, does not, by passing through a foot of free atmospheric air, near the earth, lose an hundred thousandth part of its force. From this we may judge how few rays are weakened, or can act on this fluid, in their passage through a stratum of the diameter, not of an inch or line, but of a particle. Yet the subtilty and transparency are still greater at great heights, as was obvious on the Cordilleras, when we looked at distant objects. Lastly, the grosser air is heated below by the contact or neighbourhood of bodies of greater density than itself, which it surrounds, and on which it rests; and the heat may be communicated by little and little to a certain distance. The inferior parts of the atmosphere by this means contract daily a very considerable degree of heat, and may receive it in proportion to its density or bulk. But it is evident that the same thing cannot happen at the distance of a league and an half or two leagues above the surface of the earth, although the light there may be something more active. The air and the wind therefore must at this height be extremely cold, and colder in proportion to the elevation."

This theory is adopted by Saussure, who has superadded the following fact to prove, that the force of the sun's rays, considered abstractedly and independently of any extrinsic source of cold, is no less powerful on mountains than on plains; viz. that the power of burning lenses and mirrors is the same at all heights. For ascertaining this fact, he procured a burning-glass, so weak in its effect, that at Geneva it would just set fire to tinder. This glass was carried to the summit of mount Saleve, 3000 feet high, and it there produced the same effect, and even with greater ease. Hence he concluded, that the principal source of cold on the tops of mountains is their being perpetually surrounded by an atmosphere, which cannot be much heated by the rays of the sun, on account of its transparency, or by their reflection from the earth, by reason of its distance; but he wished also to know, whether the direct solar rays had the same power on the top of a high mountain as on the plain below, whilst the body on which they acted was placed in such a manner as to be unaffected by the surrounding air. With this view he instituted a set of experiments, from which he deduced the following conclusions; viz. that a difference of 777 toises in height diminishes the heat which the rays of the sun are able to communicate to a body exposed to the external air, 14° of the thermometer; that it diminishes the heat of a body partially exposed, only 6° ; and that it augments by 1° the heat of a third body completely defended from the air. Hence it appears, that the atmosphere counteracts the operation of the solar rays in producing heat, by a power which is exerted at all distances, from the surface to the higher regions. From the experiments of M. Picet, to this purpose, it is inferred, that even in places exposed to the rays of the sun, the heat at five feet from the ground is greater only by 1° or 2° than at fifty feet above the surface, although the ground was at that time 15° or 20° warmer than the air immediately in contact with it. This difference, however, small as it is, does not obtain in higher regions; for if it did, the cold on the top of the mountain of Saleve, 3000 feet above the lake of Geneva, would be 60° greater than at the foot of it; whereas it really is only 10° . In the night the case is reversed; for the stratum of air, at

Five feet from the ground, was found by M. Pictet to be colder than that at 50°. Besides, different strata are found to possess very different and variable degrees of cold, without any regard to the altitude or depression of their situation. In 1780, Dr. Wilson of Glasgow (Phil. Transf. for 1780, p. 467.; and for 1781, p. 368.) found a remarkable cold close to the surface of the ground; so that the thermometer, when laid on the surface of the snow and hoar-frost, sunk many degrees lower than one suspended twenty-four feet above it. Hence it has been concluded, that snow, falling from the higher regions of the atmosphere, is generally colder than the lower air.

With respect to the precise effect of elevation, Mr. Kirwan found it to be nearly as follows: when the elevation is moderate and gradual, such as that of the interior parts of most countries very distant from the sea, its effects are so blended with those of distance from the standard ocean, that the same allowance in the diminution of temperature is to be made for both. By a gradual elevation, he means such as rises at a less rate than six feet per mile, counting from the nearest considerable sea. If the elevation proceeds at a greater rate, then for every 200 feet of elevation, the annual temperature of the standard must be diminished in that latitude, as follows:

If the elevation be at the rate of			
6 feet per mile	-	-	$\frac{1}{4}$ of a degree.
7 feet	-	-	$\frac{1}{3}$
13 feet	-	-	$\frac{1}{2}$
15 feet, or upwards	-	-	$\frac{3}{4}$

For every 50 miles distance from the standard ocean, the mean annual temperature in different latitudes must be depressed or raised, nearly at the following rate:

From lat. 70° to lat. 35° cooled, $\frac{1}{3}$ of a degree.

35°	-	-	$\frac{1}{8}$
30°	-	-	0
25° warmed	-	-	$\frac{1}{8}$
20°	-	-	$\frac{1}{4}$
10°	-	-	1°

See on this subject Kirwan's Estimate of the Temperature of different Latitudes, 1787, passim.

It has been observed, that in clear weather, though the surface of the earth be then most liable to be heated by the sun, yet after sun-set, and during the night, the air is coldest near the ground, and particularly in the vallies. The experiments made on this subject for a whole year, by Mr. James Six, may be seen in the seventy-eighth volume of the Philosophical Transactions, but our limits will not allow our reciting them. The conclusions deduced from them are these; that a greater diminution of heat frequently takes place near the earth in the night-time, than at any altitude in the atmosphere within the limits of the writer's inquiry; that is, 220 feet from the ground; and that at such times the greatest degrees of cold are always met with nearest the surface of the earth. This is a constant operation of nature, under certain circumstances of the atmosphere, and occurs at all seasons of the year; and this difference never happens in any considerable degree, except when the air is still, and the sky perfectly unclouded. The refrigeration was not at all impeded, but rather promoted, by the moistest vapour, as dews and fogs. In very severe frosts, when the air frequently deposits a quantity of frozen vapour, it is commonly found greatest; but the excess of heat, which in the day was found in the lowest station in summer, was diminished in winter almost to nothing. The fact of the mercury's sinking in a thermometer, included in a receiver, when the air begins to be rarefied, has been usually attributed, not to any degree of cold thus produced, but to the sudden expansion of

the bulb of the thermometer, in consequence of the removal of the atmospheric pressure; but from some experiments of Dr. Darwin (see Philos. Transf. vol. 78. p. 43. &c.) it appears, that the atmosphere always becomes warm by compression, and cold by dilatation from a compressed state. This ingenious author mentions a curious phenomenon observed in the fountain of Hiero, constructed on a very large scale in the Chemnician mines in Hungary. In this machine the air, in a large vessel, is compressed by a column of water 260 feet high; a stop-cock is then opened; and as the air issues out with great vehemence, and in consequence of its previous condensation becomes immediately much expanded, the moisture contained in it is not only precipitated, as in the exhausted receiver, but falls down in a shower of snow, with icicles adhering to the nose of the cock. See Phil. Transf. for 1761, vol. 52. From this phenomenon, as well as from his experiments, Dr. Darwin infers, that there is good reason for concluding, that in all circumstances where air is mechanically expanded, it becomes capable of attracting the fluid matter of heat from other bodies in contact with it. (See CALORIC.) Now (says he), as the vast region of air which furrounds our globe is perpetually moving along its surface, climbing up the sides of mountains, and descending into the vallies; as it passes along, it must be perpetually varying its degree of heat, according to the elevation of the country it traverses; for, in rising to the summits of mountains, it becomes expanded, having so much of the pressure of the superincumbent air taken away; and when thus expanded, it attracts or absorbs heat from the mountains in contiguity with it; and, when it descends into the vallies, and is again compressed into less compass, it again gives out the heat it has acquired to the bodies it becomes in contact with. The same thing must happen in respect to the higher regions of the atmosphere, which are regions of perpetual frost, as has lately been discovered by the aerial navigators. When large districts of air, from the lower parts of the atmosphere, are raised two or three miles high, they become so much expanded by the great diminution of the pressure over them, and thence become so cold, that hail or snow is produced by the precipitation of the vapour; and as there is, in these high regions of the atmosphere, nothing else for the expanded air to acquire heat from after it has parted with its vapour, the same degree of cold continues, till the air, on descending to the earth, acquires its former state of condensation and of warmth.

The Andes, almost under the line, rests its base on burning sands; about its middle height is a most pleasant and temperate climate covering an extensive plain, on which is built the city of Quito; while its forehead is encircled with eternal snow, perhaps coeval with the mountain. Yet, according to the accounts of Don Ulloa, these three discordant climates seldom encroach much on each other's territories. The hot winds below, if they ascend, become cooled by their expansion; and hence they cannot affect the snow upon the summit; and the cold winds, that sweep the summit, become condensed as they descend, and of temperate warmth before they reach the fertile plains of Quito.

The temperature of the atmosphere, and the vicissitudes of its heat and cold, are subject to a variety of irregularities, which no theory that has yet been proposed is altogether sufficient to explain. For other observations on this subject, see the articles CLOUDS, COLD, CONGELATION, EVAPORATION, HAIL, HEAT, HYGROMETER, METEOROLOGY, RAIN, SNOW, WEATHER, WIND, &c.

ATMOSPHERE, *Uses of the.* There are so numerous and various, that it would require a very minute and extended detail

detail to recite even the principal of them. Of its indispensable necessity to the existence of animal and vegetable life, instances frequently occur in the course of this work. Animals and vegetables, in their immense variety, and from their state of eggs and seeds to their fullest maturity, owe the commencement and continuance of their being to the atmosphere that surrounds them. How much it conduces to the fertility of the earth, by means of the parts that compose it, and to the convenience and comfort of mankind, by furnishing a fit repository for the vapours that descend in refreshing showers, and for the winds that form an intercourse of society and commerce with distant nations, and by affording those reflections and refractions of light which shed lustre over surrounding objects, and which form pleasing transitions from darkness to day, and from day to night, by means of twilight, it is altogether needless to specify. The subject would afford scope for much declamation; and we might derive from it arguments that would impress a thoughtful mind with just and honourable sentiments of the creator. How necessary it is to the various operations of arts and science, as well as to the common purposes of life, will amply appear under the several articles which it would be almost superfluous to mention. See *AIR*, and the several articles to which we have already referred.

ATMOSPHERE, Method of navigating in the. See *AEROSTATION*.

ATMOSPHERE of the Sun, Moon, Planets, and Comets. See the several articles.

ATMOSPHERE of solid or consistent Bodies, is a kind of sphere formed by the effluvia, or minute corpuscles emitted from them. Mr. Boyle endeavours to show that all bodies, even the hardest and most coherent, as gems, &c. have their atmospheres. See *GEM*.

ATMOSPHERE, in *Electricity*, denotes that medium which was conceived to be diffused over the surface of electrified bodies, and to consist of effluvia issuing from them: whereby other bodies immersed in it become endued with an electricity contrary to that of the body to which the atmosphere belongs. This was first taken notice of at a very early period in the history of this science, by Otto Guericke, and afterwards by the academicians *del Cimento*, who contrived to render the electric atmosphere visible, by means of smoke attracted by, and uniting itself to, a piece of amber, and gently rising from it, and vanishing as the amber cooled. But Dr. Franklin exhibited this electric atmosphere with great advantage, by dropping rosin on hot iron plates held under bodies electrified, from which the smoke rose and encompassed the bodies, giving them a very beautiful appearance. He made other observations on these atmospheres; he took notice that they and the air did not seem to exclude one another; that they were immovably retained by the bodies from which they issued; and that the same body, in different circumstances of dilatation and contraction, is capable of receiving or retaining more or less of the electric fluid on its surface. However, the theory of electrical atmospheres was not sufficiently explained and understood for a considerable time; and the investigation led to many very curious experiments and observations. Mr. Canton took the lead, and was followed by Dr. Franklin; Mess. Wilcke and Epinus prosecuted the inquiry, and completed the discovery. The experiments of the two former gentlemen prepared the way for the conclusion that was afterwards drawn from them by the latter, though they retained the common opinion of electric atmospheres, and endeavoured to explain the phenomena by it. The conclusion was, that the electric fluid, when there is a re-

dundancy of it in any body, repels the electric fluid in any other body, when they are brought within the sphere of each others influence, and drives it into the remote parts of the body, or quite out of it, if there be any outlet for that purpose.

By atmosphere, M. Epinus says, no more is to be understood than the sphere of action belonging to any body, or the neighbouring air electrified by it. Sig. Beccaria concurs in the same opinion, that electrified bodies have no other atmosphere than the electricity communicated to the neighbouring air, and which goes with the air, and not with the electrified bodies. And Mr. Canton likewise, having relinquished the opinion that electrical atmospheres were composed of effluvia from excited or electrified bodies, maintained that they only result from an alteration in the state of the electric fluid contained in, or belonging to, the air surrounding these bodies to a certain distance; for instance, that excited glass repels the electric fluid from it, and consequently beyond that distance makes it more dense; whereas excited wax attracts the electric fluid existing in the air nearer to it, making it rarer than it was before. In the course of experiments that were performed on this occasion, Mess. Wilcke and Epinus succeeded in charging a plate of air, by suspending large boards of wood covered with tin, with the flat sides parallel to one another, and at some inches asunder; for they found, that, upon electrifying one of the boards positively, the other was always negative; and a shock was produced by forming a communication between the upper and lower plates. Beccaria has largely considered the subject of electric atmospheres, in his *Artificial Electricity*, p. 179, &c. Eng. edit. Dr. Priestley's *Hist. of Electricity*, vol. ii. sect. 5. Cavallo's *Electricity*, vol. i. p. 241. vol. iii. p. 282. See *CONDENSER*, and *CONDUCTOR*, *Luminous*; and *Experiments in ELECTRICITY*.

ATMOSPHERE, Magnetic, denotes the sphere within which the virtue of the magnet, &c. acts.

ATMOSPHERICAL Logarithmic. See *LOGARITHMIC*.

ATNAH, or *Carrier Indians*, in *Geography*, a tribe of Indians in the north-west continent of America, inhabiting the banks of the Columbia river, south of the Nagailer Indians, about N. lat. 52°, and W. long. 122°. The Atnah language, of which Mr. Mackenzie obtained some specimens, has no affinity to any with which he was acquainted. Mackenzie's *Journal of a Voyage through the N. W. Continent of America*, p. 258.

ATOM, formed of the privative α , and $\tau\epsilon\mu\nu\omega$, *I divide*, in *Philosophy*, a part or particle of matter, so minute as to be indivisible.

Atoms are properly the *minima natura*, the last or ultimate particles into which bodies are divisible; and are conceived as the first rudiments, or component parts of all physical magnitude; or the pre-existent and incorruptible matter whereof bodies were formed.

The notion of atoms arises hence, that matter is not divisible *in infinitum*. And hence the Peripatetics are led to deny the reality of atoms, together with that of mathematical points: an atom, say they, either has parts, or it has none; if it hath none, it is a mere mathematical point; if it hath, then do these parts also consist of others, and so on to infinity.

But this is to recede from the genuine character of atoms, which are not esteemed indivisible, because of their want of bigness, or parts (for all physical magnitude must have three dimensions, length, breadth, and thickness, and all extension is divisible); but they are indivisible on account of their solidity, hardness, and impenetrability, which preclude all division.

sion, and leave no vacancy for the admission of any foreign force to separate or disunite them.

As atoms are the first matter, it is necessary they should be indissoluble, in order to their being incorruptible. Sir Isaac Newton adds, that it is also required they be immutable, in order to the world's continuing in the same state, and bodies being of the same nature now as formerly. To this purpose he observes, at the close of his inquiry into the nature, laws, and constitution of matter, that God in the beginning created matter in solid, massy, hard, impenetrable, moveable particles, incomparably harder than any of the porous bodies compounded of them; nay, so hard as never to wear or break in pieces; no human power being able to divide what God made one at the creation, while these particles continue entire, they may compose bodies of one and the same texture in all ages; But if they should wear away or break in pieces, the nature of things depending upon them would be changed. See *DIVISIBILITY*, and *SOLIDITY*.

Hence the ancients were also led to maintain atoms eternal: because what is immutable, must be eternal. They also added gravity; and, in consequence thereof, motion to their atoms: and farther observing that atoms thus falling perpendicularly, could not join or unite together; they superadded a fortuitous or side motion, and furnished them with certain hooked parts, in order to enable them to catch and hang the better together.—And from a casual and fortuitous jumble of these atoms, they supposed the whole universe to be formed.

ATOMARIA, in *Conchology*, a species of *CYPRÆA*, about half an inch in length. This shell is oblong, snowy-white, dotted with brown, and at each end two dusky marks. Martini, Gmel. &c.

ATOMARIA, in *Entomology*, a species of *CONOPS* (*Myopa*, Fabr.), found in Europe. It is greyish, with an ovate abdomen; wings brown, crowded with white dots. Gmelin.

ATOMARIA, a species of *PHRYGANEÆ* found in Germany. The wings are pale-grey, with numerous black dots.

ATOMARIA, a species of *PHALÆNA* (*Geometra*) that inhabits Europe. The wings are entirely yellowish, streaked and speckled with brown. Gmelin, &c. This is *Phalæna pennata* of Scopoli, and *Phalæna artemisifaria*. *Phalæna glarearia* of Wien. Schmetterl. is supposed to be a variety of this species by Gmelin. The larva from which this moth is produced is smooth and greyish, with numerous ferruginous interrupted lines, and two tubercles on the posterior part; feeds on centaurea scabiosa.

ATOMARIA, a species of *NOTONECTA*, about the size of a louse, and inhabits the river Volchova in Russia. It is white; above and wing-cases pale-greyish; wings milky. Pallas, It.

ATOMARIA, a species of *SILPHA*, (*Spheridium* Fabr.) This insect is smooth and black; wing-cases marked with crenate striæ; legs pale. Fabr. Gmel. &c. A native of Europe.

ATOMARIUS, a species of *SCARABÆUS* (*Melolontha*) that inhabits the cape of Good Hope. In size and appearance this insect resembles *S. farinosus*. It is powdered with white; thorax canaliculated and black; wing-cases brown; abdomen white, with lateral black dots.

ATOMARIUS, a species of *CURCULIO* found in Europe. This insect is brown; wing-cases striated, with the interstices smooth, finely punctated, and sprinkled with specks of greyish brown hairs; snouts rufous. Muf. Lesk. p. 18. n. 380. Lin. Another *curculio atomarius* occurs in Linn. Muf. Lesk. p. 19, 399., and which does not seem to differ

specifically from the foregoing: *C. atomarius fuscus*, elytris striatis; atomis griseis pilosis.

ATOMARIUS, a species of *CARABUS* that inhabits Europe. It is apterous, black, and glabrous; wing-cases rather smooth, with minute, scattered, confluent drops of a purple colour; margin purple. Muf. Lesk.

ATOMARIUS, a species of *CIMEX* (*Rotundatus* sect.), varied with griseous and brown; wings white, dotted with brown. Fabricius.

ATOMELLA, a species of *PHALÆNA* (*Tinea*). The antennæ are of a moderate length; first wings yellowish, speckled with ferruginous; two ferruginous dots in the disk, and a yellow marginal spot. Linn. &c. Inhabits Europe.

ATOMICAL PHILOSOPHY, denotes the doctrine of atoms; or a method of accounting for the origin and formation of all things, from the supposition of atoms, endued with gravity and motion.

The atomic phyiology, according to the account given of it by Dr. Cudworth (*Intellectual System*, b. i. c. i. vol. i. p. 7. Birch's ed.), supposes "that body is nothing else but *διαστον ἀήνυτον*, that is, extended bulk; and resolves therefore, that nothing is to be attributed to it, but what is included in the nature and idea of it, *viz.* more or less magnitude, with divisibility into parts, figure, and position; together with motion or rest, but so as that no part of body can ever move itself, but is always moved by something else. And consequently it supposes, that there is no need of any thing else besides the simple elements of magnitude, figure, site, and motion, which are all clearly intelligible as different modes of extended substance, to solve the corporeal phenomena by; and therefore, not of any substantial forms, distinct from the matter, nor of any other qualities really existing in the bodies without, besides the results or aggregates of those simple elements, and the disposition of the insensible parts of bodies in respect of figure, site, and motion; nor of any intentional species or shews, propagated from the objects to our senses; nor lastly, of any other kind of motion or action really distinct from local motion, such as generation and alteration, they being neither intelligible as modes of extended substance, nor any ways necessary. Forasmuch as the forms and qualities of bodies may well be conceived to be nothing but the result of those simple elements of magnitude, figure, site, and motion, variously combined together, in the same manner as syllables and words, in great variety, result from the different combinations and conjunctions of a few letters, or the simple elements of speech; and the corporeal part of sensation, and particularly that of vision, may be solved only by local motion of bodies, that is, either by corporeal effluvia (called *simulachra*, *membrane*, and *exuvie*), streaming continually from the surface of the objects, or rather, as the later and more refined anatomists conceived, by pressure made from the object to the eye, by means of light in the medium. So that *ὡς διαβακτηρίας τε ταβήλης αἰρός το βλέποντος ἀνθρώπου*; the sense taking cognizance of the object by the subtle interposed medium, that is tense, and stretched, (thrusting every way from it upon the optic nerves), doth by that as it were by a staff touch it. Again, generation and corruption may be sufficiently explained by concretion and secretion, or local motion, without substantial forms and qualities. And, lastly, those sensible ideas of light and colours, heat and cold, sweet and bitter, as they are distinct things from the figure, site, and motion of the insensible parts of bodies, seem plainly to be nothing else but our own fancies, passions, and sensations, however they be vulgarly mistaken for qualities in the bodies without us."

As to the origin and history of this atomical philosophy, Dr. Cud-

Dr. Cudworth observes, that though adopted by Epicurus, it has been commonly ascribed to Democritus, who was prior both to Aristotle and Plato; but Laertius represents Leucippus, who was somewhat senior to Democritus, as the first inventor of it. Aristotle, who often mentions this philosophy, commonly ascribes it to Leucippus and Democritus jointly. Plato refers its original to Protagoras, who was an auditor of Democritus. "However," says the learned Cudworth (*ubi supra* p. 12.), "we are of opinion that neither Democritus, nor Protagoras, nor Leucippus, was the first inventor of this philosophy; and our reason is, because they were all three of them atheists (though Protagoras alone was banished for that crime by the Athenians); and we cannot think that any atheists could be the inventors of it; and much less that it was the genuine spawn and brood of atheism itself, as some conceit, because however these atheists adopted it for themselves, endeavouring to serve their turns of it, yet if rightly understood, it is the most effectual engine against atheism that can be." This learned writer alleges also historical probability for the opinion that this philosophy was much more ancient than either Democritus or Leucippus. To this purpose he observes, that Posidonius, as we learn from Empiricus and Strabo, avowed it for an old tradition, that the first inventor of this atomical philosophy was one Moschus, a Phœnician, who, according to Strabo, lived before the Trojan war, and who has been supposed by some persons to be the same with Mosès the Jewish lawgiver. See MOSCHUS.

Dr. Cudworth further maintains, that Pythagoras, who is thought to have conversed at Sidon with the Jewish philosophers, priests, and poets, who were the successors of Mosès, to have borrowed many things from the Jews, and to have translated them into his philosophy, was not unacquainted with the atomical philosophy; and he therefore concludes, that the philosophy of Democritus was Pythagorean; and the philosophy of Pythagoras, Democritical or atomical. Accordingly, he alleges the authority of Eephanus, a famous Pythagorean, and other testimonies, to prove that the Monads of Pythagoras were nothing else but corporeal atoms. In order to reconcile Aristotle with himself, and to preserve the credit of Laertius, both of whom ascribe this philosophy to Democritus and Leucippus, as its first authors, Cudworth suggests, that though the atomical philosophy was in use long before Democritus and Leucippus, yet these two with their confederate atheists, of whom Protagoras seems to have been one, were undoubtedly the first "that ever made this philosophy to be a complete and entire philosophy by itself, so as to derive the original of all things in the whole universe from senseless atoms, that had nothing but figure and motion, together with vacuum, and made up such a system of it, as from whence it would follow there could not be any God, not so much as a corporeal one." The atomical philosophy, according to this learned writer, existed before and without atheism; and Democritus and Leucippus are to be regarded as the first inventors or founders of the atomical philosophy "atheized and adulterated." Consequently there have been two sorts of atomists in the world; the one atheistical, the other religious. The first and most ancient atomists, holding incorporeal substance, used that philosophy in a way of subordination to theology and metaphysics. The others, allowing no other substance but body, made senseless atoms and figures, without any mind and understanding, (i.e. without any God), to be the original of all things; which latter is that, which was vulgarly known by the name of atomical philosophy, of which Democritus and Leucippus were the source. Dr. Cudworth has shown, by a variety of citations from ancient writers, that the atomists before

Democritus did generally join theology and incorporealism with their atomical philosophy; and he has also proved by the most conclusive reasoning, that atheism, so far from being a natural and necessary appendage to atomism, is totally distinct from it; that there is, neither in reason nor in fact, any inconsistency betwixt the atomical philosophy and theology; and that there is, on the contrary, a most natural cognition or alliance between them. *Ubi supra*, p. 27, &c. The atomic philosophy of Democritus and Leucippus was cultivated and improved by Epicurus, though he would not acknowledge that he had borrowed his hypothesis from any; and from him it obtained the denomination of the Epicurean philosophy. See the articles DEMOCRITUS, LEUCIPPUS, EPICURUS, and EPICUREAN Philosophy. See also COSMOGONY.

The opinion of Dr. Cudworth with respect to the antiquity of the atomic philosophy has been contested by some later writers. The learned bishop Warburton, in his "Divine Legation of Mosès," admits it as a settled point, that Democritus and Leucippus were the authors of this philosophy; and Brucker (*Hist. Philos. by Enfield*, vol. i. p. 60.) thinks, that the single evidence of Posidonius, the stoic, who lived so many ages after the time of Moschus, to whom Cicero allows little credit, and of whose authority Strabo and Sextus Empiricus, who refer to him, intimate some suspicion, is too feeble to support the whole weight of this opinion. But the circumstance, says this writer, which most of all invalidates it, is, that the method of philosophizing by hypothesis or system, which was followed by the Greek philosophers, was inconsistent with the genius and character of the barbaric philosophy, which consisted in simple assertion, and relied entirely upon traditional authority. He adds, that the part of the history of Pythagoras which relates to this subject, has been involved in obscurity by the later Platonists; and that neither the doctrine of monads, nor any of those systems which are said to have been derived from Moschus, are the same with the atomic doctrine of Epicurus. He therefore concludes, that, whatever credit the corpuscular system may derive from other sources, it has no claim to be considered as the ancient doctrine of the Phœnicians. We incline however to admit the testimonies and arguments of Dr. Cudworth; and with the distinction which he has adopted between the atomic philosophy derived from tradition before the time of Democritus and Leucippus, and that system of materialism and atheism connected with it by their speculations, and with this reproach annexed to it transmitted to Epicurus and his followers, by whom it was again modified, it seems most probable, that the atomic philosophy was not first invented by these speculative philosophers, but derived by tradition from Phœnicia or Egypt. The atomic philosophy has been revived by some moderns, and particularly by Gassendi and others, who, rejecting the eternity of atoms and their fortuitous motion, have made it a very intelligible and rational system. It is now espoused and adhered to by a great part of the philosophical world, under the denomination of the CORPUSCULAR philosophy; which see. It is the philosophy of Newton, Locke, and all their followers; and it claims regard, among other considerations, from its being the genuine philosophy of the first and most ancient atomists. The scholastic divines among the Mahometans, who are very orthodox as to the creation of the world by God, do also admit both atoms and a vacuum; but their atoms are different from those of Leucippus, for they have no magnitude and are all like one another: and they suppose, as that philosopher ought to have done, that every atom of a living body is alive, that every atom of a sensitive body is en-

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duced with sense, and that the understanding resides in an atom; though they differ as to the soul and knowledge, whether they consist in a single atom, or a collection of several. Maimon. in More Nevochim. c. 73.

The atomic system, adopted by modern philosophers, and extended by Le Sage and De Luc to great subtleties, supposes that matter fills its space merely by its existence; that it is absolutely impenetrable; that its division can be carried to a certain length only, ending in atoms, which, though extended, are not further divisible; that there are empty interstices between the atoms; that the particles of elastic fluids, as air, vapours, caloric, &c. do not touch each other, and consequently they form discrete fluids, as they are called; and that the rarity or density of a body depends solely on the quantity of empty interstices, in a certain volume of space occupied by the matter constituting that body. In these respects, this system is opposed to that denominated the dynamic system, illustrated by Kant in his "Metaphysical Elements of Natural Philosophy." See *DYNAMIC System*.

A late writer has distinguished between *common*, and *philosophic atomists*. Under the former appellation he comprehends those who think with the vulgar, not only that matter exists externally, but that it really possesses all those properties which strike the senses; such as cold, heat, colour, sound, &c. Under the general name of philosophic atomists, he comprises all those philosophers, who admit the essential properties of matter, such as extension, impenetrability, cohesion, and mobility, and who reject the real or external existence of those properties that are called sensible qualities. These latter atomists he further distributes into two classes: viz. *simple*, and *mixed*: simple or pure atomists acknowledge extension and impenetrability alone, and the attributes necessarily arising from these, viz. inertia and cohesion. According to them, matter is merely passive, endued with no internal powers; and cohesion, though not necessarily contained in the idea of matter, is essential to the idea of extension; so that all changes are effected by powers foreign to matter: in *nature*, the power of God: in *creatures*, the powers of the soul. Mixed atomists, or Dynamists, place powers in matter itself, which in their opinion belong to it, and inhere in it in such a manner that they are independent of spiritual substance, and are either formed in bodies or superadded as attributes of material existences. Of this kind are gravity, elasticity, irritability, attraction, repulsion, &c. These powers operate according to the organization of bodies. To atomists of each class this writer opposes the *Idealists*, who entertain the same opinions concerning the primary qualities of bodies, which are held by atomists concerning the secondary. As the latter maintain that no light can exist without being seen, or sound without being heard, so the former assert that neither impenetrability nor extension can have place independently of our conceptions. This opinion, which seems to have been countenanced by Plato, is fully developed in the system of Berkeley. Malebranche is placed by this writer among the Idealists, as his mathematical points, constituent of extension, vanish into nothing when we attempt to analyse them. Locke, by supposing that matter may be made capable of thought, approaches to the Dynamists. Leibnitz and Wolf may be deemed Idealists, since, in reality, they allow of no material existence out of the mind; for although the monads are the occasion of our ideas, yet these ideas have nothing in common with the object. Kant, who derives no sensations from the attention of the soul to real existences, though he acknowledges that our ideas are in some other manner excited, by something existing out

of the mind, is placed also under the class of Idealists; as, according to him, all our observations and determinations are founded on appearances. Of Dr. Priestley this anonymous writer remarks, that, although he makes the soul material, he makes matter spiritual: and therefore he is ranked with the mixed atomists. See account of Prize Dissertations, by Teyler's Theological Society, vol. x. in Monthly Review Enlarged, vol. iii. p. 483, &c.

ATOMOS, in *Entomology*, a species of *CANCER* found in running water in Europe. It is linear; has four, with a single fang; legs fourteen, with two oval vesicles on each side between the fourth and fifth pair.

ATOMUS, a species of *ICHAENEUMON*, varied with pale and brown. This insect, Gmelin informs us, inhabits Upsal; is smaller than a mite, and scarcely to be distinguished except when it is in motion.

ATONEMENT, in *Theology*, is a term that has been variously explained and applied by divines of different opinions. However, there are three principal senses, in which, with subordinate modifications, the term has been usually understood. The first is, that which has been adopted by those who are commonly called Calvinists; and it supposes, that the death and sufferings of Jesus Christ, partaking of the divine and human nature in one person, being with respect to the former equal to the Father, were such, considered in their degree and value, as to be a proper equivalent for the penalty annexed by the divine law to the transgression of those of the elect who are penitent and believing. Divine justice, it is said, required its victim, either in the sinner or his substitute; Jesus became the surety; he paid the debt, and satisfied the demand. Others, who have not espoused the doctrine of the proper deity of Christ in the sense of the Trinitarians, or who have not contended for an absolute and strict equivalent to the demerit and consequent punishment of transgression, have expressed their notion of this doctrine in a manner somewhat different. Accordingly, Dr. Watts, in his "Redeemer and Sanctifier" (see his Works, vol. iii. p. 742.), explains his sentiments in the following manner. "By atonement for sin, I do not mean any such thing as shall in a proper and literal sense appease the wrath of God, the offended governor, which is supposed to be kindled against his sinful creatures, and shall incline his heart to mercy, which was before determined upon vengeance; for though this doctrine may be so represented sometimes after the manner of men, yet this is an idea or supposition in many respects inconsistent with the attributes and actions of the blessed God, and with the doctrine of the New Testament. In that book God represents himself as rich in mercy, and for this reason he pitied sinful creatures who had broken his law, and had deserved to die, before he had received any atonement; and therefore God himself provided and sent his own son to become a sacrifice of atonement, and a ransom for them; he appointed him to be a surety for us, the just for the unjust, and to suffer death in the room and stead of sinners. By the words "atonement," or "propitiation," I mean therefore some toilsome or painful thing done or suffered, or both, by Jesus Christ the son of God, in the room and instead of sinful men, as a penance or punishment on account of their sins; and this by the wise and righteous appointment of God, the universal governor, shall excuse the penitent offender from the punishment that was due, and obtain his pardon, because it shall give a recompense to the authority of the divine lawgiver for the affront which was put upon him by the sins of men, and shall make some reparation of honour to his holy law which was broken. And this is not only intended to manifest the evil nature and the desert of sin, together with God's

ATONEMENT.

hatred of it; but it shall also answer the demand and design of the threatening by such actual pain or punishment, though it is laid on the surety instead of the offender; and thus it may secure the law from being broken, in time to come, as effectually as if the offenders themselves had been punished. Such a pain, penance, or punishment, are the humiliation and sufferings of Jesus Christ, his labours and sorrow; and it is in this sense that the language of expiation or atonement, of propitiation and ransom, is so often used. See 1 Pet. ii. 23. 2 Cor. v. 21. Gal. iii. 10. "Now by these appointed sufferings of the Son of God, in the room and stead of sinful men, there is an honourable amends made to the governor of the world for the violation of his law, and a glorious way made for the exercise of mercy in the pardoning of the sinner, and that without any imputation of reflection upon the holiness of God's nature and conduct, or any suspicion of the justice of his government, as if he would connive at sin: since he discovers and declares, that in passing by the sins of his people in former ages, and in pardoning and justifying sinners who now believe in Christ, he will manifest his justice and righteousness by requiring such a sacrifice whereby sin shall be punished, though the sinner be spared." See Rom. iii. 24—26. To this purpose, Whitby (in Heb. v. 3.) observes, that Christ, after he became our surety, was not, nor could be delivered from those sorrows which were the punishment of our sins: he being as our expiatory sacrifice, not only on the occasion of our sins, but in our stead, to bear the punishment of our iniquity. (See SATISFACTION.) In the sense above explained, the death and sufferings of Christ were properly VICARIOUS. The advocates for this opinion have sometimes asserted, without reserve or qualification, that the necessity of an atonement arose from the immutable nature, and the indispensable demands of divine justice: and that God *could not*, in consistence with his moral attributes, have pardoned sin without receiving a plenary satisfaction; that this satisfaction or atonement *could not* have been given by any other being but his own everlasting and equal Son; and that even he *could not* have effected this great and ultimate object of his mediatorial office, unless our sins had been imputed to him in the same degree as his merits are imputed to us. (See IMPUTATION.) On the other hand, those who have carried Calvinism to the extreme in other points, have nevertheless maintained, that punitive justice was not essential to the divine nature, and that God might have pardoned sin by virtue of his own absolute authority, independently of an atonement. Dr. Owen, however, has opposed this tenet in a Latin tract, intitled, "*Diatriba de iustitiâ divinâ.*"

"Christ's death," says the learned biblical writer, Dr. Clarke (Sermons, vol. viii. p. 366.), "*was truly and properly*, in the strictest meaning of the word, an expiatory sacrifice. For if sinners, by having diminished the honour, and despised the authority of God's laws, were become liable to the justice and vengeance of God; if the Son of God in our nature, by vindicating the honour of God's laws, hath discharged this obligation, and obtained remission for us; and if the obtaining this remission was by the shedding of his blood, which is called "*the price of our redemption*" (1 Cor. vi. 20); it follows, that the wrath of God was appeased by the death of Christ, and that God was graciously pleased to accept this vicarious suffering of his Son, in the stead of the punishment that was due to the sinner in his own person; which is the express and most proper notion of an expiatory sacrifice." To the same purpose this excellent writer observes in another place (vol. v. p. 203.), that "Christ hath vindicated the honour of God's laws, by taking upon himself the punishment of their sins

who repent, and embrace the terms of the gospel. He condescended to be made sin for us, i.e. to be made a sacrifice for our sins, that we through that expiation might become subjects capable of the mercy of God. He took upon him our nature, and was clothed in flesh, *partly* indeed that he might preach the will of God to mankind in a nearer and more condescending conversation with them; but, *principally*, that he who in the form of God could not suffer, might become capable of suffering by being made in the likeness to man. He led a most innocent and spotless life, that he might indeed set us an example, that we should follow his steps; but *chiefly*, because, as it was required that the typical sacrifices under the law should be whole and without blemish, so it was necessary, that he who was to be the real expiatory sacrifice for the sins of others, should have none that needed expiation of his own.—He suffered a shameful and ignominious death upon the cross, that he might indeed give us an example of patience and readiness to suffer; but the *principal* design of it was, that he might put away sin by the sacrifice of himself, and obtain eternal redemption for us through faith in his blood. His resurrection was the demonstration of this sacrifice's being accepted by God; and his ascension into heaven was in order to plead the merits of his sufferings before God, and intercede for those who, according to the terms of the gospel-covenant, should be capable of receiving the gracious benefits purchased by his death." Similar sentiments of the doctrine of atonement are largely illustrated in a treatise, by Mr. M. Tomkins, who was an avowed Arian with regard to the Trinity, intitled, "*Jesus Christ, the Mediator between God and Man;*" of which a second edition was printed in London, in 1761. This writer, having produced several passages of scripture, that speak of Christ's death as a sacrifice, and which declare him to be constituted an high-priest, and having established, as he conceives, beyond all reasonable doubt, the literal sense of those scriptures, proceeds to consider what was the notion of expiatory sacrifices and of the priestly office, under the law of Moses. (See SACRIFICE.) These sacrifices, he shows, were intended to make atonement for the person who offered them; i.e. according to his statement they were, by divine appointment, of avail to free him from the guilt he had contracted, and to prevent the punishments to which he was liable. See Numb. viii. 19. xvi. 46. These sacrifices he considers as a proper expiation, or a real propitiation; not that they were the cause of a merciful disposition in God, and in that sense rendered him propitious who was before implacable; but they were appointments for procuring pardon, and the priests by offering them obtained from the mercy of God those blessings of which they otherwise must have been deprived. Hence he infers, that the effects attributed to the blood of Christ correspond with such effects of these legal sacrifices, and that his acting as our high-priest answers to the office of the high-priest under the law. See Heb. viii. ix. 8, 23. x. 1. He proceeds to show, that our pardon and acceptance with God, and our freedom of access, are represented, in the New Testament, as the fruit of the suffering of Christ not merely as an act of obedience, but as a sacrifice for sin, as a demonstration of God's displeasure against it, and of his regard to the righteous sanction of the original law, which denounced death to the transgressors of it. With this view, when God resolves to show mercy to sinners, he also determines that his only begotten son, not indeed without his consent, shall suffer death, the penalty which the original law had denounced against transgressors. Thus Christ, by suffering death, prevented or warded off those effects or consequences of sin, which would otherwise have come upon mankind; and accordingly his death and

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his mediation are very justly represented as the means of procuring for us the blessings of which we are made partakers. See Heb. ix. 12. 1 Cor. vi. 20. viii. 23. Rev. v. 9. This representation of the matter gave rise to the term satisfaction, which has been generally used by writers in treating of this subject. (See SATISFACTION.) This author having stated his notion of the death of Christ as an atonement for sin, obviates the objections that have been urged against the opinion he has adopted. But we must refer for further particulars to the author's treatise, p. 105, &c. See also Chapman's Eusebius, vol. ii. ch. iv, v, vi.

The second explanation of the term atonement, which has sometimes been called the Arminian scheme, supposes that the sufferings of Jesus Christ were inconceivably severe; and that the object of them was to exhibit the evil and demerit of sin, and the displeasure of God against it, who would not even forgive a sincere penitent, without thus manifesting his hatred of wickedness. This coincides, in a degree, with the illustration of this doctrine already given; it has been denominated the moderate doctrine, and has been adopted, with certain modifications, by many divines and others.

A third hypothesis relating to this subject is that of the learned Dr. John Taylor (see his "Scripture Doctrine of Atonement examined, &c. and also his "Key to the Apostolic Writings," prefixed to his "Paraphrase, &c. on the Epistle to the Romans," ch. viii.), who supposes, "that the scriptures represent the death of Christ as an act of obedience so acceptable to God, that, as the reward of it, he thought fit to grant unto mankind, corrupt and wicked, the forgiveness of sin (*absolutely*, in relation to antecedent blessings; and *upon condition of repentance*, in relation to eternal life), and to erect a new dispensation furnished with all proper means to draw us from sin unto God, and to bring us to the possession of immortality. The blood of Christ, says this writer, or that by which he has bought or redeemed us, is his love and goodness to men, and his obedience to God, exercised indeed through the whole of his state of humiliation in this world, but most eminently exhibited in his death. It is his complete and spotless righteousness, his humility, goodness, and obedience unto death, which makes his blood precious in the best and highest sense, and gives his cross all its worth and efficacy. Obedience was the sacrifice which he offered unto God for us." "It was his righteousness, or righteous, kind, and benevolent action, his obedient death, or the sacrifice of his love and obedience, which made *atonement* for the sin of the world; so far, and in this sense, that God, on account of his goodness and perfect obedience, so highly pleasing unto him, thought fit to grant unto mankind, whom he might in strict justice have destroyed for their general corruption and wickedness (John iii. 17.), the forgiveness of sins, not imputing unto them their trespasses, (2 Cor. v. 19.) or those sins which were past, or which they had already committed (Rom. iii. 25.), and for which they deserved to fall under the dreadful effects of God's wrath. And not only did he forgive former trespasses to all the *living* and to all the penitent and obedient *dead*, but further he erected a glorious and perfect dispensation of grace, exceeding any which had gone before it in means, promises, and prospects; at the head of which he set his Son, our Lord Jesus Christ, invested with universal power in heaven and on earth, constituting him king and governor over the new body, which he designed to form, captain of our salvation, the high-priest of our profession, the mediator and surety of the new covenant, to negotiate and manage all affairs relating to our present instruction and sanctification, to raise all the dead out of their graves, and

to put the obedient and faithful into possession of eternal life."—"As in various instances, the virtue, piety, and prayers of good men were the reason of God's bestowing pardon and sundry blessings upon others, how much more, according to this author, must the perfect righteousness, or obedience and goodness of the Son of God, be a reason for remitting the sins of mankind, so far as, in the nature of things, they are capable of remission, or of being atoned? For the sins of the impenitent who finally neglect and resist all means of reformation, cannot be atoned or forgiven. Grace or favour, through the atonement of Christ, may be so far shown to such, as to allow them space and means to repent; but none besides the penitent who duly improve the divine goodness and patience, can receive the benefit of eternal salvation through the atonement of Christ. The wisdom as well as the grace of this dispensation, are illustrated, when we consider, that pardon in the gospel is raised to a very high degree; and repentance is there made available, not only to exempt from punishment, but also to gain a new and glorious state of being in eternal life, which is a grant of favour extended far beyond the natural value of repentance. Besides, the grant of remission of sin, and of other blessings of the gospel, through the blood of Christ, has a strong and direct tendency to promote our sanctification, and to render us penitent and obedient; and therefore this constitution must be acquiesced in as perfectly wise and beneficent." Dr Taylor, in examining the notion of atonement above stated, and considered as the satisfying divine justice, by another's suffering the punishment due to the criminal's sin in his stead, adduces a variety of passages pertaining to this subject, and those more especially in which the Hebrew word *כפר*, by which, or its derivatives, atonement is expressed in the Old Testament: and though he discards the notions of the imputation of our sins to Christ, his suffering in our stead the punishment due to us, or his paying an equivalent to divine justice, yet he concludes his examination with inferring from it, that the sacrifice of Christ was, truly and properly, in the highest degree, and far beyond any other, peculiar and expiatory, to make atonement for, or to take away sin: not only to give us an example; not only to assure us of remission; or to procure our Lord a commission to publish the forgiveness of sin; but moreover, to obtain that forgiveness by doing what God in his wisdom and goodness judged fit and expedient to be done in order to the forgiveness of sin; and without which he did not think it fit or expedient to grant the forgiveness of sin." The truly excellent bishop Butler, in delivering his sentiments on this subject (Analogy, &c. pt. ii. c. 5.), observes, "that some have endeavoured to explain the efficacy of what Christ has done and suffered for us beyond what the scripture has authorized; others, probably, because they could not explain it, have been for taking it away, and confining his office as redeemer of the world to his instruction, example, and government of the church. Whereas the doctrine of the gospel appears to be, not only that he taught the efficacy of repentance, but rendered it of the efficacy which it is by what he did and suffered for us; that he obtained for us the benefit of having our repentance accepted to eternal life, &c. How and in what way it had this particular efficacy, there are not wanting persons who have endeavoured to explain; but we do not find that the scriptures have explained it. It is our wisdom thankfully to accept the benefit, without disputing how it was procured." To the same purpose, Dr. Price, who formed his sentiments very much on the general plan of Butler's Analogy, says, in his "Sermons on the Christian Doctrine," p. 85. that Christ descended to this earth from a state of

pre-existent dignity; and that, after having passed through human life, enduring all its sorrows, he delivered himself up to death, and thus acquired the power of delivering us from death. By offering himself a sacrifice on the cross, he vindicated the honour of those laws which sinners had broken, and rendered the exercise of favour to them consistent with the holiness and wisdom of God's government; and by his resurrection from the dead, he proved the efficacy and acceptableness of his sacrifice. In a word, Christ not only *declared*, but *obtained* the availableness of repentance to pardon; and became by his interposition, not only the *conveyer*, but the *author* and the *means* of our future immortality;—"in such a sense that we owe them to him, as well as primarily to God." This author has declined the use of the terms *substitution* and *satisfaction*, because they do not occur in scripture; but others have alleged, that though the literal expressions do not occur, the phraseology of the sacred writers warrants the use of them.

Among other writers who have totally rejected the doctrine of atonement according to either of the explanations above given of it, we may mention Dr. Priestley, who reckons it in the class of the corruptions of Christianity. See History of the Corruptions of Christianity, vol. ii. p. 152, &c. In all the books of scripture, says this writer, we no where find the principle on which the doctrine of atonement is founded, which is a display on the part of God, of justice, and of his abhorrence of sin, so that God could not pardon it without an adequate satisfaction being made to his justice, and the honour of his laws and government. Admitting the popular doctrine of atonement, the whole of the Old Testament, as he conceives, is a most unaccountable book, and the religion it exhibits is defective in the most essential article. The Jews in our Saviour's time, it is said, had certainly no idea of this doctrine; for if they had, they would have expected a suffering, and not a triumphant Messiah. And it is alleged, that our Lord and his apostles are silent with regard to it. This author undertakes to explain the sense in which Christ is represented as a sacrifice, and other figurative interpretations of it, independently of this doctrine. He proceeds to examine the sentiments of the Apostolical fathers, and though he allows that single expressions occur in their writings which seem to favour the doctrine of atonement, yet the general strain shows, as he apprehends, that they had no proper idea of it. It is also argued that this doctrine is not enumerated as an article of Christian faith in any ancient summary of Christian doctrine. To the too literal interpretation of the figurative language of scripture, Dr. Priestley ascribes that advance towards the doctrine of atonement, which was observed in the third and fourth centuries. Grotius shows (*Opera*, vol. iv. p. 347.) that this doctrine is maintained by Theodorus Abucara, a Greek writer of the ninth century; but in the Latin church it does not seem to have been fixed in the eleventh century, although there are obvious and indisputable references to it in the writings of Anselm, and also in Theophilus, a Greek writer cited by Grotius. Wickliffe evidently believed the absolute necessity of the death of Christ in order to the forgiveness of sin, and after the reformation by Luther, the doctrine of satisfaction, or atonement for sin, was reduced to a regular system grounded on certain principles, and pursued to its proper extent. It was unequivocally avowed in the confession of faith presented to Charles V. at Augsburg, in 1530; in the Helvetic confession of the year 1536; and at the synod of Dort, 1618. It is now the doctrine of the established churches of England and Scotland; and it is very generally retained, at least in some qualified sense, by

divines and others, both Trinitarian and Arian. Socinus discarded it, and his followers have almost universally exploded it. We observe, that though the word atonement frequently occurs in the Old Testament, we meet with it but once in the New Testament; and in other places the same original word, *καταλλαγή*, is rendered reconciliation. As for those who reject the generally received doctrine of the atonement, they maintain, that the great object of our Lord's mission was to teach the doctrine of a resurrection to a future immortal life, and that hence arose the peculiar necessity and utility of his own death and resurrection as a proof of his doctrine. See EXPIATION, LUSTRATION, PROPITIATION, SACRIFICE, and SATISFACTION.

ATONEMENT, *Day of*. See *Fest of EXPIATION*.

ANTONIA, *ἀντοία*, in *Medicine*, a term which signifies a want of tone, firmness of strength, in the muscular fibre; in other words, a relaxation thereof; from *α* privative and *τενω*, *tendo*, *I stretch*, or *extend*. This condition takes place either partially or generally in most forms of chronic diseases, and in the convalescent period of acute diseases. The remedies are the Peruvian bark, bitters, chalybeates, the sulphuric acid, cold bathing, country air, and exercise, with a mild and nourishing diet.

ATONICS, in *Grammar*, denote words unaccented. See ACCENT.

ATOOL, or ATOWAI, in *Geography*, the most northern and the largest of the west group of the Sandwich islands, being about 300 miles in circumference; containing, according to the statement in the third volume of Captain Cook's voyage, about 54,000 inhabitants. It has a good road and anchoring place on the south-west side of the island, called Wymoa. It is observed in the account of Portlock's and Dixon's Voyage to the north-west coast of America, that the east side of the island rises gradually from the sea, till it terminates in high land, near the centre of the island. The height of the most elevated land or mountain, according to Marchand, (*ubi infra*. p. 16.), is 1216 toises. The hills are clothed to the summit with lofty trees, exhibiting a beautiful verdure. The land next the shore on the east side is uncultivated and destitute of inhabitants; but to the westward it is generally cultivated, and houses are scattered along the shore. The domestic animals on this island are hogs, dogs, and fowls. Its principal vegetable productions are yams, sweet potatoes, the sugar cane, and a sweet root called by the natives, tee. Some trees were found about fifteen feet high, with spreading branches, a smooth bark, and a nut resembling a walnut; others about nine feet high, with blossoms of a beautiful pink colour; and a variety with nuts, like our horse chestnuts, which are used by the natives as substitutes for candles, and give an excellent light. The island affords a supply of fresh water. In Marchand's Voyage (vol. ii. p. 80.), we have an account of two English sailors, who had been carried off from an English brig by the natives of this island, and who confirmed the report of captain Cook concerning the natives of the Sandwich islands, that these islanders are cannibals, and eat their prisoners. The relation, however, is disputed, and it is suggested, that the natives of these islands cut in pieces the bodies of their dead enemies, burn their flesh, and preserve their bones as trophies for perpetuating the memory of their exploits. Thus, it is said, they dealt with the body of the unfortunate captain Cook. In the voyage of Vancouver, who visited this island in 1792, we are informed, that the prostitution of the women is here carried to the most wanton excess. Vol. i. p. 171. N. lat. 22°. E. long. 200° 30'. See SANDWICH Islands.

ATOTOTL, in *Ornithology*, a name under which Seba describes

describes the purple creeper, or *Certhia purpurea* of Gmel. avis virginiana phoenicea de Atotol dicta. Seba Mus. i. t. 72. See PURPUREA CERTHIA.

ATOUGIA, in *Geography*, a small town of Portugal, in the province of Estremadura, seated on an eminence near the sea, opposite to the rocks called Burlings, defended by a castle, and containing about 1300 inhabitants; two miles and an half east of Peniche.

ATOUNI, a large tribe of Arabs that possess the isthmus of Suez, and from thence go up between the Red sea and the mountains that bound the east part of the valley of Egypt. See HOWADAT.

ATOYAQUE, a deep and large river of America, in Mexico.

ATRA, in *Conchology*, a species of PATELLA, described by Schroet. The shell is black and striated; vertex pale; bottom with a spatulate brownish spot, and surrounded with a horse-shoe shaped band of white. About an inch and a quarter in length. The country is unknown.

ATRA, a species of HELIX, about two inches in length, and consisting of seven whorls. The shell is tapering, black, and minutely striated; whorls rather convex: aperture oblong-oval. Gualt. Test.

ATRA, in *Entomology*, a species of CONOPS (*Myopa* Fabr.) that inhabits Denmark and Germany. The abdomen is cylindrical and incurvated; body black. Gmel. The mouth of this insect is white; antennæ black, with a yellowish band; legs black; posterior thighs yellowish.

ATRA, a species of PHALÆNA (*Bombyx*), entirely of a footy-black colour, and without spots. This is *Bombyx hieracii* of Fabricius, and *Tinea graminella* of Wien Schmett. The larva is black and hairy, with a fangineous dorsal line; it secretes itself within a follicle composed of dried leaves and straws. The pupa is ferruginous brown.

ATRA, a species of CICADA (*Cercopis* Fabr.) of a large size, that is found in South America. It is black, with a marginal fangineous stripe on both sides of the wing-cases, Fabricius, &c.

ATRA, a species of PODURA, very common in Europe. It is globose, brown, and shining; antennæ long, and of many joints. Faun. Suec. Linn. Aët. Stockh. 1743.

ATRA, a species of PIMELIA (*Helops* Fabr.) of a black colour, with striated wing-cases. Gmel. Fabr. &c. This is *Pyrochroa (nigra)* nitida corpore ovato, thorace convexo, antennis pedibusque fuscis, of Degger. Inhabits Europe.

ATRA, a species of BUPRESTIS, that inhabits Germany, and in some respects resembles *Buprestis viridis*. The wing-cases are entire, somewhat linear and punctuated; thorax deflexed; body black and elongated. Fabricius.

ATRA, a species of LAMPYRIS (*Lycus* Fabr.) of a deep black colour; thorax orbicular, and with the wing-cases red; an impressed black spot on the back. This is a native of Europe. Mus. Lesc. Linn.

ATRA, a species of CANTHARIS, the body of which is entirely of a deep black. Fabricius. A native of the north of Europe.

ATRA, a species of NECYDALIS, of a black colour with all the thighs clubbed. Inhabits the south of Europe. Fabricius. The thigh in one sex simple.

ATRA, a species of LEPTURA, the body of which is totally black. Fabricius. The legs of this kind are sometimes ferruginous. Poda calls it *Leptura ethiops*, and Geoffroy, *Stenocorus totus niger*. Inhabits the south of Europe.

ATRA, a species of CURCULIO, of an oblong form, and black colour, with rufous antennæ. A native of Europe and supposed to be a variety of *C. chloropus*. Gmel. Fabr. &c.

ATRA, a species of HISPA, the body of which is entirely deep black. Schr. der. Berl. &c. Gmel. Fabricius describes it as having fusiform antennæ; thorax and wing-cases spinous; and body black. Geoffroy calls it *Crioceris atra spinis horrida*. It inhabits the south of Europe and the north of Asia, and feeds on the roots of grass.

ATRA, a species of CHRYSOMELA (*Altica* Fabr.), found in Germany. It is glossy or shining black, with the base of the antennæ, and soles of the feet pitchy-black. Gmel. Geoffroy, &c.

ATRA, a species of COCCINELLA, of a black colour, with two yellow spots; margin of the thorax and tail yellow. Thunberg. The body of this insect is very gibbous and glabrous.

ATRA, in *Ornithology*, a species of MUSCICAPA, called in the Arctic Zoology the *Dusky Fly-catcher*. It is of an olive-ash colour; breast cinereous; belly pale reddish-yellow; head, tail, and quill feathers black; margin of the secondaries, and outer webs of the exterior tail feathers white. Gmelin &c. This is a native of New York, where it appears in March, and departs in August; feeds on bees, and lays five small white eggs; legs black.

ATRA, a species of TANAGRA that inhabits Guiana. The bird is cinereous; face, chin, and throat black in the male, and brown in the female. Buffon calls it Camail ou Cravatte, and Tangara á cravatte noire de Cayenne. The length of this bird is seven inches; the bill and legs black; base of the upper mandible white.

ATRA, a species of TRINGA that inhabits the banks of the Rhine. The head and neck are black; back and wings brownish intermixed with black; breast and belly cinereous, rump cinereous, undulated with black and white. Sander.

ATRA, a species of ARDEA, entirely of a black colour, with a smooth head and face, bare of feathers. Gmel. The wings are glossed with blue. Briss. calls it ardea nigra; Buff. héron noir; and Latham the black heron. It inhabits Silesia.

ATRA, in *Ancient Geography*, the capital of the Arabians of Singarena; who formed a tribe, which possessed an independent territory of Mesopotamia. Trajan besieged this place in the year 117, but by the resistance of the inhabitants, and the heat of the season, he was obliged to abandon the enterprise. The town was seated on the top of a high mountain in a dry and desert country, and encompassed by a strong wall. It retained its reputation under Severus, but was ruined under the reign of the emperor Jovian.

ATRABILARIE CAPSULE, in *Anatomy*. See CAPSULE.

ATRABILIS, Black Bile, in *Medicine*. The ancients (says Dr. Percival), as appears from Galen, supposed the atrabilis to be derived either from the dregs of the blood, or from yellow bile torrefied and highly concocted. A celebrated modern anatomist is of opinion that it is blood, which, having lodged some time in the intestinal canal, has acquired a blackness and putridity. But is it not (this elegant and ingenious writer asks) more probable, that in general it is no other than gall become acrid by stagnation in the vesica fellea, and rendered viscid by the absorption of its fluid parts? When discharged into the duodenum in this state, it occasions universal disturbance and disorder till evacuated, either by vomiting or purging. A young gentleman who laboured under a marasmus produced by intemperance, and which at last proved fatal, voided several times both by stool and vomiting a considerable quantity of black, tenacious, and most offensive bile. The symptoms which preceded the discharge, and which ceased soon afterwards,

were:

were a quick pulse, head-ach, delirium; hiccup, intense thirst, inward heat, and an uncommon factor in his breath. A lady aged thirty, unhappily addicted to habits which have a peculiarly pernicious effect upon the liver, after a constipation of the belly during six days, was seized with a violent and incessant vomiting of black and viscid bile. The infusum semine limonium, warmed with the tincture of Columbo, soon checked her retching, and operating by stool, prevented the return of her vomiting. The matter discharged in both these cases bore not the least resemblance to grumous blood. Dr. Percival adds, that he has several times observed the febrile symptoms in children, which are ascribed to dentition, relieved by these pitchy stools; and that he recollects three cases of the disease called acute asthma by Dr. Millar, in which the paroxysms seemed to be critically terminated by a similar evacuation. Whether, in these instances, the black bile was the cause or the effect of the disease, cannot (he observes) with certainty be determined; but the former appears to him to be the more probable opinion. Percival's Essays, Medical, Philosophical, and Experimental, vol. i. p. 342. 4th edit. This view of the subject is very satisfactory: but as an evacuant, peculiarly adapted to this disorder, we would suggest the employment of calomel. Black bile was supposed by the ancients to constitute a peculiar temperament, which they termed the atrabiliary or melancholic temperament. See TEMPERAMENTS.

The disease termed Melæna, or morbus niger, in which there is a dark-coloured bloody discharge, unaccompanied by griping pains and acute fever, seems to be a species of diarrhœa. (See MELÆNA.) Before we close this article, we would observe, that black or pitchy stools may be occasioned either by discoloured bile, or by the effusion of venous blood into the intestinal canal. An experienced practitioner will seldom be at a loss to distinguish the difference; but if any doubt arise, recourse must be had to chemical analysis.

ATRACES, in *Ancient Geography*, a people of Europe, in that part of Greece called Ætolia. Their country was watered by the river Atrax, whence their name.

ATRACTYLIS, in *Botany* (from *ἀτρακτος*, fusus, a spindle.), distaff-thistle, Lin. Gen. 930. Reich. 1009. Schreb. 1259. Class, *syngenesia polygamia equalis*. Nat. Ord. *Compositæ*. Gen. Char. *Cal.* outer many-leaved, linear, large, roughened, permanent, confining the common one; common ovate, imbricate; the scales oblong, very many, lanceolate, converging, unarmed. *Cor.* compound radiate; corollules hermaphrodite, numerous, tubular on the disk; herm. ligulate in the ray; proper of the disk funnel-form, five cleft; of the ray, ligulate, flat, five-toothed. *Stam.* filaments five, capillary, very short; anther cylindric, tubular. *Pist.* of the disk; germ very short; style filiform, the length of the stamens. *Stigma* bifid; of the ray very like that of the disk, but obscure and withered. *Per.* none; calyx converging. *Seeds* turbinate, compressed; down plumose. *Rec.* villose, flat.

Eff. Gen. Char. *Cor.* radiated; corollules of the ray five-toothed.

Species, 1. *A. gummifera*, gummy rooted atractylis. "Flowers stemless." From the root which is perennial, issue many narrow deeply sinuated leaves, armed with spines on their edges. These lie close to the ground, and between them the flower is situated; it is white at the border, but yellow at the disk. A native of Italy. The root abounds with a gummy matter, which has occasioned it to be chewed for the same purposes as mastich. 2. *A. humilis*, dwarf atractylis, Cavan. Hissp. 40. t. 54. β . Barr. rar. 1127.

t. 592. "Leaves tooth-sinuated; flower radiated, ferted with an expanding involucre; stem herbaceous." Stems nearly a foot high; leaves indented, spinous at the edges; flowers purple, in heads on the branches; root biennial. A native of France and Spain, flowering in June. Cavanille's description of this plant differs from the above.

3. *A. cancellata*, netted atractylis. "Involucres latticed, bellying, linear, toothed; calyxes ovate; flowers slossculous." Annual, eight or nine inches high, producing two or three slender branches, each terminated by a head of flowers like those of the thistle, with an involucre composed of several narrow leaves, armed with spines on their sides, and curiously netted over, which keeps off the flies; florets purple. A native of the south of Europe. It was cultivated here in the time of Parkinson.

4. *A. lancea*; lance-leaved atractylis. "Involucres pinnate, leaves lanceolate, ciliate, smooth." Stem a foot high, flexuose, branching; leaves alternate, acute, sessile, erect; flowers on the branches terminal, solitary, subsessile. It differs from the third in having smooth leaves, and a leafy stem. 5. *A. ovata*; ovate-leaved atractylis. "Involucres pinnate, leaves ovate, ciliate smooth." Stem simple, streaked, scarcely a foot high; leaves alternate, petioled, acute, nerved, sparse underneath; petioles with ciliate edges; flowers terminating, solitary. Both these last are natives of Japan.

6. *A. oppositifolia*; opposite-leaved atractylis. "Leaves opposite." Leaves and calyxes tomentose underneath. Receptacle with hair-like chaff. In the ligulate florets the anthers are effete, and there is neither style nor stigma. A native of the cape of Good Hope. 7. *A. purpurata*; purple-flowered atractylis, Smith. Ic. ined. 3. 65. "Leaves hastate, runcinate." Stem round, woolly; leaves crowded, a span in length, acute, irregularly toothed, veined, tomentose underneath; peduncles longer than the leaves, branched, angular, rugged, woolly, covered at top with linear acute scales; flowers large, erect, specious, purple; receptacle naked. Found by Mutis in New Grenada. 8. *A. Mexicana*; Mexican atractylis. Smith. Icon. ined. 66. "Leaves oblong, quite entire." Stem shrubby; branches simple, leafy, without spines, covered with a downy substance; leaves alternate, lanceolate, acuminate, with netted veins; beneath very white, tomentose; petioles keeled, tomentose, flower terminating, nodding, purple, supported by two or three bracte-shaped leaflets; receptacle with very short chaffs. Found by Mutis in Mexico.

Propagation and Culture. "1, 2, 3, are propagated by seeds, which must be obtained from the countries in which they grow naturally: these should be sown on a border of light earth, in a warm situation, early in April, and when the plants come up, and are fit to transplant, they should be thinned, and those which are drawn out may be transplanted, leaving the others two feet asunder; after which, the only culture they require is, to keep them clear from weeds in summer, and in winter to cover the roots with some old tanner's bark to prevent the frost from penetrating the ground. The other species are yet strangers to European gardens; and whenever they are introduced, will require the protection of a green-house or stove." See Martyn's Miller's Dict.

ATRACTYLIS. See CARTHAMUS.

ATRA Dies, in *Antiquity*, denotes a fatal day, whereon the Romans received some memorable defeat. The word literally imports a *black day*; a denomination taken from the colour, which is the emblem of death, and mourning. Whence the Thracians had a custom of marking all their happy days with white stones, or calculi, and their unhappy days with black ones, which they cast, at the close of each day,

day, into an urn. At the person's death, the stones were taken out, and from a comparison of the numbers of each complexion, a judgment was made of the felicity or infelicity of his course of life.

The *dies atra*, or *atri*, were afterwards denominated *nefasti*, and *pofteri*. Such, in particular, was the day when the tribunes were defeated by the Gauls, at the river Allia, and lost the city; also that on which the battle of Cannæ was fought; and several others marked in the Roman calendar, as *atra*, or *unfortunate*.

ATRAGENE, in *Botany*, a family of plants resembling Clematis, but without a nectary, Lin. g. 695. Schreb. 949. Gaertn. 74. Juss. 232. Clafs, *polyandria polygynia*. Nat.-Ord. *Multifloræ Ranunculaceæ*. Juss. Gen. Char. Cal. perianth four-leaved; leaflets oval, spreading, obtuse, deciduous. Cor. petals twelve (in *A. capensis* about twenty), linear, very narrow at the base, obtuse, spreading. Stam. filaments very many, very short (outer petal-like, two-angled); anthers oblong, acuminate, shorter than the calyx. Pist. germs numerous, oblong; styles villose, permanent; stigma simple, the length of the anthers. Per. none. Seeds numerous, ending in a hairy tail (capsules feather-tailed).

Ess. Gen. Char. Cal. four-leaved. Pet. twelve. Seeds, tailed.

Species, 1. *A. japonica*, japonicæ atragene. "Erect, leaves opposite, triternate; leaflets ovate, gashed." Stem angular, streaked, tubdichotomous, villose, two feet high; leaflets acute, toothed, very thinly villose; petiole stem-clasping; flowers from the divisions of the stem, few, on elongated one-flowered filiform peduncles; petals more than twenty, purple within, white-tomentose without. Were it not for the number of its petals it would belong to the anemone. A native of Japan. 2. *A. alpina*. Alpine atragene, Jacq. Ault. 3. t. 241. Clematis Sibirica, Mill. fig. t. 234. "Leaves doubly ternate, ferrate, outer petals four-fold." Stems slender, weak, covered with brown thin bark; leaflets two inches long, of a deep green colour; peduncles naked, three or four inches long, one flowered; calyx yellowish, white within. This plant is differently described by several botanists, and Jacquin asserts that the Austrian plant is specifically different from the Alpine. A native of the High Alps of Switzerland, &c. 3. *A. capensis*, Cape atragene. "Leaves ternate; leaflets gashed, toothed, outer petals five-fold." Scape simple, six or seven inches long; involucre in the middle of the scape, composed of swelling, ovate, villose, foliaceous stipules; leaves wedge-shaped, trifid, acute, naked; petals about twenty, white, the six lower ones broader, villose underneath, purplish. A native of the cape of Good Hope. 4. *A. tenuifolia*, fine-leaved atragene. "Leaves doubly pinnate; pinnules linear, entire." Found at the Cape by Thunberg. 5. *A. zeylanica*, Ceylonese atragene. "Tendrils two-leaved." Cauliscent, scandent; leaves opposite, compound, conjugate, leaflets ovate, entire, or sometimes with a single tooth, three-nerved, on very short footstalks; panicle terminal, composed of a twice trifid peduncle, bearing commonly nine flowers; petals twice the length of the calyx, purplish. A native of Ceylon.

Propagation and Culture. The second species may be increased by cuttings or layers in the same manner as Clematis. In a strong soil, and trained against a wall, it will rise to the height of six or eight feet. The flowers appear early, and if the season prove favourable, they make a handsome appearance; but as this plant is apt to put out leaves very early in the spring, it is frequently nipped by the frosts. The other species have not yet been cultivated in England. See Martyn's Miller's Dict.

ATRALIS, in *Entomology*, a species of *PHALÆNA* (*Geometra*), of a black colour, with two white spots on each wing. Fabr. Donovan. Brit. Inf. &c. This is a native of Europe; it is called *Phalæna funeraria* by Mull. Zool. Dan. *Phalæna funebris* Aët. midrof. and *phalæna guttalis*, Wien. Schmettlerl. &c.

ATRAMENTA. See INKS.

ATRAMENTATA, in *Entomology*, a species of *PHALÆNA* (*Geometra*) that inhabits Europe. The wings are white, sprinkled with black dots.

ATRAMITÆ, in *Ancient Geography*, a name given to the inhabitants of Hadramaut, or Hadramuth, a rich and flourishing country of Arabia Felix. See HADRAMAUT.

ATRANI, in *Geography*, a town of Naples, in the Principato Citra, situate between two cliffs, joined together by buildings. Along the valley a road winds up to Ravello and Scala, two episcopal cities, or rather straggling villages, on the mountain tops. It is not far from the city of Amalfi.

ATRAPHAXIDIS, in *Entomology*, a species of *CRYPTOCEPHALUS*, about the size of *C. quadripunctatus*. It is black, with three red spots; wing-cases testaceous, with three black spots; shanks rufous. Fabr. This is *chrysomela atraphaxidis* of Pallas, and inhabits Siberia.

ATRAPHAXIS, in *Botany*, an exotic plant, resembling polygonum. Lin. g. 449. Schreb. 612. Gaertn. t. 119. Juss. 82. Clafs, *hexandria digynia*. Nat. Order, *boloraceæ Polygonææ*. Juss. Gen. Char. Cal. perianth two-leaved; leaflets opposite, lanceolate, coloured, permanent. Cor. petals two, roundish, sinuate, larger than the calyx, permanent. Stam. filaments six, capillary, the length of the calyx; anthers roundish. Pist. germ compressed; style none; stigmas two, capitate. Per. none; calyx closed, including the seed. Seed one, roundish, compressed. Olf. *A. undulata* has a four-parted calyx, and no corolla.

Ess. Gen. Char. Cal. two-leaved. Pet. two, sinuate; stigmas capitate. Seed, one.

Species, 1. *A. spinosa*, prickly-branched atraphaxis. L'Herit. Stirp. Nov. 27. t. 14. "Branches spiny." It rises four or five feet high, sending out many weak lateral branches, armed with spines, and furnished with small spear-shaped smooth leaves, of an ash-colour. Flowers at the ends of the shoots in clusters, each consisting of two white petals tinged with purple, included in a two-leaved calyx, of a white herbaceous colour. L'Heritier has described this plant very particularly, vide l. c. It is a native of Armenia, Siberia, and Persia, flowering in August. Cultivated by Miller in 1759. 2. *A. undulata*, waved-leaved atraphaxis. Dill. Elth. 36. t. 32. f. 36. (called *arbuscula africana*, &c.) "Without spines." Stems about a foot long; leaves ovate, obtuse, waved at the edges, alternate, longer than the internodes. Flowers in oblong spikes, at the ends of the stem and branches, furnished with short bractes. Calyx yellow, involving the fruit. The flowers are commonly quadrifid, but sometimes they are six-parted, with eight filaments. Several authors make this to be a species of polygonum, while others would unite the two genera.

Propagation and Culture. "The seeds of these plants not ripening in England, they are propagated by cuttings during any of the summer months. In winter they must be screened from hard frost, which commonly destroys such as are planted in the open air." See Martyn's Miller's Dict.

ATRARIA, in *Ichthyology*, a species of *PERCA* that inhabits Carolina, and is called by Garden, the black fish. The body is black, and the fins spotted with whitish. Gmelin. The anterior gill-cover is denticulated, posterior

rior ciliated; lateral line straight; dorsal fins lineated with white.

ATRATA, in *Conchology*, a species of PATELLA. This shell is rather convex, narrow, white, lineated with red; outside spotted with black, with elevated, convex, unequal striae; aperture at the vertex oblong, bordered with chestnut. Schroet. This shell is about three quarters of an inch in length, with a crenated margin, and the vertical aperture surrounded with a reddish ring within.

ATRATA, a species of NERITA, found in the Atlantic, American, and South seas. Shell deep, black, glabrous, very thinly striated above; both lips white; exterior one very finely fulcated, and somewhat toothed within; inner one concave, rugose, and tuberculated. Chemnitz.

ATRATA, in *Entomology*, a species of SCOLIA that inhabits America. It is hairy and black; wings ferruginous, and black at the tip. Fabricius.

ATRATA, a species of TIPULA. The wings are glaucous; marginal dot and body black; first segment of the abdomen and legs rufous. Fn. Suec. Linn. This is *tipula ichneumonea* of Degeer. Inhabits Europe. The abdomen of the female is recurved, subulate, and very pointed.

ATRATA, a species of MUSCA (*Rhagio* Fabr.) that inhabits Italy. It is black, and without spots; wings hyaline, with a black marginal spot. Fabr. Gmel.

ATRATA, a species of MUTILLA that is found in Africa. It is black; thorax rufous above; abdomen blue, with two white bands. Fabricius. This is *mutilla atra*, abdomine fasciata alba, thorace immaculato of Linn. Syst. Nat. It is hairy, and has brownish wings.

ATRATA, a species of FORMICA, with four spines on the thorax; head depressed and marginated, with two spines on each side. This is *formica quadridens* of Degeer, and *tapiuai* of Marcgrave Bras. 252. It inhabits South America; is black, with an obtuse head; jaws very short; petiole of the abdomen bituberculated.

ATRATA, a species of TENTHREDO, of a black colour; back with a yellow-green band, and three curves of the same colour. Inhabits England. Forster's Nov. Inf.

ATRATA, a species of PHRYGANEA that inhabits Siberia. It is black; wings whitish, with many spots and two bands of black. Lepchin.

ATRATA, a species of PHALÆNA (*Geometra*). The first wings whitish, and black at the base, with a broad black stripe; second pair brownish, with two white undulated streaks. Linn. &c.

ATRATA, a species of CICADA found in China, and described in Donovan's Insects of China, under the name of *cicada atrata*, great black Chinese frog-hopper. The colour is black, with white wings, black at the base, and veined with yellowish brown. This is supposed from its being extremely common in China, to be the species of Cicada observed by sir George Staunton, in the route of the British embassy to the court of Peking, and noticed in his work under the trivial name of the noisy cicada. "The music emitted by a species of cicada," says that writer, "was not of the vocal kind, but produced by the motion of two flaps or lamellæ, which cover the abdomen, or belly of the insect. It is the signal of invitation from the male of that species to allure the female, which latter is quite unprovided with these organs of courtship."—On this subject it is remarked, in the history of Chinese Insects referred to above, that these organs of sound are by no means peculiar to the individual species sir George describes; all the males in that section of Linnæan cicadæ which Fabricius calls *settigonia*, are furnished with such lamellæ, and emit a sound in like manner; and the males of those species included in

the other sections of that genus are certainly furnished with them also, although in some kinds they are very small, and in a few instances not visible to the naked eye. These organs will be noticed more particularly in speaking of the genus cicada.

ATRATA, a species of MELOE (*Mylabris* Fabr.) It is of a deep glossy black, with a yellow-waved band near the apex. Is found near the Caspian sea. Pallas.

ATRATA, a species of LYTTA, the body of which is entirely brown and immaculate. Fabricius. Inhabits Barbary.

ATRATA, a species of SILPHA. It is black; wing-cases punctuated, with three elevated lines; thorax entire. A native of Europe.

ATRATA, a species of CICINDELA (*Elaphrus* Fabricius,) described by Pallas as being entirely deep black and opaque, Pall. It. 1 App. n. 42. A native of Siberia; in form and size resembles Cicindela germanica, and it is conjectured by Gmelin may not properly belong to the Elaphrus genus.

ATRATA, a species of CHRYSOMELA, described by Geoffroy as a native of France. This kind is black, with wings of a blood-red colour. Gmel.

ATRATA, a species of CASSIDA, about the size of cassida nebulosa, or rather smaller. It is black, with the shield of the head sanguineous in front. Found in Austria.

ATRATA, in *Ornithology*, a species of TANAGRA that is entirely black and shining. This is *emberiza atra* of Linn. Syst. Nat. and *black tanager* of Latham. Is a native of India, and has the back glossed with shining blue. About the size of a thrush.

ATRATA, a species of MOTACILLA, called by Latham the *black red-tail*. This bird is six inches in length; colour black; crown lead-colour; quill-feathers black; exterior margins of the secondaries rufous; the two middle ones black. Gmelin. Its country is unknown.

ATRATO, in *Geography*, a considerable river of America, which runs into the gulf of Mexico, near Carthagena.

ATRATORIUS, in *Entomology*, a species of ICHNEUMON, with the scutellum white; thorax without spots; three last segments of the abdomen edged with white; legs rufous. A native of Germany.

ATRATUS, HUGH, in *Biography*, born at Evesham, in Worcestershire, made such proficiency in philosophy, mathematics, and medicine, that he was esteemed the phoenix of his age. He was invited to Rome by pope Nicholas III. and addicting himself to the church, in 1281, he was advanced to the cardinalate. He died of the plague in 1287. The works attributed to him are, "Canones medicinales, super Opus Febrium Isaaci Opuſculum." "De Genealogiis Humanis." Eloy.

ATRATUS, in *Conchology*, a species of TURBO, of a blackish colour, with double alternate black and cinereous moniliform belts of granulations; and a single tooth on the pillar lip. About the size of a nut, and inhabits the Nicobar islands. Gmelin.

ATRATUS, a species of MUREX of a deep black; whorls transversely striated with tubercles; pillar with a single plait; tail straight. Born.; whorls of the spire ten in number; lip circulated.

ATRATUS, in *Entomology*, a species of TENEBRIO (*Scaurus* Fabr.) It is a native of Egypt, and is entirely black and glossy. Gmel. Fabr. &c. The wing-cases are united, and the anterior legs bidentated.

ATRATUS, a species of CURCULIO found at the cape of Good Hope. It is glabrous, shining-black; wing-cases striated

striated, with impressed dots on the interstices. Sparrm. nov. act. Stockh. 1785.

ATRATUS, a species of **CRYPTOCEPHALUS**. (*Crioceris* Fabr.) It inhabits Tranquebar; is pale with the wing-cases entirely margined with deep black. Gmel. &c.

ATRATUS, a species of **CERAMBYX** (*Prionus* Fabr.) that inhabits Ceylon. The thorax is bidentated on each side; body black; antennæ moderate, with ferrated spines in front. Gmelin, &c.

ATRATUS, an European species of **CARABUS**, of a black colour, with orbicular thorax, pale wing-cases, varied with black; antennæ and legs ferruginous-brown. Muf. Lesk. Linn.

ATRATUS, a species of **TENEBRIO** found in Egypt; it is entirely black and glabrous. Gmel. The wing-cases are united, and the anterior legs bidentated.

ATRATUS, a species of **CIMEX**, of an oblong form (*Oblongus* Secl.) and entirely of a deep black. Geoffroy. Inhabits France.

ATRATUS, a species of **HEMORBIUS** found in Africa. The wings are whitish; first pair spotted with black; body black. This is a large insect, and inhabits Africa; the thorax is hairy, and the abdomen cylindrical. Fabricius.

ATRATUS, a species of **ICHNEUMON** that inhabits Europe. It is black; abdomen ferruginous, with the four extreme segments black; legs rufous; antennæ ferruginous, annulated with brown, and tipped with black. A native of Europe. Muf. Lesk. Linn. *Obs.* In Gmelin's subdivision of the ichneumon genus, this insect belongs to that family which has the scutellum and thorax of the same colour, and the antennæ annulated or banded. Another species occurs under the same specific name which belongs to that family in which the scutellum and thorax are of one colour, and the antennæ black. This is a large insect, and inhabits America. It is black; head, legs, and streak on the tail, yellow; sting very long. Fabricius. The mandibles and streak between the eyes are black; wings dusky; sting thrice the length of the body.

ATRATUS, in *Natural History*, a species of **ECHINUS** that inhabits India. It is hemispherical-oval, and rather depressed, with very short, obtuse, truncated spines; the marginal ones clubbed and depressed. Gmelin. This is *cidaris violacea* of Klein, and *violette egel-mader* of Phell. Zee-eg. p. 30. The form of this kind is rather orbicular, cinereous inclining to violet; spaces ten, very finely granulated, with a row of larger tubercles, in the larger ones disposed in a quincunx order, and a double row in the smaller ones; avenues brown, excavated, granulated, with four rows of pores; spines violet, some of them clubbed, some angulated at the tip, and some cylindrical.

ATREBATII, or **ATTREBATII**, in *Ancient Geography*, a people of Britain, situated next to the Bibroci, in part of Berkshire and part of Oxfordshire. According to Camden they inhabited Berkshire; but Baxter says that their country was Oxfordshire. They occupied, as it is said, nearly the whole of the western parts of Berkshire, from the river Lodden on the south-east, the banks of the Thames on the north-west and west, and the hills of East Ilsey, Lamborn, and Ashbury on the south. The Atrebatii were one of those Belgic colonies which had come out of Gaul into Britain, and there retained their ancient name: for they were a tribe of the Belgæ, who inhabited the country which is now called Artois. They are mentioned by Cæsar among the nations which composed the Belgic confederacy against him; and the quota of troops which they engaged to furnish on that occasion was 15,000. Comius of Arras was a king or chieftain among the Atrebatii in Gaul in Cæsar's time;

and he seems to have possessed some authority, or at least some influence, over our Atrebatii in Britain; for he was deputed by Cæsar to persuade them to submission. Hence it is probable that this colony of the Atrebatii had not been settled in Britain very long before that time. These were among those British tribes which submitted to Cæsar; nor do we hear of any remarkable resistance which they made against the Romans at their next invasion under Claudius. It is probable, that before this second invasion they had been subdued by some of the neighbouring states, perhaps by the powerful nation of the Cattivellauni, which will account for their being so little mentioned in history. Calliva Attrebatum, mentioned in Antonine's Itinerary, and called by Ptolemy, Calcuæ, seems to have been the capital of the Atrebatii; though our antiquaries differ in their sentiments concerning the situation of this ancient city; some, with Horsley, placing it at Silchester in Hampshire, near the confines of Berkshire; Stukeley, at Farnham; and most others, with Camden and Baxter, placing it at Wallingford in Berkshire. It has been doubted, whether the country of the Bibroci and Atrebatii was within the Roman province called Britannia Prima, or in that called Flavia Cæsariensis; but it seems most probable that it was in the last of these provinces. Henry's Hist. vol. i. p. 248. vol. ii. p. 413. See **ANCALITES**.

ATRELLA, in *Entomology*, a species of **PHALÆNA** (*Tinea*) that inhabits Italy. The wings and body are black and bronzed; apex of the posterior ones, and the tail testaceous.

ATRESIA, from α , and $\tau\rho\epsilon\sigma\omega$; whence $\tau\rho\epsilon\sigma\omega$, to perforate; in *Surgery*, imperforation, or the state of those persons who want some natural aperture.

ATRETI, those persons of either sex, in whom the anus, or genitals, are imperforate, or close, whether naturally, or occasioned by some accident or disease, as the growth of some fleshy excrescence, or a membrane which stops the orifice.

ATRI, in *Geography*, a town of Italy, in the kingdom of Naples, and province of Abruzzo Ultra; nine miles east of Teramo. See **ADRIA**.

ATRI, a village of Egypt, on the right bank of the Damietta branch of the Nile. A little below it runs a large canal, which empties itself into the lake Menzale, towards the eastern part of it. The cottages that compose this village, cover the ruins of the ancient *Atribis*, which, according to Ammianus Marcellinus, was one of the most considerable towns in Egypt. But no remains of its former extent and grandeur now exist.

ATRI, a river that runs through the western part of the island of St. Domingo, and empties itself into the sea.

ATRICAPILLA, in *Ornithology*, a species of **EMBERIZA**, of a reddish brown above, beneath cinereous; chin white; crown yellow; forehead, and stripe through the eyes black. This is *emberiza atricapilla* of Gmelin, and *black crowned bunting* of Latham. It inhabits the Sandwich isles. There is a variety of this bird in which the breast is waved with black; and also another bird corresponding with the first in some respects, but in which the crown is not yellow; this is supposed to be the female.

The black-crowned bunting is seven inches in length; upper part of the plumage reddish brown, and each feather marked longitudinally with a dusky colour; coverts and quills edged with a paler colour; the throat, breast, and belly are ash-colour; the last marked along the middle with yellowish buff; tail brown; legs brown; claws dusky. Lath.

ATRICAPILLA, a species of **MUSCICAPA**, called by English naturalists the *cold-finch* and *pied fly-catcher*. The colour is black; beneath, spot on the front, and another on the wings, white; outer web of the exterior tail-feather white. Kramer, Gmelin, &c. This is *motacilla remigibus extimo dimidiato extrorsum albo* of Linn. Fn. Suec. *rubetra anglicana* of Brisson, *ficedula atricapilla se mutans* Aldr. Orn. 2. p. 758. *le tarquet d'Angleterre* of Buffon, *cold-finch* of Willughby, and *pied fly-catcher* of Pennant and Latham.

The length of this bird is four inches and three quarters; bill black; irides hazel; general colours black and white; the upper part of the body, wings, and tail black; upper tail-coverts intermixed with black and white, and sometimes entirely black; legs of the same colour. Female brown in those parts where the male is black, and destitute of the white spot on the forehead. This bird inhabits Europe. In England it is rare, and chiefly found in Yorkshire, Lancashire, and Derbyshire. Vide Lath. Gen. Syn.—Donov. Brit. Birds, &c.

Of this species there are two or three varieties; the first *muscicapa nigra*, and *le gobe-mouche noir* of Brisson Orn. a bird about five inches and a half in length, and differing from the last in having a mixture of grey on the upper parts, the thighs mixed brown and white, and the three outermost tail-feathers white on the margin. The other is *motacilla nigra torquata* of Cramer, and *le gobe-mouche noir à collier* of Buffon: this is like the first kind, but has the white on the neck, passing entirely round, and forming a collar. It is met with in Lorraine and Brie, where it arrives in the middle of April. The principal food of this bird is flies. A third kind, called by Linnæus *muscicapa variegata*, inhabits India; this is about the size of the white wagtail; general colour brown; forehead, sides of the head, and underparts white; and a line of white extending also from the shoulders to the middle of the back; outer feathers white at the tip.

ATRICAPILLA, a species of **MOTACILLA**, well known in England by the name of *black-cap*, and in France by that of *la fauvette à tête noir*. It is specifically described as being testaceous, cinereous beneath; cap dusky or black. Linn. &c. The length is five inches and a quarter; bill brown; top of the head black; upper parts of the body greenish, ash-colour; sides of the head and under parts grey, becoming almost white near the vent; quills and tail cinereous brown; the two middle tail-feathers rather shorter than the rest; legs lead colour; claws black. The female differs in having the head of a ferruginous chestnut colour instead of black.

This bird inhabits Italy, and other parts of Europe to the northward of that country, and is not unfrequent in England during the summer months; it arrives here in the spring, and retires in September. In Italy it builds twice a year, according to Olina, with as only once; the nest is generally placed in some low bush, and is composed of dried stalks, mixed with a little wool, and green moss; the inside is lined with the fibres of plants, and thinly covered with horse-hair; the eggs are five in number, of a pale reddish-brown colour, mottled, and sprinkled with a few larger dark spots. It feeds on insects, but not exclusively on them, as it will eat the fruits of spurge, laurel, and ivy. The song of this bird is amazingly fine, and in some particulars resembles that of the nightingale; emulating in delightful sweetness and melody the note of that charming songstress, and being only deficient in that wild variety and extent of modulation, for which the nightingale is so much admired. The black-cap is from this circumstance called by some the mock-nightingale.

Dr. Latham describes three varieties of this species of warbler; one in which the body is entirely variegated with

black and white only; *curruca albo et nigro varia* of Brisson, *ficedula varia* of Aldrovandus, and first variety of Gmelin.—Another, a bird somewhat larger, having the upper parts almost black, with a white throat, and sides almost grey; this is *curruca supra fere nigricans, gula alba* of Gmelin, the second variety of that author, and *petite columbaude* of Buffon.—And the third variety is *fauvette verdâtre de la Louisiane* of Buffon, and *curruca subtus grisea, gula superciliosque albis* of Gmelin; the under parts of this is greyish; the throat and streak above the eye white; the hind part of the neck deep ash-colour; sides and back pale brown, tinged with green; wings and tail blackish.

ATRICAPILLUS, in *Entomology*, a species of **TURDUS**, of a brown colour, with a black head; belly and rump rufous; and a black spot on the wing. Gmelin. This is *merle à tête noire du cap de Bon Espérance* of Buffon. It inhabits the cape of Good Hope; and is about nine inches in length; the belly is striated with brown; tail cuneated, the feathers pale at the tips.

ATRICAPILLUS, a species of **CARABUS**, of the winged kind. The thorax is rufous; wing-cases testaceous and obtuse; head black. Fabricius. *Oly.* Gmelin describes it as being yellow, with a black head and very obtuse wing-cases.

ATRICAPILLUS, a species of **STAPHYLINUS** that is found in England. The thorax is rufous; wing-cases fuscous, with a dot at the base and posterior margin white. Fabricius.

ATRICAPILLUS, in *Ornithology*, a species of **LANIUS** that inhabits Surinam, and is called by some the Surinam shrike. The tail is wedge-formed, and with the crown, neck, shoulders, and wings black; body above mouse-colour; beneath of a blueish ash-colour. Merrem. Beytr. &c. The length of this bird is five inches; wings short; margins of the wing-coverts and secondary quill-feathers white; all the tail-feathers, except the two middle ones, tipped with white.

ATRICAPILLUS, a species of **PSITTACUS** called by Brisson *ara Moluccensis varia*. It is a native of the Molucca isles, and about fourteen inches in length; colour above blue; chin, throat, and breast red; belly and vent green; crown black; neck green and red. Gmelin. The wings and upper tail-coverts are blue, lower green, varied with red; tail green above, beneath red, edged with black. Klein calls this *psittacus capite nigro, collari viridi*, and Buffon *grande perruche à bandeau noir*.

ATRICAPILLUS, a species of **CHARADRIUS**, called by Latham the *black-crowned plover*. Above it is cinereous brown, beneath white; bill and legs red; crown black; encircled with white; neck and breast cinereous, and terminating in a transverse dusky streak. Inhabits New York. Gmelin. The front is black; bill black at the apex; base of the tail white, blackish near the extremity, tips white.

ATRICAPILLUS, a species of **PARUS**, found in North America, and called the *Canada titmouse* by Pennant and Latham. The cap and throat are black; body cinereous, and white beneath. Brisson calls this *parus atricapillus canadensis*, and Buffon *mélange à tête noire de Canada*. The length of this bird is four inches and a half; it feeds on worms and insects, and bears cold with remarkable perseverance. The upper tail-coverts are whitish; greater wing-coverts brown, edged with grey; quill-feathers brown, with the exterior edges grey, and the inner ones whitish; middle tail-feathers cinereous; lateral ones brown, with grey margin; legs and claws blackish. Gmelin, &c.

ATRICES, or **ATTRICES**, in *Surgery*, small tubercles about

about the anus, which sometimes disappear, and then return again, at least while in the early state.

The atrices are ranked in the number of *condylomata* or *f. i.* Some authors also give the denomination *atrices* to a kind of latent wounds in the extremity of the rectum, which however do not perforate the same.

ATRICILLA, in *Ornithology*, a species of *LARUS* or gull, called by Willughby Baftner's great ash-coloured seamew; and in the Arctic Zoology of Pennant and Gen. Syn. of Latham, the laughing-gull. Briff. names it *gavia ridibunda*, and Buff. *mouette rieufe*. This bird is very common about the shores of America, and places contiguous. Its food is fish and marine worms; and it is specifically distinguished from the rest of the gull tribe by being of a hoary grey colour, with a blackish head, red bill, and black legs. Oed. Nov. Aët. Stockh. &c.

ATRICILLÆ, in *Entomology*, a species of *CHRYSO-MELA*, of a black colour, with the thorax, wing-cases, and flanks of the legs testaceous. Linn. Faun. Suec. Fabricius describes it as *chrysomela saltatoria nigra*, thorace elytrisque cinereis. Spec. Inf. *Chrysomela melanocephala* of Degeer is supposed to be a variety of this species, by Gmelin. Inhabits Europe, and is found on various plants.

ATRICILLOIDES, in *Ornithology*, a species of *LARUS*, that inhabits Siberia, about the salt lakes. The colour is reddish white, with the head, orbits, and neck black; back and wings cinereous; legs scarlet. Falc. It. 3. p. 335.

ATRIENSES, in *Antiquity*, a kind of servants or officers, in the great families at Rome, who had the care and inspection of the atria, and the things lodged therein.

These are otherwise called *atriarii*; though some make a distinction between *atrienses* and *atriarii*; suggesting that the latter were an inferior order of servants, perhaps assistants of the *atrienses*, and employed in the more servile offices of the atrium, as to attend at the door, sweep the area, &c.

The *atrienses* are represented as servants of authority and command over the rest; they acted as procurators, or agents of their master, in selling his goods, &c. To their care was committed the statues and images of the master's ancestors, &c. which were placed round the atrium; and which they carried in procession at funerals, &c.

In the villas, or country-houses, the *atrienses* had the care of the other furniture and utensils, particularly those of metal, which they were to keep bright from rust. Other things they were to hang from time to time in the sun, to keep them dry, &c. They were clothed in a short white linen habit, to distinguish them, and prevent their loitering from home.

ATRIP, in *Nautical Language*, is applied either to the anchor or sails. The anchor is atrip, when it is drawn out of the ground in a perpendicular direction, either by the cable or buoy-rope. The top-sails are atrip, when they are hoisted up to the mast-head, or their utmost extent.

ATRIPALDA, in *Geography*, a small town of Naples, in the Principato Ultra, built upon the ruins of the ancient Abellium Mariscum, and standing upon an eminence composed of strata of soft coloured tufa. The inhabitants are supposed to have retired from it in the middle ages, and to have founded the present city of Avellino, as more convenient for traffic. Atripalda carries on some trade in paper, cloth, and hard-ware. This town was first held in fee by the Montforts; it was afterwards granted by Ferdinand I. to George Castriot, or Scanderberg, prince of Epirus, as a reward for his timely assistance in 1460; and it now gives the title of duke to the prince of Avellino's eldest son.

ATRIPLEX, in *Botany*, the plant called Orache or Arache. Lin. g. 1153. Selreb. 1577. Gært. 75. Juss. 85. Class. *polygamia monoecia*. Nat. Order. *holoraceæ*. *Atriplices* Juss. Gen. Char. Hermaphrodite flower. Cal. perianth five-leaved, concave, permanent; divisions ovate, concave, membranaceous at the edge. Cor. none. Stam. filaments five, subulate opposite to the leaves of the calyx, and longer than them; anthers roundish, twin. Pist. germ orbiculate, style two-parted, short; stigmas reflex. Per. none. Calyx, closed, pentagonal, with the angles compressed, deciduous. Seed, one, orbicular, depressed. Female flower on the same plant. Cal. perianth two-leaved; leaflets flat, erect, ovate, acute, large, compressed. Cor. none. Pist. germ compressed; style two-parted; stigmas reflex, acute. Per. none; valves of the calyx very large, cordate, including the seed between them. Seed, one, orbiculate, compressed.

Eff. Gen. Char. Herm. Cal. five-leaved. Cor. none. Stam. five. Style, two-parted. Seed, one, depressed. Female. Cal. two-leaved. Cor. none. Stam. none. Style, two-parted. Seed, one, compressed.

Species, 1. *A. balinus*, tall, shrubby orache, or Spanish sea-purslane. "Stem shrubby; leaves deltoid, entire." Root perennial, woody, branched. The whole shrub is white; stems from four to six inches high or more, dividing into woody brittle branches; leaves feathered on long foot-stalks; flowers small, purplish, at the ends of the branches. It grows in hedges near the sea about Nice, also in Spain, Portugal, Sicily, &c. According to Parkinson it was cultivated here in 1640. 2. *A. portulacoides*, dwarf shrubby orache, or common sea-purslane. Hudf. With. Lightf. Eng. Bot. 4. t. 261. "Stem shrubby; leaves cbovate." A low undershrubby; leaves narrow, whitish; branches angular, reclining, glaucous; flowers in clustered spikes terminal, yellow. It grows near the sea in salt marshes, flowering in July and August. 3. *A. glauca*. "Stem undershrubby procumbent; leaves ovate, sessile, quite entire; the lower ones subdentate." Stem three or four feet long, with declining branches; leaves thickish, of a silvery glaucous colour; flowers yellow at the axils of the upper branches. A native of France and Spain. 4. *A. rosea*. Villars Dauph. 2. 565. "Stem herbaceous; leaves hoary, serrated; fruit quadrangular, toothed." Stem erect, somewhat angular, white, smooth, branched, a foot and a half high; leaves alternate, subsessile, rhomb-heart-shaped, sinuate-toothed, covered with a farinaceous white powder; flowers in close clusters, axillary; valves of the fruit hoary and finely notched. A native of the south of Europe. Annual. 5. *A. siberica*, Siberian orache. "Stem herbaceous; leaves deltoid angular, calyxes of the fruit muricated on the outside." This is of the same size as the *A. hortenensis*. The fruit is tomentose at the base, and muricate on the outside; the leaves are silvery beneath, and the flowers white. A native of Siberia. Annual. 6. *A. tartarica*, Tartarian orache. Hudf. 443. n. 2. β. "Stem herbaceous; leaves deltoid, sinuate-toothed, waved, alternate." According to Linæus, this rises five or six feet high. Mr. Hudson considers it as a variety of the *laciniata* produced by cultivation. 7. *A. bortenensis*, garden orache. Gmel. Sib. 3. 71. Gært. Fruct. 1. 362. "Stem erect, herbaceous; leaves triangular." Root annual; stem above three feet high; leaves thick, pale, and variable in their shape; valves of the calyx ovate-cordate, streaked, entire. A native of Tartary, and cultivated by Gerard in 1596. It was formerly cultivated as a culinary herb, being used as spinach, and it is still eaten by the French. There are some varieties of it which depend wholly upon colour. 8. *A. laciniata*, jagged sea orache. Hudf. With. Lightf. Eng. Bot. 3. 165. "Stem herba-

ceous; leaves deltoid, toothed, silvery underneath." The whole plant is covered with a skin that peels off, and is of a grey hoary colour; stem two feet high, branched; leaves except the lowest alternate, and silvered with little plates; lower ones deltoid; upper deltoid-lanceolate, below entire at the edge, above variously jagged; hermaphrodite flowers in sessile clusters at the top of the stalks, females axillary and twin. It grows on our and other European sea-coasts, flowering in July and August. Annual. 9. *A. hastata*, broad-leaved wild orache, vulg. Fat-hen. Martyn's Mill. Dict. "Stem herbaceous; valves of the calyx in the female flowers large, deltoid, sinuated." Dr. Smith says, "all our botanists had taken the *A. patula*, or common orache, for the *A. hastata* of Linnæus, till his herbarium discovered it to be his *patula*. The real *hastata* proves a very different plant, having the valves of the female calyx, when in fruit, very large, membranous, reticulated, with veins, and bordered with long fetaceous teeth." The above two species however bear so close a resemblance to each other according to Haller, that he doubts if they really be distinct species. A common weed in cultivated grounds, gardens, and dunghills, flowering from June till August. 10. *A. patula*, spreading halberd-leaved orache. Eng. Bot. 13. t. 136. *A. hastata*. Hudf. 443. With. 274. Curt. Lond. 2. 66. "Stem herbaceous, spreading; leaves triangular-lanceolate, somewhat halberd-shaped; calyx of the fruit more or less tuberculated at the sides." Smith. Eng. Bot. It grows everywhere, on dunghills, waste or cultivated land; root annual; fibrous; stem with long, spreading, numerous branches; leaves alternate, on stalks mealy beneath; the lower ones hastate, deeply and irregularly toothed; the upper narrow, lanceolate, mostly entire; clusters of flowers terminal, and axillary, long, interrupted, a little leafy; valves of the female calyx, which alone seems to ripen its seed, triangular, acute, toothed about the lateral angles, and studded in the middle with tubercles. By the sea-side the whole plant is procumbent, more fleshy, reddish, and all the leaves somewhat entire. Smith. l. c. 11. *A. littoralis*, grass-leaved sea orache. Hudf. 444. With. 275. Eng. Bot. 10. t. 702. "Stem herbaceous, erect; leaves all linear, entire, or toothed; calyx of the female flowers mucronated, sinuated." Stem erect, angular, with leafy branches; leaves alternate, on footstalks, flat, linear, having their margins entire, or more commonly set with small scattered teeth, mealy underneath; spikes terminal, dense, obtuse; valves of the female flowers become much enlarged, ovate deeply and irregularly sinuated, and furnished with large pointed tubercles. Found on the eastern and southern coasts of this kingdom, in a muddy soil, flowering in August and September. 12. *A. pedunculata*, pedunculated sea-orache. Hudf. 444. With. 1146. Eng. Bot. 4. 232. "Stem herbaceous, with divaricating branches; leaves lanceolate, obtuse, undivided; fruit of the female flowers peduncled." The pedunculated fruit, even, without the zigzag, angular stem, sufficiently distinguishes this species from all its congeners. The stem is six or eight inches high, with remarkably glaucous leaves. It grows on the salt marshes near Yarmouth, and was found by Dr. Smith on the muddy shore of the river Ouse, just below Lynn. Annual. 13. *A. marina*, serrated sea-orache. Lightf. 637. "Stem herbaceous, erect; leaves linear ferrate." Mr. Hudson's *A. ferrata* is certainly a variety of *A. littoralis*, and we are disposed to consider this as the same plant. 14. *A. alicans*, white orache. "Stem shrubby, erect; leaves hastate, entire, acute; spikes terminating." A native of the Cape; discovered by Masson, and introduced by him into the Kew garden in 1774.

Propagation and Culture. 1, 2, 3. may be increased by cuttings planted in any of the summer months, on a shady border; where, if they be daily watered, they will be in a state to transplant the Michaelmas following. N° 7. must be sown for use in the spring, or at Michaelmas, soon after the seeds are ripe, which is better. These plants require no other care, but to hoe them when they are about an inch high; to cut them down where they are too thick, leaving them about four inches asunder, and to clear them from weeds. When the plants are about four inches high, it will be proper to hoe them a second time, and if this be well performed in dry weather, the ground will remain clean until the plant is fit for use. Where it is sown on a rich soil, and the plants are allowed a proper distance, the leaves will be very large and in that the excellence of the herb consists. Unless it be eaten when young, the stalks become tough and good for nothing. The seeds will ripen in August, when the plants may be cut or pulled up and laid on a cloth to dry; after which the seeds may be beaten out and put in bags to dry. Most of the other sorts, so far from being cultivated in gardens, are to be rooted out from them as rank weeds. Martyn's Miller's Dict.

ATRIPLEX. See *ATRAPHAXIS*, *AXYRIS*, *BLITUM*, *CHENOPodium*, and *GALENA*.

ATRIPLICIS, in *Entomology*, a species of *SCARABÆUS* (*Melolontha*.) This insect is oblong, villose, pale; suture and apex of the wing-cases black; shield of the head reflected. A native of Barbary, and feeds on the atriplex halimifolia; in size and appearance resembles *S. ruficornis*.

ATRIPLICIS, a species of *CURCULIO* that is found on the shores of Norway. It is long and black; thorax shining; wing-cases striated and obtuse. Gmelin.

ATRIPLICIS, a species of *PHALÆNA* (*Noctua*). The first wings are clouded with brown, with a yellow bifid mark in the middle. Fn. Sv. Fabr. &c. The larva is naked, reddish, dotted with white, and marked along the back with a brown line. Pupa, naked and brown.

ATRIPLICIS, a species of *APHIS* that infests the atriplex hortensis. The body is glossy black, plaited at the sides; shanks pale; tail obtuse. Fabr. &c.

ATRIROSTRIS, a species of *CURCULIO*. It is cinereous, with the snout arched and black. Inhabits Leipzick. Paykull.

ATRIUM, in *Ancient Architecture*, one of the interior divisions of the ancient Roman houses. Aulus Gellius tells us, that even in his time many learned persons confounded together the terms atrium and vestibulum. Cecilius Gallus teaches us, that the vestibulum was not a part of the interior of the house, but only a large recess at the principal entrance, perhaps analogous to the modern loggias of the Italians. Cicero, in a letter to Atticus, seems to express the same thing, when he says, that in passing through the sacred street, when he was pursued by assassins, he took refuge in the vestibulum of Tattius. "Secessi in vestibulum Caii Tattii Domionis." From the time of Aulus Gellius, the same uncertainty of the exact meaning of these words continued, and they became almost synonymous. It must be still more difficult at the present time, to assign to the atrium its true situation and use.

Martial places the colossus of Nero in the atrium, and Suetonius in the vestibulum; from whence it results that one of them must have employed one of these terms improperly. Vitruvius even sometimes employs the word atrium for cavædium. Virgil by this verse, "apparet domus nitus et atria longa patefunt," gives us to understand, that the atrium was an interior part of buildings; and it appears certain,

certain, that this was a particular place in private houses, palaces, and temples.

From the description which Vitruvius gives us of it, it appears to have been an oblong room, having its breadth divided into three parts by two rows of columns. He gives rules for placing these columns according to the general proportion of the atrium.

The atrium was situated after the cavædium which was what we commonly call the court, and immediately before the tablinum. It was in the atrium that the Romans placed the statues of their ancestors, and it was also sometimes used as an eating room, though they had also other places destined for the purposes of the table. This is proved by Virgil, who in describing the place where they made their repast, says,

“Crateras magnos statuunt et vina coronant,
Fit strepitus tectis vocemque per ampla volutant.
Atria dependent lychni laquearibus aureis.”

It follows from this, that we must consider the atrium as one of the interior parts of the house, in which it differed from the vestibulum, and that it was covered, which distinguishes it still more from the cavædium or the empluvium.

Some temples had also an atrium: of this number was the temple of Vesta, and that of Liberty. It was in the latter (says Titus Livius) that they deposited the hostages of the Tarentines. It appears that it was a covered semicircular court, if we may judge from the ancient marble plan of Rome, which is preserved in the capitol, on which we still read these words “atrium libertatis.”

If we may believe the historians, the use and form of the atrium were borrowed from the Etruscans, and this appellation comes from the city of Atria, or Adria, which gives name to the Adriatic or Adriatic sea, and where this sort of porticoes was much used.

Festus says “atrium proprie est genus edificii dictum atrium, quia id genus edificii primum atria in Etruria fit institutum.” Varro de ling. Lat. l. 4. “atrium appellatum ab atriaticis Tuscis; illinc enim exemplum sumptum.

ATRIUM, in *Ecclesiastical Antiquity*, denotes an open place or court, before a church, making part of what was called the narthex, or ante-temple.

The atrium, in the ancient churches, was a large area, or square plat of ground, surrounded with a portico or cloyster, situated between the porch or vestibule of the church, and the body of the church.

Some have mistakenly confounded the atrium with the porch or vestibule, from which it was distinct; others with the narthex, of which it was only a part.

The atrium was the mansion of those were not suffered to enter farther into the church. More particularly, it was the place where the first class of penitents stood, to beg the prayers of the faithful, as they went into the church.

ATRIUM is also used, in the *Canon Law*, for the cemetery, or church-yard.

In this sense we find a law, prohibiting buildings to be raised in *atrio ecclesie*, except for the clergy; which the glossary explains thus: id est in *cemeterio*, which includes the space of forty paces round a large church, or thirty round a little church or chapel.

ATROPA, in *Botany*, (from Atropos, the third fate, who was supposed to cut the thread of life) *deadly nightshade*, Lin. g. 249. Schreb. 335. Juss. 125. Gaertn. t. 131. Class, *pentandria monogynia*. Nat. Ord. *Luridæ*. *Solanææ*. Juss. Gen. Char. *Cal.* perianth one-leafed, five-parted, gibbous; divisions acute, permanent. *Cor.* one-

petalled, bell-shaped; tube very short; border ventricose ovate, longer than the calyx; mouth small, five-cleft, spreading; divisions subequal. *Stam.* Filaments five, subulate from the base of the corolla, and of the same length with it, converging at the base, above diverging outwards, bowed; anthers thickish, rising. *Pist.* gerin semiovate; style filiform, the length of the stamens, inclined. *Stigma* headed, rising transversely, oblong. *Per.* berry globular, sitting on a large calyx, two-celled. *Receptacle* fleshy, convex on both sides, reniform. *Seeds*, very many, reniform.

Ess. Gen. Char. *Cor.* bell-shaped. *Stam.* distant. *Berry* globular, two-celled.

Species, 1. *A. Mandragora*, mandrake, Woodv. Med.

Bot. t. 225. “Stemless, scapes one-flowered.” Root perennial, large, tapering, three or four feet long, externally brown, internally whitish. From the crown of the root arises a circle of leaves, which are large, ovate, sinuated, veined; they fit close to the root, and are of a deep green colour, and fetid smell; among these arise three or four short slender scapes, each supporting a single flower of an herbaceous white colour; fruit a globular soft berry of a yellowish colour, and about the size of a nutmeg. A native of the south of Europe. It was cultivated here, according to Turner, in 1562. The superstitious and absurd stories related of the mandrake would not now for a moment impose on the most credulous and ignorant. The supposed resemblance of some of the roots to the human form, the danger of taking them out of the ground, as well as their surprising effects, seem to have been the invention of charlatanical knavery and imposture. Boerhaave used the leaves as a cataplasm with success in cases of indurated tumours, and Hoffberg experienced the like effects from the roots in glandular swellings; the latter also found that three grains of the root given internally had a considerable narcotic effect in mitigating arthritic pains. See Woodv. l. c. 2. *A. belladonna*, deadly nightshade, Hudf. 93. With. 252. Smith. Brit. 255. Curt. Lond. 5. t. 16. Woodv. Med. Bot. t. 1. Eng. Bot. 592. “Stem herbaceous; leaves ovate, entire.” Root perennial, thick, fleshy, creeping; stalks herbaceous, annual, erect, firm, three feet high, round, branched, leafy, subpubescent; leaves lateral, two together, of an unequal size, petioled, ovate, acute, entire, smoothish, and of a dull green colour; peduncles lateral, subaxillary, solitary, one-flowered, nodding; flowers of a dirty violet colour; calyx rather pubescent, viscous; anthers large, white; berry depressed, furrowed; when ripe of a shining black colour, and abounding with a purple juice. It grows in waste-ground and gloomy lanes, &c. This plant has been long known as a very strong poison of the narcotic kind; the berries, which are said to be less powerfully so than the leaves, have produced many instances of their fatal effects, particularly upon children, who are readily tempted to eat this fruit by its alluring appearance and sweet taste. Whether these berries eaten in different states of maturity renders them more or less deleterious, has not been ascertained; but we are told that in some instances, one berry, or even half of one, has produced a fatal effect; while Haller informs us, that he has seen a fellow-student of his eat more than three or four without suffering any inconvenience from them. The symptoms produced by this poison are vertigo, delirium, great thirst, painful deglutition, and retching, followed by furor, tridor dentium, and convulsions; the eye-lids are drawn down, the uvea dilated and immoveable, the face becomes red and tumid, and spasms affect the mouth and jaw; the sensibility and irritability of the body suffer such great diminution, that large and repeated doses of the strongest emetics produce no sensible effect;

effect; the pulse is small, hard, quick; and subfultus tendinum, risus sardonius, and coma, close the fatal scene. Vinegar liberally drank has been found most efficacious in obviating the effects of this poison. On opening the bodies of those poisoned by this plant, inflammation and erosions of the stomach and intestines have been discovered. A similar effect was produced in the stomach of a horse, at the Veterinary College, from a large dose of opium, viz. three ounces. The leaves of the belladonna were first used externally to discurf scirrhus and cancerous tumours, and as an application to ill-conditioned ulcers, and their good effects in this way at length induced physicians to employ them internally for the same disorders, and we find a considerable number of well-authenticated facts, which prove them to have been of important service. Dr. Cullen says, "I have had a cancer of the lip entirely cured by belladonna; a scirrhus in a woman's breast entirely discurf by the use of it; a sore a little below the eye, which had put on a cancerous appearance, was much mended by the internal use of this plant; but the patient having learned somewhat of the poisonous nature of the medicine, refused to continue the use of it, upon which the sore again spread, and was painful; but upon a return to the use of belladonna, it was again mended to a considerable degree; when the same fears again returning, the use of it was again laid aside, and with the same consequence." The root is much less powerful than the leaves. See Woodv. l. c. and Murray App. Med. 3. *A. physaloides*, Peruvian deadly nightshade. "Stem herbaceous; leaves sinuate-angular; calyxes closed, acute-angular." Root annual, fibrous; stem spreading, two feet high; leaves alternate, smooth, oblong, running down the footstalk; peduncles subaxillary, solitary, naked, one-flowered; calyx ovate, deeply five-parted; leaflets sagittate-ovate; corolla bell-shaped, slightly five-lobed, blue, with a white eye, having five blue spots; berry about the size of a cherry, with five sharp angles, and inclosed in a ventricose bladder. A native of Peru. Cultivated by Miller. 4. *A. solanacea*. "Stem shrubby; peduncles solitary; corollas bell-shaped; leaves subovate." Six feet high, somewhat branched and angular; leaves alternate, usually many from the buds, petioled, entire, naked; peduncles axillary, one-flowered, filiform, the length of the leaves; flowers pendulous. A native of the cape of Good Hope. 5. *A. arborescens*, tree atropa, belladonna frutescens, &c. Plum. 46. f. 1. "Stem shrubby; peduncles crowded; corollas revolute; leaves oblong." A small tree or shrub. Leaves alternate, in tufts towards the ends of the branches, lanceolate-ovate, acute, entire, nerved, of a dark colour; flowers peduncled, heaped, white, fragrant, nodding; peduncles numerous, one-flowered, whitish; corolla somewhat bell-shaped, narrow at the bottom, swelling at top; filaments twice as long as the corolla. This species is often tetrandrous. A native of South America and Jamaica. 6. *A. frutescens*, shrubby atropa. "Stem shrubby; peduncles crowned; leaves cordate-ovate, obtuse." Six or eight feet high; leaves alternate, roundish; flowers come out between the leaves on short peduncles, and resemble those of belladonna, but much smaller, and of a dirty yellow colour. A native of Spain. Cultivated by Miller in 1739. 7. *A. herbacea*, herbaceous atropa, Mill. Dict. n. 3. "Stem herbaceous; leaves ovate, nerved, with waved edges." Root perennial; stems channelled, about two feet high, dividing into two or three branches; leaves four inches long and three broad, having several transverse prominent ribs on the under side; flowers white, bell-shaped. The seeds were sent to Mr. Miller from Campeachy. 8. *A. procumbens*, wheel-flowered atropa, Cavan. Hisp. n. 80. t. 72. "Stem

procumbent, herbaceous; leaves twin, unequal, ovate, smooth; flowers in umbels." Root annual; stem grooved, much branched, three feet high; leaves sharp-ovate, running down the petiole, smooth, entire, one-curved, glaucous beneath; common peduncle, solitary, scarcely an inch in length; rays of the umbel from two to five; corolla herbaceous, yellow, wheel-shaped, which sufficiently distinguishes it from all its congeners. A native of Mexico.

Propagation and Culture. 1. Mandrake is propagated by seeds, as soon as they are ripe, when they are to be sown upon a bed of light earth, and occasionally refreshed with water. In August they must be taken up very carefully and transplanted into the places where they are to remain, observing that the soil be light and deep, for the roots run far down, and will grow to a large size in a few years if not interrupted by gravel or chalk, or rotted in winter by wet soil. The plant should also have a warm situation. The root will remain sound above fifty years, and continue to be as vigorous as a young plant. Deadly nightshade may be propagated both by its roots and by its seeds; it requires a shady situation. If the seeds of the third species be permitted to scatter, the plants will come up the following spring, and may then be transplanted into the borders of the pleasure garden, where they will grow to a large size. Species 4th, &c. may be propagated by seeds, which should be sown in a hot-bed in the spring; and when fit to be removed, they should be each put into a separate small pot filled with loamy earth, and shaded until they take root. The 4th and 6th may be placed with other hardy exotic plants in a sheltered situation, and in October they must be removed into the green-house. The 5th, 7th, and 8th, must be kept in the bark-stove. The 7th may be increased by parting the roots. See Martyn's Miller's Dict.

ATROPATENE, or ATROPASIA, in *Ancient Geography*, a country of Asia, occupying the north-west part of Media, and lying between mount Taurus and the Caspian sea. It is said to have taken its name from one Atropatus, who, being governor of this province in the time of Darius, the last Persian monarch, opposed Alexander the Great, and upon the destruction of the Persian monarchy, seized this part of Media, and transmitted it to his posterity, who held it as sovereigns to the time of Strabo. (Geog. lib. xi. p. 523.) It was a cold, barren, and inhospitable country, and on that account allotted by Shalmanezzer for the residence of many captive Israelites, after the conquest of their kingdom. Its inhabitants, according to Polybius (l. v. p. 492.), were good soldiers; and we learn from Strabo, that its kings could bring into the field 40,000 foot and 20,000 horse. The metropolis of Atropatene was Gaza.

ATROPHY (*ἀτροφία* from *α*, privative, and *τροφή*, nutritio, in *Medicine*, a defect of nourishment, and consequent emaciation. It differs from phthisis, by being unaccompanied with cough, and purulent expectoration; and from tabes, by the absence of hectic fever. This distinction, however, of systematic writers, between tabes and atrophy is not altogether so satisfactory as could be wished; since atrophy in its advanced stage is often attended with a symptomatic fever resembling the hectic. In the fourth volume of his First Lines of the Practice of Physic, Dr. Cullen has candidly acknowledged that he was not satisfied with his arrangement of the several species of atrophis and tabes. He even expresses a doubt, whether the distinction attempted in Nosology, between the two diseases, will properly apply; being of opinion that there are certain affections of the same nature, which sometimes appear with, and sometimes without fever.

fever. If, however, in compliance with system, the distinction is to be made, we would restrict the term *tabes* to emaciations proceeding either from glandular and visceral obstruction, or from purulency and ulceration. If this be done, the third species of *tabes* in Cullen's Nosology will rank under atrophy; of which we shall then have six species placed in the following order; *viz.* *Atrophia inanitorum*; *A. famelicorum*; *A. debilium*; *A. cacochymica*; *A. venenata*; *A. á compressione ductus thoracici*. The causes which induce the first-mentioned species, are long-continued and profuse evacuations; such as an immoderate flow of saliva, profuse perspirations, diabetes, fluor albus, seminal emissions, abuse of venery, continuing to suckle too often or too long in the case of nurses, &c. &c.; chronic diarrhoea and rejection of the food soon after being swallowed, are among other causes enumerated by practical writers: of these two, the first brings on that emaciation which is commonly known under the name of *marasmus*; the latter (*viz.* vomiting), when it arises from a scirrhus of one of the orifices of the stomach, or other organic disease of that viscus, we would rather refer to the causes which produce *tabes*. When the vomiting depends upon mere irritability, without injured organisation, it will then give rise to atrophy. The most frequent form under which the *atrophia famelicorum* appears, is, that which is described by medical writers under the name of *tabes dorsalis*. It is occasioned by a loss and forced secretion of the seminal fluid, and happens to those who are too much addicted to venery, to those who inflame their imaginations with lascivious ideas, and especially to youths who indulge themselves in the obscene and baneful practice of onanism. This disease was well known to the ancients, and is described in the collection of writings attributed to Hippocrates. (*περί νηστων*, lib. ii.) With the frequent emissions of semen there is a pain in the back and loins, costiveness, head-ach, giddiness, and dimness of sight; oppression of the breath, hurry of the spirits, restless nights, lassitude, paleness of the countenance, wasting of the flesh, pains of the joints, tremors, and in some instances palsy, with a failing of the memory and dejection of mind. In setting about the cure we must first remove the exciting causes, by forbidding venereal intercourse, and restraining manual pollution (*manustupratio*). The soft downy bed must be exchanged for a hard one, and early rising enjoined. The patient must abstain from strong wines, especially white wines, hot liquors, and seasoned food, and take to a plain, mild, nutritious diet, of which milk and its preparations should constitute the chief part. Sago, tapioca, animal jellies, and eggs, will also be proper. The common cold-bath or sea-bathing should be employed, with daily exercise on horse-back; and besides the free use of cow's milk, asses milk should be taken at least once a day. The proper medicines will be the Peruvian bark, the lichen islandicus, the infusion of the red rose, the infusion of catechu, and chalybeates; or if the last-named metallic preparations prove too stimulant, the zincum vitriolatum. In some of these cases, mild opiates, or the cicuta, may also be given with advantage. Costiveness should be prevented by occasional doses of the electuarium fennæ, or oleum ricini, or magnesia and rhubarb. (See Tissot on Onanism.) The same means will be equally suited to most of the other varieties of *atrophia inanitorum*. When it is occasioned by profuse perspirations the sulphuric acid should be given with the other tonics; and when the urinary evacuation is excessive, the same remedies as in diabetes; which see. When this disorder occurs in nurses giving too much suck, the astringent vegetable substances (the Peruvian bark excepted) and metallic salts above mentioned will not be proper; a more

liberal use of fermented liquor and animal food should be allowed, and the infant should be weaned. When it proceeds from a diarrhoea, opiates may be given more freely, joined with testaceous powders, and small doses of ipecacuanha. When it is occasioned by the food being rejected from the stomach shortly after it is swallowed, the peculiar condition of that organ, on which the vomiting depends, must be ascertained and remedied accordingly. In such case, glysters of milk and animal jellies should be administered once or twice every day, until the disposition to inverted action is removed.

A. famelicorum. This occurs in infants at the breast, not being supplied with a sufficiency of milk. It is known by the daily emaciation of the infant, constant cries, and wakefulness, its eagerness to suck, and its tranquillity and disposition to sleep after being put to the breast. It happens when the mother's or nurse's milk is either deficient in quantity, or poor and watery in its quality. It may be remedied in part by putting the mother upon a generous diet, and supplying the infant with nourishment by the spoon; but the most effectual method is to resort to a nurse capable of affording a healthier and more abundant stream of milk.

A. debilium. To this species belong the nervous atrophy, and the emaciation which accompanies old age. It depends upon a debility of the organs of digestion and nutrition. In the first instance, it is sometimes the consequence of close application to business or study, and excessive anxiety, grief, a longing after one's native country or a beloved object, with other depressing passions. In these cases, a removal from the scene of study or business, and from the source of anxiety, regular exercise and proper recreations, will form the basis of the cure. At the same time, bitters, chalybeates, and opiates, should not be omitted. (Morton de *Atrophia*, seu *Phthisi nervosa*.) When the disorder is the consequence of old age, much relief cannot be expected. In that case, little more can be done than to render the diet as nutritious as possible.

A. cacochymica. When the emaciation in this species is connected with a scorbutic acrimony, the remedies proper for correcting the same must be employed; such as subacid fruits, fresh malt liquor, &c. all salted meats being strictly avoided. When it is connected with a syphilitic acrimony, the cure should be attempted by mercurials, opiates, and the guaiacum and sarsaparilla decoctions, with the warm bath. When it occurs in a rickety constitution, the same treatment as in *rachitis* will be proper. (See RICKETS.) If this species (the *A. cacochymica*) is accompanied with scorbutic or syphilitic fores, it should be referred to *tabes*.

A. venenata. This happens when the concoctive powers are impaired or destroyed by vegetable or mineral poisons. Among the vegetable poisons which prove the cause of atrophy, may be mentioned the abuse of green tea in women, and the chewing of tobacco in men. In like manner the opium-eaters in the Levant and other parts of the east are affected with atrophy. Another poison extracted from vegetable substances undergoing fermentation, which produces the same effect, is alcohol, or brandy, rum, &c. Among the mineral poisons which have been observed to cause this disease, may be mentioned lead and arsenic. The remedies in this species of atrophy must be varied according to the kind of poison by which it was induced. (See POISONS.) In the Nosological System of Dr. Cullen, this species of emaciation is ranked under *tabes*; but as it is not accompanied either with glandular obstruction, or with purulency or ulceration, we have conceived it to belong to the present genus, and have accordingly introduced it here.

The.

The last species we have to notice is the *A. à compressione ductus thoracici*. This takes place when the thoracic duct is so compressed by a tumor or other mechanical cause; that the transmission of the chyle through it is either partially or wholly intercepted. In the latter case it is irremediable. Fortunately this species of atrophy is of very rare occurrence. See Morton's *Phthisiologia*; and Hoffman de *Atrophia*, Suppl. II. 1. Cullen's *Prælice of Physic*, vol. iv.

ATROPICA, in *Entomology*, a species of *MANTIS* described by Pallas. It is a native of the island of Java; on the thorax are four spines; wing-cases short and mucronate at the base.

ATROPOS, a species of *SPHINX*, with yellow posterior wings fasciated with brown, and yellow abdomen with black rings. Varieties of this species differing in size, colour, and some peculiarities of the marks on the anterior wings, are found in Egypt, India, the cape of Good Hope, America, and Europe. It is the largest of the European insects of the lepidopterous tribe, and is certainly a beautiful creature. In England this kind is rare, and is called the death's head hawk-moth, from certain characteristics and very singular marks on the thorax, by which the figure of a human skull is strongly depicted. These insects for this reason have generally been regarded as an ominous presage of some approaching calamity by the peasantry in most countries where they have appeared by chance; and Linnæus has himself named it after one of the three fates of the heathen mythology. The larva feeds on the jasmine, potatoe, and elder; is solitary, yellow, with oblique, blue, green, and black lateral stripes, and a reflected tail; pupa reddish. Vide Donov. Brit. Inf. 9. t. 289. Linnæus in *Amœnit. Acad.* names this insect *caput mortuum*; and Geoffroy in *Hist. des Insectes*, *le sphinx à tête de mort*.

ATROPOS, is also a species of *MUSCA*, about half an inch in length, that inhabits Austria. It is rather downy; thorax whitish with three black spots; abdomen black, with interrupted yellow bands, and margin of the segments of the same colour. Schrank Beylr.

ATROPOS, in *Mythology*, one of the *Parcæ* or Fates, whose office it was to cut the thread of life.

ATROPOS, in *Zoology*, a species of *COLUBER*, described by Linnæus in *Mus. Ad. Fr. & Gmel. Syst. Nat.* as having 131 abdominal plates, and 22 subcaudal scales. It is a native of America, and deemed an extremely poisonous serpent; the colour hoary grey, with a quadruple series of brown ocellated spots, each with a white iris or margin. The head is heart-shaped, gibbous, with four and sometimes more black spots; and the scales are lanceolate. Gmel. It is *cobra atropos* of Laur. Amph.

Dr. Shaw observes that this species is of a thick and short form, scarcely exceeding fifteen or sixteen inches in length; the head is large and viperine, marked with four or five large dusky spots, and covered with small scales; the remainder of the animal of a pale brown, marked all along the upper part by four rows of very large, alternate, round, black spots bordered with white; the abdomen ash-colour, and tail very short, measuring about a ninth part of its whole length; the scales on all the upper parts are of a slightly sharpened form, and carinated. Gen. Zool. v. 3. p. 2. 404.

ATRO-VIOLESCENS, in *Entomology*, a species of *CHRYSOMELA*, once taken in the month of September, in the county of Norfolk. It is ovate, violaceous-black; wing-cases striated; legs pitchy-black. Marsh. Ent. Brit.

ATROVIRENS, in *Zoology*, a species of *COLUBER*, described by the count de Cèpede under the title of "*la coleuvre verte et jaune*;" and by Dr. Shaw, under that of

coluber atrovirens, *C. atrovirens*, *flavo maculatus*, *abdomine flavo*, *lateribus nigro punctato*. Black-green snake, speckled with yellow; the abdomen yellow, with a row of black specks down each side. French snake.

"This seems," says Dr. Shaw, "to be the species figured by Aldrovandus, under the name of *anguis Æsculapii niger*, and which appears to have been so little attended to by modern naturalists, as to have been generally confounded with the ringed snake (*C. natrix*), till it was again brought to notice by Monf. Daubenton, and afterwards by the count de Cèpede, who has accurately described it, and who informs us that it is very frequent in some of the provinces of France, being found in woods and moist shady places; in its general size and appearance it resembles the ringed snake or *natrix*, but differs in colour, being of an extremely dark or blackish green, so as to appear black on a cursory view, the sides being marked by numerous rays of yellow specks of different forms, some oblong and some square, and which form somewhat more decided or distinctly marked stripes towards the head; the eyes and edges of the mouth are bordered with yellow scales; the abdomen is also yellow, each scutum being marked on each side by a black speck. This snake is an animal of a perfectly harmless nature, and like the ringed snake, is capable of being tamed to a considerable degree."—"On the approach of winter, it retires, like the latter, into subterraneous retreats, and passes that season in a state of torpidity, from which it recovers in the spring, when it casts its skin, and appears in its highest beauty."

ATROX, in *Zoology*, a kind of *COLUBER*, which according to Linnæus is specifically characterised by having 169 abdominal plates, and 69 subcaudal scales. *Amœn. Acad.* This creature is a native of Asia, and is about a foot and a half in length; the colour hoary; scales carinated; beneath marked with dark brown, transverse, alternate spots; head depressed, compressed, angulated, and covered with minute scales. Gmelin makes "*dipfas indica*" of Laur. Amph. a variety of this species. Dr. Shaw describes it in his Gen. Zool. as being the "grey brown snake, with transverse linear whitish stripes, and dusky abdomen, with white transverse variegations; and names it the *fierce snake*. This author also notices one error of Linnæus respecting this species that deserves particular remark. "In the *Museum Adolphi Friderici*, p. 33," says he, "this species is, by a mistake, inscribed *angulatus*, while the figure on plate 22 of that work, represents the body marked by several distant, narrow, transverse whitish bands reaching to the abdomen, which is spotted with small, round, white specks; the dusky transverse spots appearing only beneath the tail; the general colour of the abdomen, however, in this snake is rather deep brown or blackish, beautifully variegated or marbled by numerous narrow transverse bands, accompanied here and there with small spots; the tail is remarkably short and slender. In the *Système Naturæ* a mistaken reference appears to be made to a figure in Seba representing a very different species. The *C. atrox* is a poisonous snake, and is a native of the island of Ceylon."

ATSCHARES, in *Geography*, a tribe of the *MANDSHURES*, who inhabited the banks of the middle Amoor, in Siberia, before it was taken possession of by the Russians. They then subsisted in a state of independence; but they were afterwards removed, by order of the Chinese government, from the Amoor farther towards China.

ATTACAMA, in *Geography*, one of the fourteen jurisdictions belonging to the archbishopric of Plata, in the audience of Charcas, in South America. It is the western boundary of the audience, extending to the South sea; and

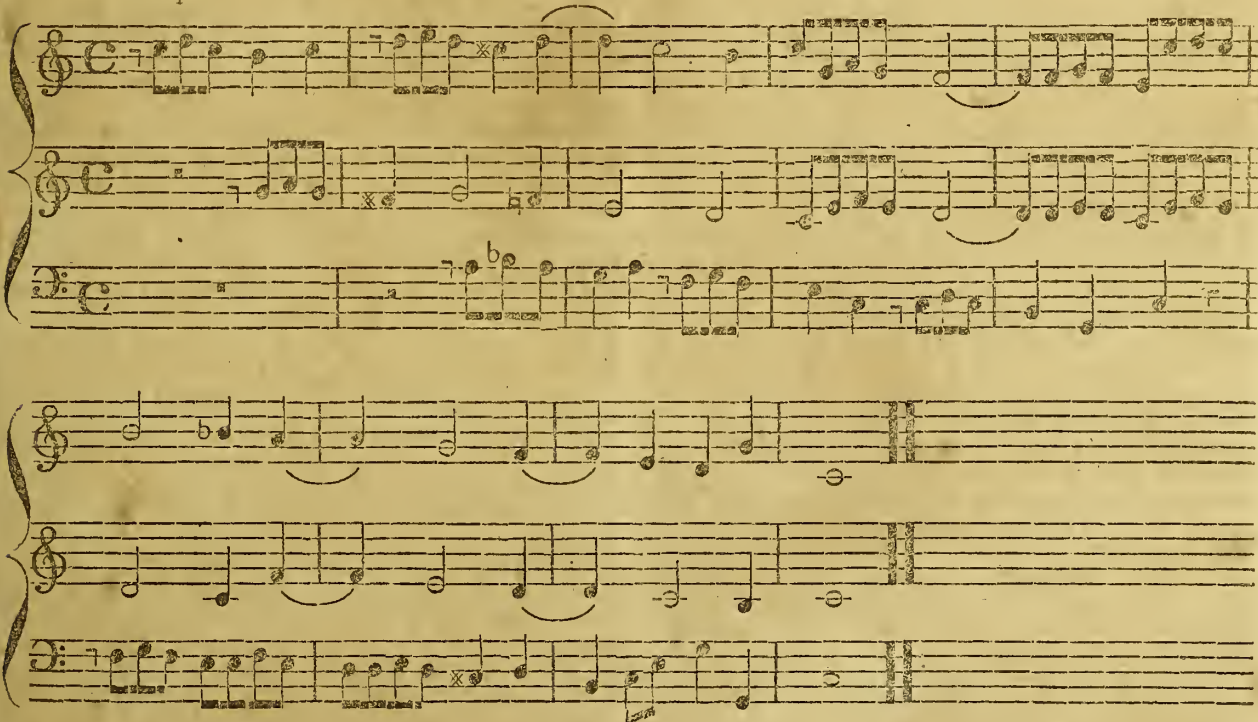
and the principal town, called also *Atacama*, is no less than 120 leagues from Plata. Its jurisdiction is of a considerable extent, and a great part of it very fruitful; but intermixed with some deserts, particularly towards the south, where it divides the kingdoms of Peru and Chili. On the coast in this province there is annually a very large fishery of Tolo, a fish common in the South sea, with which a very great trade is carried on with the inland provinces, this being the chief food in Lent and other days of abstinence. There is a great desert of the same name, and a chain of mountains, which separate Peru, on the north, from the province of

Quito. The cold in these mountains is sometimes so extremely severe, that those who pass it are occasionally frozen to death. S. lat. 22° W. long 80° 20'.

ATTACANA, in *Ancient Geography*, a town of Asia, in greater Armenia. Ptolemy.

ATTACCO, in *Music*, is a kind of short subject or point, not restricted to all the laws of regular fugue. Sometimes it is a section of the principal theme itself, treated rather as an imitation than a subject of regular fugue, and may be answered in any interval, at pleasure.

Example.



ATTACHIAMENTA BONORUM, in *Law*, a distress taken upon goods or chattels, where a man is sued for personal estate or debt, by the legal attachiators or bailiffs, as security to answer an action.

ATTACHIAMENTA DE SPINIS ET BOSCO, is a privilege granted to the officers of a forest to take to their own use thorns, brush, and wind-falls, within their own precincts.

ATTACHING, or **ATTACHMENT**, denotes the apprehending a person or thing, either by a precept or writ. The word is formed of the French *attacher*, to fasten or tie; and that from the corrupt Latin *attachiare*, of *attexere*, to weave to; or rather, as others think, from the Celtic *tach*, a nail; and *tacha*, to nail; or the Saxon *tacan*, to take.

Lambard makes this difference between an arrest and an attachment; that an arrest proceeds out of an inferior court by precept only, and an attachment out of a higher court, either by precept or writ; and that a precept to arrest hath these formal words, *duci facias*, &c. and a writ of attachment these, "*precipimus tibi quod attachies talem, & habeas eum coram nobis*."

By this it appears, that he who arrests carries the party arrested to another higher person, to be disposed of forth-

with: whereas he that attaches keeps the party attached, and presents him in court at the day assigned in the attachment.

There is this farther difference that an arrest lies only upon the body of a man; and an attachment sometimes on his goods too; for a man may be attached by an hundred sheep.

Moreover, attachment is a process from a court of record, awarded by the justices at their discretion, on a bare suggestion, or on their own knowledge; and is properly grantable in cases of contempts, against which all courts of record, but more especially those of Westminster-hall, and above all the court of B. R. may proceed in a summary manner.

The contempts that are thus punished, are either *direct*, which openly insult or resist the powers of the courts, or the persons of the judges who preside there; or else are *consequential*, which, without such gross insolence or direct opposition, plainly tend to create an universal disregard of their authority. The principal instances of either sort that have been usually punishable by attachments, are of the following kinds: 1. Those committed by inferior judges and magistrates by acting unjustly, oppressively, or irregularly, in administering those portions of justice which are en-

trusted to their distribution; or by disobeying the king's writs issuing out of the superior courts, by proceeding in a cause after it is put a stop to or removed by writ of prohibition, certiorari, error, superseas, or the like. 2. Those committed by sheriffs, bailiffs, gaolers, and other officers of the court, by abusing the process of the law, or deceiving the parties, by any acts of oppression, extortion, collusive behaviour, or culpable neglect of duty. 3. Those committed by attorneys and solicitors, who are also officers of the respective courts, by gross instances of fraud and corruption, injustice to their clients, or other dishonest practice. 4. Those committed by jurymen in collateral matters relating to the discharge of their office; such as making default when summoned, refusing to be sworn, or to give any verdict, eating or drinking without the leave of the court, and especially at the cost of either party; and other irregularities of a similar kind; but not in the mere exercise of their judicial capacities, as by giving a false or erroneous verdict. 5. Those committed by witnesses; by making default when summoned, refusing to be sworn or examined, or prevaricating in their evidence when sworn. 6. Those committed by parties to any suit or proceeding before the court; as by disobedience to any rule or order made in the progress of a cause; by non-payment of costs awarded by the court upon a motion; or by non-observance of awards duly made by arbitrators and umpires, after having entered into a rule for submitting to such determination. 7. Those committed by any other person under the degree of a peer; and even by peers themselves, when enormous and accompanied with violence, such as forcible rescous, and the like; or when they import a disobedience to the king's great prerogative writs of prohibition, habeas corpus, and the rest.

Some of these contempts may arise in the face of the court; as by rude and contumelious behaviour; by obstinacy, perverseness, and prevarication; by breaking the peace, or any wilful disturbance whatever: others, in the absence of the party; as by disobeying, or treating with disrespect, the king's writ, or the rules or process of the court; by perverting such writ to the purposes of private malice, extortion, or injustice; by speaking or writing contemptuously of the court, or judges acting in their judicial capacity; by printing false accounts (or even true ones, without proper permission) of causes then depending in judgment; and by any thing, in short, that demonstrates a gross want of that regard and respect, which, when once courts are deprived of, degrade and destroy their authority among the people. The process of attachment for these and similar contempts must necessarily be as ancient as the laws themselves; for laws, without a competent authority to secure their administrations from disobedience and contempt, would be vain and nugatory. This has accordingly been exercised as early as the annals of our law extend.

If the contempt be committed in the face of the court, the offender may be instantly apprehended and imprisoned, at the discretion of the judges, without any further proof or examination. But in matters at a distance, and of which the court cannot have so perfect a knowledge, unless by the confession of the party, or the testimony of others, if the judges upon affidavit see sufficient ground to suspect that a contempt has been committed, they either make a rule on the suspected party to shew cause why an attachment should not issue against him; or in very flagrant instances of contempt, the attachment issues in the first instance; as it also does, if no sufficient cause be shewn to discharge, and therefore the court confirms and makes absolute the original rule. This process of attachment is merely intended to

bring the party into court; and when there, he must either stand committed, or put in bail, in order to answer upon oath to such interrogatories as shall be administered to him, for the better information of the court with respect to the circumstances of the contempt. These interrogatories are in the nature of a charge or accusation, and must by the course of the court be exhibited within the first four days; and if any of the interrogatories is improper the defendant may refuse to answer it, and move the court to have it struck out. If the party can clear himself upon oath, he is discharged; but, if perjured, may be prosecuted for the perjury. If he confesses the contempt, the court will proceed to correct him by fine or imprisonment, or both, and sometimes by a corporal or infamous punishment. If the contempt be of such a nature, that when the fact is once acknowledged, the court can receive no farther information by interrogatories than it is already possessed of (as in the case of a rescous), the defendant may be admitted to make such simple acknowledgement, and receive his judgment, without answering to any interrogatories; but if he wilfully and obstinately refuses to answer, or answers in an evasive manner, he is then clearly guilty of a high and repeated contempt, to be punished at the discretion of the court. Blackstone's Com. vol. iv.

The terrors of attachment in case of disobedience on the part of unwilling witnesses, as well as the compulsory process for obtaining their attendance, are of excellent use in the thorough investigation of truth: and upon the same principle, in the Athenian courts, the witnesses who were summoned to attend the trial, had their choice of three things, either to swear to the truth of the fact in question, to deny or abjure it, or else to pay a fine of a thousand drachmas.

ATTACHMENT, *Writ of*, called also *Pone*, is a writ issuing out of the court of Common Pleas, and grounded on the non-appearance of the defendant at the return of the original writ; which commands the sheriff to attach him, by taking gage, that is, certain of his goods, which he shall forfeit, if he doth not appear; or by making him find safe pledges or sureties who shall be amerced in case of his non-appearance. This is the first and immediate process, without any previous summons, upon actions of trespass *vi et armis*, or for other injuries, which, though not forcible, are yet trespasses against the peace, as deceit and conspiracy; where the evidence of the wrong requires a more speedy remedy, and therefore the original writ commands the defendant to be at once attached, without any precedent warning. See PROCESS.

ATTACHMENT *out of Chancery*, is a writ in the nature of a *capias*, directed to the sheriff, and commanding him to attach, or take up the defendant, and bring him into court. It is had of course, upon an affidavit made that the defendant was served with a *subpoena*, and appears not; or it issueth upon not performing some order or decree.

After the return of this attachment by the sheriff, *quod non est in vestitus in balliva sua*; another attachment, with proclamations, issues: which, besides the ordinary form of attachment, directs the sheriff that he cause proclamations to be made, throughout the county, to summon the defendant, upon his allegiance personally to appear and answer; and if this be also returned with *non est inventis*, and he still stands out in contempt, a commission of rebellion is awarded against him. See COMMISSION of Rebellion.

ATTACHMENT, *Foreign*, is an attachment of goods or money found within a liberty or city, to satisfy some creditor within such city or liberty.

Under the custom of London, if a plaint be exhibited in the mayor's or the sheriff's court (the proceeding in the former being the most advantageous) against *A*, and the process be returned

returned *nihil*, and thereupon the plaintiff suggests that another person within London is indebted to *A*, the debtor shall be warned (whence he is called the *garnishee*), and if he does not deny himself to be indebted to *A*, the debt shall be attached in his hands. The custom of foreign attachment is said to prevail in Exeter and other places. But a foreign attachment cannot be had when a suit is depending in any of the courts at Westminster. Cro. Eliz. 691. And nothing is attachable, but for a certain and due debt; though by the custom of London, money may be attached before due, as a debt, but not levied before due. Sid. 327. 1. Nelf. Abr. 282, 283.

Foreign attachments in London, upon plaint of debt, are made after this manner: *A* oweth *B* 100l. and *C* is indebted to *A* 100l.; *B* enters an action against *A* of 100l. and by virtue of that action a serjeant attacheth 100l. in the hands of *C*, as the money of *A*, to the use of *B*, which is returned upon that action. Upon this the plaintiff is immediately to see an attorney before the next court, or the defendant may then put in bail to the attachment, and nonsuit the plaintiff. Four court days must pass before the plaintiff can cause *C*, the garnishee, in whose hands the money was attached, to shew cause why *B* should not condemn the 100l. attached in the hands of *C* as the money of *A* the defendant in the action though not in the attachment to the use of *B* the plaintiff; and the garnishee *C* may appear in court by his attorney, wage his law, and plead that he hath no money in his hands of the defendant's, or other special matter; but the plaintiff may hinder his waging of law, by producing two sufficient citizens to swear that the garnishee had either money or goods, in his hands, of *A* at the time of the attachment, of which affidavit is to be made before the lord mayor, and being filed, may be pleaded by way of estoppel: then the plaintiff must put in bail, that if the defendant come within a year and a day into court, and he can discharge himself of the money condemned in court, and that he owed nothing to the plaintiff at the time in the plaint mentioned, the said money shall be forthcoming, &c. If the garnishee fail to appear by his attorney, being warned by the officer to come into court to shew cause as aforesaid, he is taken by default for want of appearing, and judgment given against him for the goods, and money attached in his hands, and he is without remedy either at common law or in equity; for if taken in execution, he must pay the money condemned, though he hath not one penny, or go into prison; but the garnishee appearing to shew cause why the money or goods attached in his hands ought not to be condemned to the use of the plaintiff, having feed an attorney, may plead as aforesaid, that he hath no money nor goods in his hands, of the party's against whom the attachment is made; and it will then be tried by a jury, and judgment awarded, &c. but after trial, bail may be put in, whereby the attachment shall be dissolved, but the garnishee, &c. and his security will then be liable to what debt the plaintiff shall make out to be due, upon the action: and an attachment is never thoroughly perfected, till there is a bail, and satisfaction upon record. Privilege London.

But the original defendant must be summoned, and have notice: otherwise judgment against the garnishee will be erroneous; and the money paid or levied in execution; or it will not discharge the debt from the garnishee to the defendant (though it was allowed that the custom of the city court is to give no notice). 3 Will. 297. 2. Black. Rep. 834. See 1 Ld. Raym. 727. Where a foreign attachment is pleaded to an action, the custom is to set forth that he who levied the plaint shall have execution of the debt

owing by himself, and by which he was attached, if the plaintiff in the original action shall not disprove it within a year and a day; now if the plaintiff in the action below doth not set forth such conditional judgment given by the court, it is wrong, because he doth not bring his case within the custom. Vide 2 Lutw. 985.

A sum of money was to be paid at Michaelmas, and it was attached before that day: adjudged, that a foreign attachment cannot reach a debt before it is due; therefore, though the judgment on the attachment was after Michaelmas, yet the money being attached before it was due, it is for that reason void. Cro. Eliz. 184. For further matter, see Com. Dig. tit. Attachment.

Money due to an executor or administrator, as such, cannot be attached. It would give a simple contract creditor priority over judgments. Fisher v. Lane and others, 3 Will. 297. Nor trust money in the hands of the garnishee. Doug. 383.

Debtor and creditor being both citizens of London, the debtor delivered several goods to the Exeter carrier then in London to carry and deliver them at Exeter, and the creditor attached them in the hands of the carrier for the debt due to him from his debtor: adjudged, that the action should be discharged, because the carrier is privileged in his person and goods, and not only in the goods which are his own, but in those of other men, of which he is in possession, for he is answerable for them. 1 Leon. 189. See Jacob's Law Dict. by Tomlins, art. Attachment.

ATTACHMENT of the Forest, or Woodmote, is one of the four courts held in the forest. (See COURTS of Forest, &c.) The court of attachments seems so called because the verderors of the forest have therein no other authority, but to receive the attachments of offenders against vert and venison taken by the foresters, to enrol them, and to certify them under their seals, to the court of justice-seat, or swaimote; for this court can only inquire of, but not convict offenders.

This attachment is by three means; by goods and chattels; by body, pledges, and mainprize; or by body only. Offenders may be attached by their bodies, if taken with the mainour (or *mainoeuvre*, a *manu*), that is, in the very act of killing venison, or stealing wood, or preparing so to do, or by fresh and immediate pursuit after the act is done; otherwise, they must be attached by their goods. This court is held once in every forty days throughout the year; whence it is also denominated *forty days court*.

ATTACHMENT of Privilege is, by virtue of a man's privilege, to call another to that court whereto he himself belongs, and in respect whereof he is privileged to answer some action: or, it is a power to apprehend a man in a place privileged. Corporation courts have sometimes power by charter to issue attachments, and some courts-baron grant attachments of debt. Kitch. 79.

ATTACK, an attempt upon any person or thing; or the act of beginning a combat or dispute.

ATTACK, in the *Military Art*, signifies an engagement having for its object the forcing of an entrenched post, or dislodging an adverse army from its lines, when in a situation calculated to impede the progress of an invading army.

War is naturally an offensive operation. In the earlier ages we find it carried on by a series of engagements uniformly on the principle of attack, and unconnected with any of those skilful manœuvres which the ready genius of mankind has since carried into execution for their mutual destruction. The ultimate object of a battle consisted in plundering, in case of success, a small tract of the enemy's country, and

in burning a few miserable villages. Superiority of numbers generally insured the advantage. The vanquished were exterminated. The victors withdrew with their hard earned booty, diminished in numbers, and exhausted by fatigue.

The Greeks, who first brought the military art to some degree of perfection, were fully sensible of the advantages to be derived from the attack. Even at the famous plain of Marathon (vid. MARATHON), where, by the most moderate accounts, the Persian army exceeded the tent times in number, they had the temerity to forsake a well-chosen position, and (Herodotus, l. vi. c. 112.) advance running to the onset; a degree of rashness, which, though in the instance before us crowned with the most glorious success, can never find an excuse in the eyes of military judgment. At the final engagement of Thermopylae, the despair of Leonidas drove him to pursue a similar conduct. (Herod. l. vii. c. 223.) The particular circumstances of his situation, and the celebrity of his death, extenuate in part his conduct.

Among the Greeks, the Lacedæmonians alone advanced to battle in silence, and at a steady pace, regulated by the sound of musical instruments. (Thucyd. l. v. c. 70.) On the contrary, the other Græcian nations rushed forward with the utmost eagerness and velocity, clashing their spears upon their bucklers, and, at the moment of the onset, raising a loud shout to astonish and terrify their enemies. This mode of attack was generally irresistible, where only opposed by an undisciplined and tumultuous assemblage of Asiatics. Witness the battle of Cynaxa (vid. CYNAXA), where a phalanx of 13,000 Greeks dispersed in an instant the almost innumerable forces of Artaxerxes Mnemon: and, if it had not been for the fatal temerity of Cyrus the younger, would infallibly have placed the crown of Persia on his head. (Xenophon, Anab. l. i. c. 8.)

In engagements with every nation, the vigorous onset of the Greeks was attended with splendid victory. Even in the declining ages of their monarchy, when the arbitrary sway of Macedonian tyranny had extinguished within their bosoms that spirit of liberty which glowed so fervently at Marathon and Platea, their formidable phalanx was regarded with apprehension by Roman intrepidity: and in the famous and decisive battle of Pydna (vid. PYDNA), the firmness and talents of a Paulus Emilius despaired of victory, till a happy and well-timed exertion of his superior military abilities decided the doubtful contest. (Plut. in Æm. Paul.)

The Romans, those great masters in the art of war, were not ignorant of the advantages of acting offensively, nor how to improve them. The impetus of their legion, a heavy and well-organized body of infantry, exceeded in effect that of the Macedonian phalanx; and no weight of armour, no exertion of courage, no resolution, however daring, could preserve the front of that army unbroken, which once experienced the terrible discharge of the Roman pilum.

In every age the system of attack has been preferred by experienced generals (with some few exceptions justified always by coincident circumstances), to that of protracting a war by tedious and indecisive manœuvres, and it has generally been attended with success. Hannibal, Sylla, Alexander, Cæsar, the greatest captains of antiquity, never suffered a favourable opportunity of engaging to escape them. Their attacks were general, violent, frequently unexpected, and rarely unattended with the most ample success.

Of later days we may reckon among the commanders, who, in their eagerness to engage an enemy, have sometimes overleaped the bounds prescribed to genius by modern tactics, a Condé, a Gustavus, an Eugene, a Charles the Twelfth, and a Frederic the Great, whose rapid manœuvres frequently

baffled the most acute observation of their antagonists, and the impetuosity of whose attacks seldom gave time for effectual opposition.

It is scarcely necessary to insist upon the manifest advantages an attacking army possesses over that which acts upon the defensive. With numbers generally superior, a confidence in their own strength, and spirits which defy opposition, they rarely encounter an enemy able, or resolute enough to repulse them.

In the course of the late war, Europe has beheld with surprize the system of attack, which before only affected a tract of country comparatively trifling, carried to an extent and a perfection truly astonishing. In 1794, armies acting offensively, though in bodies widely distant, pierced, as if animated by the same soul, in all directions from the frontiers of France to the left bank of the Rhine, and the centre of the Batavian territories. Two years after, at the same moment when Moreau was penetrating by the circle of Suabia, and along the Danube to the Austrian borders, the army of the Sambre and Meuse advanced through Franconia, and Buonaparte fought his way through Italy to the summit of the Noric Alps. According to the new principle, success in a general engagement, however complete, in no wise contributed to terminate the campaign. A battle gained only opened the road to new attacks. A town taken merely furnished materials for fresh sieges. The armies rivalled each other in overcoming, with incredible expedition, obstacles which formerly would have been deemed insurmountable; and as long as any vestige of an adverse power remained to face them in the field, all success was regarded as incomplete.

In the fluctuating campaign of 1799, the same system was carried to a still greater extent. The rocks and mountains of Switzerland furnished fresh subjects for plans of a nature still more difficult, intricate, and complicated. The line of attack and defence was lengthened in an unexampled manner, and from the Zuyder Zee to the Adriatic formed but one vast field of battle, on which French, Austrians, Russians, Helvetians, Dutch, English, and Italians, alternately destroyed each other; and strove with infinite vicissitude of fortune, but finally with nearly equivalent success, to gain a dear bought advantage.

ATTACK, in *Besieging*, signifies the operations carried on by the besiegers, with mines, saps, trenches, batteries, &c. against an enemy's fortress. The rules of war naturally prescribe the weakest side of the place as the point of attack. Nevertheless, prince Eugene thought proper to infringe upon them in the instance of the siege of Lille, where, to favour the movements of the covering army, he directed his approaches against the strongest part of the fortifications.

Two, or even three attacks, are formed in sieges where dispatch is necessary. In such cases, their communications should be easy, carefully constructed, and industriously maintained.

ATTACK, *Falſe*, is an attack but faintly prosecuted, though sufficiently serious to induce the enemy to divide his forces, and more especially to weaken, if possible, that part of his position, or works, which is the object of the true assault.

ATTACOTTI, in *Ancient History*, a savage people of Great Britain, mentioned by Ammianus Marcellinus (l. 27. c. 8.) and St. Jerom (tom. ii. p. 75.), as well as in the *Notitia Imperii*, whose situation is not precisely ascertained by antiquaries. Some have supposed that they inhabited Wales, and allege, that their name was derived from the British words "at a coit, or coed," signifying amongst woods. But it is probable, that they were seated somewhere further

north than any part of Wales; for Ammianus Marcellinus represents them as allies and confederates of the Scots and Picts, and therefore they were probably their neighbours. These enemies, and afterwards the soldiers, of Valentinian, are accused, by an eye-witness, of delighting in the taste of human flesh. When they hunted the woods for prey, it is said by Jerom (ubi supra), that they attacked the shepherd, rather than his flock; and that they curiously selected the most delicate and brawny parts both of males and females, (pastorum nates et fœminarum papillas), which they prepared for their horrid repasts.

ATTAGEN, ATTAGAS, in *Ornithology*, names given by Briss. and Buff. to the red or moor-game, or red grouse, in Gmelin's arrangement the fourth variety of *tetrao lagopus*. Linn. & Gmel. Briss. also calls *tetrao umbellus* of Gmelin *attagen, Pennsylvania*.

ATTAINDER, in *Law*, is that stain or infamy which is incurred by a man who has committed felony, treason, or other crime, and who is capitally convicted for the same.

This, by the common law, is the immediate inseparable consequence of the sentence of death that is pronounced. The law, in this case, sets a note of infamy upon the criminal, puts him out of its protection, and takes no further care of him than barely to see him executed. He is then called attain, *attinthus*, stained or blackened. He is no longer of any credit or reputation; he cannot be a witness in any court; neither is he capable of performing the functions of another man: for, by an anticipation of his punishment, he is already dead in law. This is after "judgment;" for there is a great difference between a man "convicted," and "attainted;" though they are frequently, through inaccuracy, confounded together. After conviction only, a man is liable to none of these disabilities; for, in the contemplation of law, there is still a possibility of his innocence. Something may be offered in arrest of judgment; the indictment may be erroneous, which will render his guilt uncertain, and thereupon the present conviction may be quashed; he may obtain a pardon, or be allowed the benefit of clergy; both which suppose some latent sparks of merit, which plead in extenuation of his fault. But when judgment is once pronounced, both law and fact conspire to prove him completely guilty; and there is not the remotest possibility left of any thing to be said in his favour. Upon judgment, therefore, of death, and not before, the "attainder" of a criminal commences; or upon such circumstances as are equivalent to judgment of death; as judgment of outlawry on a capital crime, pronounced for absconding or fleeing from justice, which tacitly confesses the guilt. And, therefore, upon judgment of outlawry, or of death, for treason or felony, a man shall be said to be "attainted."

A man is "attainted by appearance or by process." "Attainder" on appearance is by confession, or verdict, &c.; by confession, when the prisoner, upon his indictment, being asked whether guilty or not guilty, owns himself guilty, without putting himself upon his country; and formerly confession was allowed before the coroner in sanctuary, upon which the offender was to abjure the realm, and this was called "attainder" by *abjuration*. "Attainder" by *verdict*, is when the prisoner at the bar pleadeth not guilty, and is found guilty by the verdict of the jury of life and death. "Attainder" by *process*, otherwise called "attainder" by *default* or by *outlawry*, is when a party flies, and is not found, and he hath been five times publicly called or proclaimed in the county, and, at last, upon his default, is pronounced or returned outlawed. Staundf. Pl. Co. 44. 122. 182. Persons may also be attainted by act of parlia-

ment. Accordingly acts of attainder have been passed in several reigns, on the discovery of plots and rebellions, from the reign of Charles II., when an act was made for the attainder of several persons guilty of the murder of king Charles I., to this time. Among these, the most remarkable is that for attainting sir John Fenwick for conspiring against king William; this act having been made for attainting and convicting him of high treason on the oath of one witness, just after a law had been enacted, "that no person should be tried or attainted of high treason, where corruption of blood is incurred, but by the oath of two lawful witnesses, unless the party confess, stand mute, &c." Stat. 7 and 8 W. III. c. 3. However, sir John Fenwick was indicted of treason, on the oaths of two witnesses, though only one appeared against him on his trial; and it was alleged, that sir John had tampered with and prevailed on one of the witnesses to withdraw.

The consequences of "attainder" are forfeiture, and corruption of blood; which latter cannot be regularly taken out but by act of parliament. See these articles.

"Attainder" may be reversed or falsified by writ of error, or by plea; in the former case it must be by the king's leave, &c.; and in the latter it may be by denying the treason, pleading a pardon by act of parliament, &c. 3 Inst. 232.

By a king's taking the crown upon him, all attainders of his person are "ipso facto" purged, without any reversal. 1 Inst. 26. Finch. L. 82. Wood. 17. This was the declaration of parliament, made in favour of Henry VII.

ATTAINDER, *Bill of*, is a bill brought into parliament for attainting, condemning, and executing a person for high treason. See ATTAINDER.

ATTAINT, ATTINCTA, in *Law*, a writ which lieth to inquire, whether a jury of twelve men gave a false verdict, that so the judgment following thereupon may be reversed; and this must be brought in the life-time of him for whom the verdict was given, and of two at least of the jurors who gave it. This lay, at the common law, only upon writs of assize; and seems to have been coeval with that institution by king Henry II. at the instance of his chief justice Glanvil; being probably meant as a check upon the vast power then reposed in the recognitors of assize, of finding a verdict according to their own personal knowledge, without the examination of witnesses. And even here it extended no farther than to such instances, where the issue was joined upon the very point of assize (the heirship, disseisin, &c.), and not on any collateral matter, as villenage, bastardy, or any other disputed fact. (See ASSIZE *in juratam*, &c.) It seems that no attaint lay against the inquest or jury that determined such collateral issue; nor did such a process obtain after the trial by inquest or jury, in the old Norman or feudal actions prosecuted by a writ of entry; nor did any attaint lie in trespass, debt, or other action personal, by the old common law; because those were always determined by common inquests or juries. At length the statute of Westm. 1. (3 Edw. I. c. 38.) allowed an attaint to be sued upon inquests, as well as assizes, which were taken upon any plea of land or of freehold. But this was at the king's discretion, and so it is understood by the author of Fleta, a writer cotemporary with the statute; though sir Edward Coke (2 Inst. 130. 237.) seems to hold a different opinion. Other subsequent statutes (1 Edw. III. st. 1. c. 6. 5 Edw. III. c. 7. 28 Edw. III. c. 8.) introduced the same remedy in all pleas of trespass; and the statute 34 Edw. III. c. 7. extended it to all pleas whatsoever, personal as well as real; excepting only the writ of right, in such cases where the mise or issue is joined on the mere right, and not on any collateral question.

question. For though the attaint seems to have been generally allowed in the reign of Henry II., at the first introduction of the grand assise (which at that time might consist of only twelve recognitors in case they were all unanimous), yet subsequent authorities have holden, that no attaint lies on a false verdict given upon the mere right, either at common law or by statute; because that is determined by the grand assise, appealed to by the party himself, and now consisting of sixteen jurors. Bract. 290. Flet. 5. 22. 7. Britt. 243. b. 12 Hen. VI. 6. Bro. Abr. *Attaint*, 42. 1 Roll. Abr. 280.

The jury who are to try this false verdict must be twenty-four, and are called the grand jury; for the law wills not that the oath of the jury of twelve men should be attained or set aside by an equal number, nor by less indeed than double the former. Bract. l. 4. tr. 5. c. 4. § 1. Flet. l. 5. c. 22. § 7. If the matter in dispute be of forty pounds value in personals, or of forty shillings a year in lands and tenements, then by stat. 15 Hen. VI. c. 5. each grand juror must have freehold to the annual value of twenty pounds. And he that brings the attaint can give no other evidence to the grand jury than what was originally given to the petit. But those against whom it is brought are allowed, in affirmance of the first verdict, to produce new matter; because the petit jury may have formed their verdict upon evidence of their own knowledge, which never appeared in court. If the grand jury found the verdict a false one, the judgment by the common law was, that the jurors should lose their "liberam legem," and become for ever infamous; should forfeit their goods and the profits of their lands; should themselves be imprisoned, and their wives and children thrown out of doors; should have their houses razed, their trees extirpated, and their meadows ploughed; and that the plaintiff should be restored to all that he lost by reason of the unjust verdict. But as the severity of the punishment had its usual effect in preventing the law from being executed, therefore by the statute 11 Hen. VII. c. 24. revived by 23 Hen. VIII. c. 3. and made perpetual by 15 Eliz. c. 25. an attaint is allowed to be brought after the death of the party, and a more moderate punishment was inflicted upon attained jurors; viz. perpetual infamy; and if the cause of action were above forty pounds value, a forfeiture of twenty pounds a-piece by the jurors; or if under 40l. then five pounds a-piece; to be divided between the king and the party injured. So that a man may now bring an attaint either upon the statute or at common law, at his election (3 Inst. 164); and in both of them may reverse the former judgment. But the practice of setting aside verdicts upon motion, and granting new trials, has so superseded the use of both sorts of attaints, that few instances of attaints occur in our books later than the sixteenth century. Cro. Eliz. 309. Cro. Jac. 90. By the old Gothic constitution, indeed, no certificate of a judge was allowed, in matters of evidence, to countervail the oath of the jury; but their verdict, however erroneous, was absolutely final and conclusive. Yet there was a proceeding, from whence our attaint may be derived. If upon a lawful trial before a superior tribunal, the jury were found to have given a false verdict, they were fined, and rendered infamous for the future. Stiernhook de jure Goth. l. i. c. 4. Blackstone's Comm. vol. iii. p. 402, &c.

ATTAINTED, ATTAINTUS, or ATTINCTUS, in Law. See **ATTAINDER**.

ATTAK, in Geography, the largest of the islands commonly denominated the Aleutsky or Aleutian islands. It seems to have a larger extent of surface than Behring's island, and has an oblong form, lying more west and east. In these islands no volcanic traces have been discovered, and

here are no land animals but ice-foxes and rock-foxes, more frequently blue than white. The sea-otters come hither but singly; whereas sea-lions, sea-bears, manatis, and some other sea-animals frequent these shores in herds. See **ALEUTIAN Islands**.

ATTALIA, in Ancient Geography, a town of Asia, in Pamphylia, on the coast of the sea, which there formed a gulf of the same name, now called the gulf of Satalia. Strabo (l. xiv. p. 459.) says that it was built by Attalus Philadelphus, king of Pergamus, who founded a colony there, and that it was the chief residence of the prefect. St. Paul proceeded from Perga to this town. Acts xiv. 25. — Also, a town of Asia, in Lydia.

ATTALICÆ VESTES, in Antiquity, garments made of a kind of cloth of gold.

They took the denomination from Attalus, surnamed Philometer, a wealthy king of Pergamus, who was the first, according to Pliny, who procured gold to be woven into cloth. Hist. Nat. lib. iii. cap. 48.

ATTALIS, in Ancient Geography, the name of a tribe of Attica.

ATTALUS, in Biography, the name of several kings of Pergamus.—Attalus I. succeeded his cousin Eumenes I. in the year 241 B. C. Having expelled the Gauls who had settled in his country, he assumed the title of king, and extended his conquests of the Asiatic provinces as far as mount Taurus. But in the distress to which he was afterwards reduced by the united forces of his grandfather Achæus and Seleucus, he availed himself of the succour afforded him by the Gauls settled in Thrace, and recovered his dominions of which he had been dispossessed. He then pursued his conquests in Ionia, till his career was stopped by the refusal of the Gauls to advance any farther. Upon this he returned to the Hellespont, and allowed his allies to settle there in a very fertile and extensive region. For the security of the territories he had acquired, he formed an alliance with the Romans, whom he vigorously assisted in their two wars against Philip of Macedon. In conjunction with the Athenians he invaded Macedonia, and recalled Philip from his enterprise against Athens; and on this account the Athenians gave his name to one of their tribes. At Thebes in Bœotia, whilst he was haranguing the people, and urging them to take arms against Philip, he was seized with an apoplexy; and being conveyed to Pergamus, he soon after died, in the 72d year of his age, and 43d of his reign. He is represented as a generous and amiable prince, a liberal encourager of literature, and also a writer. Of his veneration for Homer the following singular instance is mentioned by Suidas and Valerius Maximus; viz. his causing the grammarian Daphnidas to be thrown from a rock, for speaking disrespectfully of this celebrated bard.—Attalus II. was the second son of Attalus I. and called *Philadelphus*, from his fidelity and affection to his brother Eumenes, who was king of Pergamus before him. Upon a false rumour of the death of Eumenes, he hastily assumed the regal ensigns, and married his brother's wife; but on his brother's safe return, he manifested every token of satisfaction and allegiance, and bore an halbert as one of his guards. Eumenes kindly embraced him, and in a whisper cautioned him "not again to be in such haste to marry his wife, till he was sure of his death." Attalus was actively attached to the Romans in their war against Perses; and made successive visits to Rome for the purpose of exculpating his brother from the charge of indifference to their interest. At his death, Eumenes bequeathed both his kingdom and his wife to Attalus; and appointed him guardian of his infant son, which trust he faithfully executed. At-

talus commenced his reign in the year 159 B. C. and after a reign of 21 years, distinguished principally by his success in restoring Ariarathes VI. to the throne of Cappadocia, and by his contest with Prusias king of Bithynia, which terminated after alternate defeats and success in the dethronement and assassination of this prince, he died in his 82d year. He was a patron of literature, acknowledged as the founder of two cities in Asia, *viz.* Attalis and Philadelphia, and esteemed much by the Romans, by whom he was considered as one of their most faithful allies.—Attalus III. was the son of Eumenes II. and succeeded his uncle in the year 138 B. C. His disposition was cruel and suspicious, and led him to sacrifice most of his own family, and several persons of distinction in his court, with their wives and children. From his real or affected love for his mother Stratonica, he was denominated *Philometer*. After filling his capital and kingdom with deplorable distress, he retired into solitude, and sequestered from all social intercourse, devoted himself to the culture of a garden, in which he planted a variety of poisonous herbs; and these he occasionally sent in packets, mixed with pulse, to those who were the objects of his gloomy suspicions. This conduct indicates insanity; but it has been ascribed by Varro and Columella to a fondness for horticulture, and the study of medicinal simples; and Attalus has been numbered among those who wrote on these subjects. By the heat and toil which he experienced in the chemical employment of casting a statue of his mother, he was thrown into a fever, which terminated his life and reign in the year 133 B. C. The Roman people were by his testament left the heirs of his goods, which they interpreted to mean his dominions and subjects. Their claim to this rich inheritance was contested, but at length established. The wealth of Attalus seems to have been a proverbial expression, and is frequently alluded to by the Roman poets. *Gen. Biog.* See *PERGAMUS*.

ATTALUS, a Christian martyr, was a native of Pergamus in Phrygia, and fell a sacrifice to persecution at Lyons, in the 17th year of the emperor Marcus Antoninus, and the 177th year of our Lord. In an epistle of the churches of Vienne and Lyons, addressed to the churches of Asia and Phrygia, containing a relation of the sufferings of their martyrs, Attalus is denominated "the pillar and support of the churches there," and a zealous champion for the truth. He was led round the amphitheatre with a board carried before him, on which was inscribed, "This is Attalus the Christian;" whilst the people were incessant in expressing their great indignation against him. For the gratification of the people he was delivered to the wild beasts, and after having been run through with a sword, he was set in an iron chair and burned to death. The conduct of Attalus, as well as that of his fellow-sufferers, manifested a fortitude that was invincible. *Eusebius*, l. v. *Præp. c. i.* *Lardner's works*, vol. vii. p. 425, &c.

ATTALYDA, in *Ancient Geography*, a town of Asia, in Lydia.

ATTAMINATUS, in *Entomology*, a species of *SCARABÆUS*, with the thorax black and glabrous; head tuberculated; wing-cases testaceous, with five black spots on each. *Marsham's Ent. Brit.* Panzer names this little insect *S. inquinatus*, *Ent. Germ.*

ATTAR of *Roses*. See *OTTAR*.

ATTARSOAK, in *Zoology*, a name assigned by Cranz (*Græul. p. 163.*) to the species of *PHOCA*, *groenlandica*, or harp seal of Pennant. See *GROENLANDICA*.

ATTELABOIDES, in *Entomology*, a species of *CARABUS* that inhabits Coromandel, and is about the size of

the European species *leucophthalmos*. It is apterous and black, with a narrow thorax; the posterior part of the head attenuated; wing-cases furrowed and truncated. *Fabricius*.

ATTELABOIDES, a species of *CIRCULIO* that inhabits Brazil. The shells are rough, varied with brown and grey; legs variegated; and thighs clavate. It is thus specifically defined by Fabricius; "rostrum elytrifurcatum tuberculatis;" beak and wing-cases with a single tubercle.

ATTELABOIDES, a species of *RHINOMACER* that inhabits the pine. It is downy; antennæ and legs testaceous. A native of Sweden. *Gmel. &c.*

ATTELABOIDES, a species of *FORMICA* of a black colour; two spines on the thorax; legs ferruginous; posterior part of the head attenuated. *Fabricius*. Inhabits Brazil.

ATTELABOIDES, a species of *CIMEX* (*Reduvius* Sect.), found in New Holland. It is testaceous, varied with black; anterior part of the thorax testaceous, with two black teeth. *Fabricius*. The snout is pale, with a black dorsal line; a black band in the middle of the thorax; anterior margin of the wing-cases black; wings black; body testaceous beneath; thighs annulated with black.

ATTELABUS, a genus of *COLEOPTEROSUS* insects in the Linnæan system, that is distinguished by having the head inclined and pointed behind; antennæ moniliform, and thickest near the end. *Linn. &c.*

Of this genus, *Gmelin* enumerates thirty-four species, including the *Fabrician cleri*, and *spondylides* described in *Spec. Inf.*—*Fabricius* in his *Ent. Syst.* describes thirty-seven species of the attelabi exclusively; his character of the genus is, feelers filiform; jaws bifid; lip horny, concealing the feelers; antennæ moniliform, and situated on the beak.

This genus Linnæus observes is very obscure, the insects arranged under it differing much from one another in their external appearance. But this obscurity a later writer remarks, "proceeds rather from Linnæus not having known a sufficient number of insects proper to be arranged under it; and his placing with those, the species included in the *CLERUS* genus by Geoffroy, in which the generical characters he assigns for his attelabi are not found, than to any defect in the characters themselves." *Scopoli* distinguishes the attelabi by the following character; hinder part of the head gradually diminishing in size; eyes prominent; thorax somewhat broader than the diameter of the head, and of a cylindric form. Among these are included some of the Linnæan *chrysomela*, whose bodies are oblong and narrower than the thorax. The *clerus* of Geoffroy and Scheffer is partly taken from the Linnæan attelabi, and partly from the *dermestes* of that author; the characters they assign it are, antennæ club-formed, and placed on the head; the knob composed of three joints; no proboscis; thorax almost cylindrical, and without margin; soles of the feet spongy.

The body of the insects in the genus attelabus is commonly of an ovate form; the head projecting, ovate, and narrow behind, where it unites with the thorax; the eyes are globose and situated in front; the antennæ short and approximate, moniliform, and composed of eleven joints, of which that at the base is large, and the three at the extremity form an oval of a somewhat lengthened shape; thorax and scutellum are both rodentated; wing-cases as long as the abdomen, and rather convex; legs short and the feet of four joints. The insects of this genus approach very nearly to les brachiceres, les breates, les rhinomacres, les macrocephales, and les bruches of modern French naturalists, but are sufficiently distinguished by their antennæ.

The

The larvæ of the attelabi, according to some writers, are furnished with six feet; are very fat, of a whitish colour, and have an annulated body. The head is protected by a hard scaly covering, and the mouth furnished with two very strong jaws, with which it does great mischief. It attacks the leaves, the flowers, the fruits, and even the stalks and roots of different plants; but most of the species penetrate into the plant, and subsist entirely on the parenchymous or spongy parts within. Preparatory to the transformation to the pupa state, some species spin a silky web, and others form a little ball of a very solid kind, in which they remain during the second state. The perfect insects inhabit the same plants as the larva, but are deemed less injurious to them.

Gmelin, as before observed, describes thirty-four species of this genus: these are coryli, avellanæ, bicolor, denigratus, erythropterus, bipustulatus, gemmatus, indicus, curculionoides, furinamentis, pennsylvanicus, melanuros, angulatus, ruficollis, pubescens, betule, mutillarius, dubius, ichneumonius, formicarius, sphageus, sexguttatus, quadrimaculatus, uninfasciatus, octopunctatus, tricolor, bifasciatus, sipylus, aragnios, apiarius, cyaneus, crabroniformis, ceramiboides, buprestoides; which see respectively.

Obs. A few of the figures in the third entomological plate of this work having been inadvertently misplaced, the insect inscribed g. 15. *attelabus* will be found to belong to another genus, and that marked g. 13. *bruchus* being one of the Linnæan *attelabi*, may serve to illustrate this genus, till another figure can be given.

ATTELEBUSSA, in *Ancient Geography*, an island in the Mediterranean sea, on the coast of Lycia. Ptolemy calls it Attelebusa, and places it on the coast of Pamphylia. Pliny.

ATTELLANÆ. See ATTELLANÆ.

ATTENA, in *Ancient Geography*, a town of Ethiopia, below Egypt. Pliny.

ATTENBY, in *Geography*, a town of Sweden, in the island of Oeland.

ATTENDANT, or ATTENDENT, in a general sense. See ASSISTANT, RETINUE, and SATELLITES.

ATTENDANT, *Attendens*, in *Law*, signifies that one owes duty, or service to another, or depends in some manner upon him.

Where the wife is endowed of lands by guardian, she shall be attendant on the guardian, and on the heir at his full age.

ATTENDORN, in *Geography*, a town of Germany, in the archbishopric of Cologne, and duchy of Westphalia, seated on the river Bigge, and seven leagues south of Arenberg.

ATTENHOVE, a town of Brabant, one league north-east of Landen.

ATTENTION, ATTENTIO, compounded of *ad*, *to*, and *tendo*, *I stretch*, a due application of the ear, or the mind, to any thing said or done, in order to acquire a knowledge of it.

Attention of mind, is not properly an act of the understanding, but rather of the will, by which it calls the understanding from the consideration of other objects, and directs it to the thing in hand. Nevertheless, our attention is not always voluntary: an interesting object seizes, and fixes it beyond all power of control.

It is by the attention that is given to any object of sense or intellect, that we form a distinct notion of it, or discover its nature, its attributes, or its relations; and so great indeed is the effect of attention, that, without it, it is impossible to acquire or retain a distinct notion of any object of thought.

To this purpose it is said, that sir Isaac Newton, when he was complimented upon the force of genius which had made such improvements in mathematics and natural philosophy, made this reply, no less judicious than modest; "that, if he had made any improvements in those sciences, it was owing more to patient attention, than to any other talent." As it is very helpful to memory, if not essential to it, that the perception of the idea which we wish to remember should remain in the mind for a certain space of time, and should be contemplated by itself exclusively of every thing else, we can be at no loss to account for the assistance which the memory derives from attention, which consists partly, if not entirely, in the effort of the mind, to detain the idea or the perception, and to exclude the other objects that solicit its notice. Hence it happens that in solitude, or the stillness of the night, when the attention is undiverted and undistracted by surrounding objects, the impression made by any one object is stronger and deeper: and the memory becomes more retentive. When one faculty of the mind is intensely engaged about any object, the other faculties are laid, as it were, fast asleep; hence a man sees not what is before his eyes, when his mind is occupied about other things. In the tumult of a battle, a man may be shot through the body without knowing any thing of the matter, till he discovers it by the loss of blood or of strength. The most acute sensation of pain may be denuded if the attention be vigorously directed to another object. The anecdote relating to the attention of Archimedes at the siege of Syracuse is well known. (See ARCHIMEDES.) When there is no particular object that draws away our attention, there is a desultoriness of thought in man, and in some more than in others, which makes it very difficult to give that fixed attention to important objects which reason requires. A habit of attention may be acquired by practice; and the study of the mathematical sciences has a peculiar aptitude to direct and fix it. Attention is one of those operations of the mind, which, according to Dr. Reid's distribution (*Essays*, p. 78.), belong to the class of those that are voluntary.

Attention, in respect of hearing, is the stretching or straining of the *membrana tympani*, so as to make it more susceptible of sounds, and better prepared to catch even a feeble agitation of the air. Or it is the adjusting the tension of that membrane to the degree of loudness or lowness of the sound to which we are attentive.

"Sounds," says the celebrated Bacon in his *Natural History*, "are meliorated by the intension of the sense, where the common sense is collected most to the particular sense of hearing, and the sight suspended. Therefore sounds are sweeter, as well as greater, in the night than in the day; and I suppose they are sweeter to blind men than to others; and it is manifest, that between sleeping and waking, when all the senses are blind and suspended; music is far sweeter than when one is fully waken."

ATTENUANTS, in *Medicine*. This term is applied to those medicines which are supposed to possess the power of restoring the concreted parts of a fluid to the same state of fluidity which they possessed before concretion. It is nearly synonymous with *resolvent*. A very reasonable doubt has been entertained, whether there is properly any such attenuating power residing in any medicine, independent either of mere dilution, or else of the stimulant property. The idea, however, of the operation of attenuants is the following:—many of the older physicians, and after them the Boerhaavians, supposed obstruction in the circulating system to be produced by the red blood, or a thinner impervious humour joined with it, stagnating in their proper vessels, or wedged into other vessels of a smaller diameter than

than the sanguiferous by an *error loci*. This, they supposed, would produce a greater motion and heat, owing to the resistance of the vessels, which would incline the humours very much to a state of putrefaction. Of these concretions some are soluble by water alone, such as the saline, saponaceous, and mucous; but others require the dissolving power of certain medicines; and hence in the former case, *diluents* alone are sufficient to remove the obstruction, but in the latter recourse must be had to the *attenuants*. Concretions supposed to be produced by an inflammatory spissitude of the blood, and oily, sebaceous, and calculous concretions, were considered as yielding to the internal use of various salts, such as sal gem, sal ammoniac, and fixed alkali, also soaps, decoctions of the acrid and alkalescent vegetables, and bile (which is a kind of natural soap), all of which were considered as highly attenuating; and the reader will here perceive how closely the experiments of the laboratory were applied to the living animal. Another species of attenuating or resolving remedies was the whole class of mercurial medicines, which are known to produce the most violent flow of saliva and thin fetid humours from the body, the consequence (as was imagined) of the power possessed by this mineral to resolve and break down acrid matter impacted in the glands and minuter vessels.

The term attenuant is not now much employed in its original sense; the alleged cause of obstructions being entirely disputed, as well as the supposed solvent power of these medicines upon the concreted humours, whilst remaining in the vessels of the body.

ATTENUATA, in *Entomology*, a species of *LEPTURA* that inhabits Europe, and is both described and figured by several authors. The wing-cases are attenuated and fulvous, with four black bands; legs testaceous.

ATTENUATA, a species of *BUPRESTIS* that inhabits Rio Janeiro. The wing-cases taper towards the end, terminate in two teeth, and are striated; body brassy-green; beneath coppery. Fabricius.

ATTENUATA, a species of *VESPA* with a ferruginous abdomen, and black petiole, with yellow band. This kind inhabits America. Fabricius, &c. *Olf.* The antennæ are ferruginous, tipped with black; head black, with the lip yellow.

ATTENUATION, compounded of *ad*, and *tenuis*, thin, the act of *attenuating*; that is, of making any fluid thinner and less consistent than it was before.

Attenuation is defined more generally by Chauvin, the dividing or separating of the minute parts of any body, which before, by their mutual *nexus* or implication, formed a more continuous mass.—Accordingly, among alchemists, we sometimes find the word used for pulverization, or the act of reducing a body into an impalpable powder, by grinding, pounding, or the like.

ATTENUATUS, in *Entomology*, a species of *CARABUS*. (*Cycheus attenuatus* Fabr. Append.) This insect is apterous, black, wing-cases rather coppery, with three rows of raised dots; thorax narrow; head very narrow. Panz.

ATTENUATUS, in *Natural History*, a species of *ESCHINORYNCHUS*, described by Müll. Zool. Dan. It is globiferous, with an equal smooth yellow body; and neck sifiform. Sometimes found in the intestines of the flounder. This is *tania longicollis* of Pallas.

ATTENUATUS, *pedunculus*, in *Botany*, denotes a foot-stalk that grows smaller towards the flower.

ATTENY, in *Geography*, a town of India, in the kingdom of Deccan, beautifully situate in a forest of palm-trees, not far from the sea, about twenty two leagues north of Visapour.

ATTERBURY, FRANCIS, in *Biography*, a prelate of eminence in the political and literary world, was born, in 1662, at Milton Keynes near Newport-Pagnel, in Buckinghamshire, where his father, Dr. Lewis Atterbury, was rector. Having passed through a course of grammar learning at Westminster school, he was elected, in 1680, a student of Christ-church college in Oxford. Here he acquired reputation as a classical scholar, and exhibited specimens of his political talents in a Latin version of Mr. Dryden's "Absalom and Achitophel;" an epigram on "A lady's fan," addressed to Miss Osborn, who afterwards was his wife; and a translation of "Two Odes of Horace;" viz. Od. 9. l. iii. and Od. 3. l. iv. These are published in his "Epistolary correspondence." He took his degree of bachelor of arts in 1684, and that of master in 1687; and at this period he first appeared as a controversial writer, by vindicating the reformation, in a piece intitled, "An Answer to some considerations on the spirit of Martin Luther, and the original of the Reformation." Whilst he continued at college, he is thought to have taken a part in the famous dispute between Mr. Bentley and the hon. Mr. Charles Boyle (afterwards earl of Orrery), concerning the genuineness of "Phalaris's Epistles," although his name did not appear on the occasion. The time of his taking orders is not precisely ascertained; but it may be inferred from circumstances that it was either at the close of the year 1690, or in the beginning of 1691. He seems to have been tired of a college life, and thinking himself formed, as he expresses himself, for "another scene, and another sort of conversation," he determined, whenever any favourable opportunity occurred, to leave Oxford. Disappointed in his application for the rectory of Milton, which was the place of his birth, he came to London in 1693, and was appointed one of the chaplains in ordinary to king William and queen Mary, preacher at Bridewell, and lecturer at St. Bride's. His compositions for the pulpit were distinguished by boldness of sentiment and warmth of language, and accordingly they soon commanded attention. One of them, "On the power of charity to cover sin," excited the notice and animadversions of Hoadly; and another, intitled "The scorner incapable of true wisdom," was more acrimoniously censured. In the year 1700 he commenced a controversy with Archbishop Wake, concerning "the rights, powers, and privileges of convocations," which lasted four years, and in the prosecution of which he appeared as an able and ardent advocate for high ecclesiastical authority, and the independence of the church on the state. The learning, ingenuity, and zeal manifested on this occasion, procured from him the thanks of the lower house of convocation, and the degree of doctor in divinity from the university of Oxford. At the commencement of the year 1700, he was installed archdeacon of Totness; and in the progress of it he was engaged with some other learned divines, in revising an intended edition of the Greek testament, with Greek scholia, collected chiefly from the fathers, by Mr. Archdeacon Gregory. The accession of queen Anne, in 1702, was to him a favourable event; and it was soon followed by his appointment as one of her majesty's chaplains in ordinary; and in 1704, he was advanced to the deanery of Carlisle. In 1706, he preached a funeral sermon on 1 Cor. xv. 19. which occasioned a dispute with Hoadly "concerning the advantages of virtue with regard to the present life." In the following year he was appointed one of the canons residentiary of the cathedral at Exeter; and in 1709, his distinguished talents in the pulpit introduced him into the honourable office of preacher at the Rolls chapel. In this year he was engaged in a controversy with Hoadly concerning "Passive obedience;" and in the fol-

ing year he assisted Sacheverell in his famous trial, who recompensed him by a legacy of 500l., and in performing the office of prolocutor to the lower house of convocation. In 1711 he was appointed by the convocation one of the committee for comparing Mr. Whiston's doctrines with those of the church of England; and he was principally concerned in drawing up "A representation of the present state of religion," which, though too exceptionable in its principles, and too virulent in its spirit to be presented to the queen, was nevertheless printed and privately dispersed. In 1712, Dr. Atterbury was made dean of Christ-church; and in 1713 he attained, by the recommendation of the earl of Oxford, the height of his promotion, that of the bishopric of Rochester, and deanery of Westminster. It is said, that he aspired to the primacy; but the death of the queen, in 1714, disconcerted all his projects, and disappointed all his hopes of higher advancement. The accession of George I. was an event which he had reason to deplore. The personal dislike of the king, of which he had mortifying evidence, was retaliated on his part by disaffection to the established government. In the first year of this reign, during the rebellion in Scotland, he, and one other bishop at his instigation, refused to sign the "Declaration" of the bishops; and his name occurs in the most violent protests against the measures of government. Not content with a constitutional opposition, he engaged in a correspondence with the pretender's party, in order to bring about a revolution in favour of the abdicated family; and in August 1722, he was apprehended on this account, and committed to the Tower. Whilst he was under examination, previous to his commitment, he is said to have adopted our Saviour's answer to the Jewish council; "If I tell you, you will not believe me; and if I also ask you, you will not answer me, nor let me go." In the month of March of the following year, a bill was brought into the house of commons for "inflicting certain pains and penalties on Francis bishop of Rochester;" and having passed the commons, it was sent up to the lords for their concurrence. In this house it was strongly opposed, and the bishop, in his defence, made an able and eloquent speech, closing, after a solemn protestation of his innocence, and an appeal to the searcher of hearts, with this memorable declaration: "If your lordships shall proceed to pass this bill against me, I shall dispose myself quietly, and tacitly submit to what you do; God's will be done; *naked came I out of my mother's womb, and naked shall I return*; and whether he gives or takes away, *blest be the name of the Lord!*" At length, however, after a long and very warm debate, the bill passed into a law, and the bishop was condemned to the deprivation of all his offices and benefices, and to perpetual exile. The justice of this sentence, though much litigated at and immediately after the time when it was passed, has been since generally allowed. Of his attachment to the pretender, the following striking instance is related by the author of the Memoirs of Lord Chesterfield, from Dr. Birch's MS. papers. "Lord Harcourt leaving the old ministry, provoked Atterbury's abusive tongue. He, in return, declared, that, on the queen's death, the bishop came to him and to lord Bolingbroke, and said, nothing remained but immediately to proclaim king James. He further offered if they would give him a guard, to put on his lawn sleeves, and head the procession." Of his disaffection to the existing government, many convincing evidences occur; and particularly his conduct towards Mr. Gibbin, a worthy clergyman, and curate of Gravesend, whom he suspended for allowing the use of his church to the chaplain of the Dutch troops, who were called over in 1715 to suppress the rebellion. Atterbury,

in consequence of his sentence, left the country in June, 1723, accompanied by his daughter, Mrs. Morrice, to whom he was affectionately attached, and landed at Calais. From thence he went to Brussels; but being obliged to leave that place, he removed to Paris, where he resided till his death, softening the rigours of exile by study, and conversation and correspondence with learned men. It appears, however, by some letters published at Edinburgh in 1768, of unquestionable authenticity, that he was actively engaged in 1725, in fomenting discontents in the highlands of Scotland, with a view of encouraging another rebellion. In 1729 he lost his daughter, and this afflictive event, which he bore with resignation, is nevertheless thought to have hastened his own dissolution, which happened at Paris, in February 1731. His remains were brought over to England, and privately interred in Westminster-abbey. We cannot forbear inserting, in this place, Mr. Pope's fine epitaph on the bishop, written in the form of a dialogue between his daughter, supposed to be expiring in his arms, immediately after her arrival in France to see him, and himself, and preserved in Pope's Works, vol. iv. p. 58. 8vo. 1776. As to the justice of the compliment, which it pays to his political sentiments, the reader must judge.

Dialogue.

She. "Yes, we have lived,—one pang, and then we part!
May heaven, dear father! now have all thy heart.
Yet, ah! how much we loved, remember still,
Till you are dust like me.—"

He. "Dear shade! I will:
Then mix this dust with thine—O spotless ghost!
O more than fortune, friends, or country lost!
Is there on earth, one care; one wish beside!
Yes, SAVE MY COUNTRY, HEAV'N, he said, and died."

Bishop Atterbury had four children, two sons and two daughters. His son Osborn alone survived him.

Some time before his death the bishop published a vindication of himself, bishop Smalridge, and Dr. Aldrich, from a charge brought against them by Mr. Oldmixon, of having altered and interpolated the copy of lord Clarendon's, "History of the Rebellion." His sermons are extant in four volumes 8vo.: those contained in the two first were published by himself, and dedicated to his great patron, sir Jonathan Trelawney, bishop of Winchester: those in the two last were published after his death by Dr. Thomas Moore, his lordship's chaplain. His epistolary correspondence with Mr. Pope is extant in the collection of that poet's "Letters." Mr. Nichols has lately published in three volumes, 8vo. "The Epistolary Correspondence, Visitation, Charges, Speeches, and Miscellanies of the right reverend Francis Atterbury, D.D. lord bishop of Rochester," with historical notes; the greater part of these volumes is entirely new. From the General Dictionary (vol. ii. 445.) we learn, that Dr. Atterbury is said to have translated "Virgil's Georgics" in English, and to have written an "Harmonia Evangelica." In an elegant dissertation on the fictitious person of Japys, or Japis in the *Æneid*, he attempted to prove that Virgil meant by this person to allude to Antonius Musa, an eminent physician and polite scholar at Rome, in the reign of Augustus; but the attempt does no honour to his critical erudition, and has been deemed futile by judicious commentators. His translations of two odes of Horace, are reputed by a competent judge to have received more than their due share of applause.

As to this prelate's character, however the moral and political part of it may have been differently appreciated by opposite

opposite parties, it is universally agreed, that he was a man of great learning and uncommon abilities, a fine writer, and a most excellent preacher. With respect to Atterbury's public and political character, it "was marked with that turbulent ambition and contentious violence which animated the Becketts and Lauds of former times, and which was ill disguised by the affected mildness and moderation of his epistolary writings." "The turbulent and imperious temper of this haughty prelate," says Dr. Wharton (*Essay on the Writings and Genius of Pope*, vol. ii. p. 432, 433.), "was long felt and remembered in the college over which he presided. It was with difficulty queen Anne was persuaded to make him a bishop; which she did at last on the repeated importunities of lord Harcourt. After her decease, Atterbury occasionally urged his friends to proclaim the Pretender; and, on their refusal, upbraided them with their timidity, with many oaths; for he was accustomed to swear on any strong provocation." From an anecdote related by lord Chesterfield to Dr. Maty, and recorded in "*Maty's Memoirs*" of that nobleman (p. 279.), it has been inferred, that Dr. Atterbury had been long known, among his friends, to be a sceptic, or an unbeliever, with regard to revelation. The anecdote is as follows. "I went to Mr. Pope one morning at Twickenham, and found a large folio bible with gilt clasps lying before him upon his table; and, as I knew his way of thinking upon that book, I asked him jocosely, if he was going to write an answer to it? It is a present, said he, or rather a legacy, from my old friend the bishop of Rochester. I went to take my leave of him yesterday in the Tower, where I saw this bible upon his table. After the first compliments, the bishop said to me, my friend Pope, considering your infirmities, and my age and exile, it is not likely that we should ever meet again, and therefore I give you this legacy to remember me by it.—Does your lordship abide by it yourself?—I do.—If you do, my lord, it is but lately. May I beg to know, what new light or arguments have prevailed with you now, to entertain an opinion so contrary to that which you entertained of that book all the former part of your life?—The bishop replied, we have not time to talk of these things; but take home the book; I will abide by it; and I recommend to you to do so too, and so God bless you!" This single story, however, not only uncorroborated, but contradicted by other facts, is not sufficient to warrant the charge of scepticism against this prelate. Whatever were his faults, he does not appear to have disbelieved or even doubted the truth of Christianity. His actions and writings exhibit the fiery zealot and bigot rather than the infidel; though it must be acknowledged, that these characters may be united in the same person. His sermons on the miraculous propagation of the gospel, and on a standing revelation's being the best means of conviction, besides other discourses, furnish important and pleasing evidences of his attachment to the Christian religion. It ought also to be considered, that he generally treats unbelievers with contempt, as an ignorant, superficial, and conceited set of men; which he would scarcely have done if he had been of the same sentiments. For though a man may conceal, or deny, or even persecute the opinions which he himself holds, it is not very likely that he should appear to despise the retainers of them. Besides, there is an ardour of affectionate esteem in Mr. Pope's two last letters to Dr. Atterbury (*Pope's Works*, vol. v. p. 351—355.), written to him when he was in the Tower, which that eminent poet, who valued himself upon his moral character, could not well have expressed to the bishop, if he had known that he had acted the base and hypocritical part of publicly professing and defending that religion which he privately

disavowed. Not to add, that he actually derived much of his consolation in adversity from his religious principles. His correspondence with Dr. Wall and bishop Potter, preserved in Nichols's publication, fully proves his belief in, and his zeal for, the honour of the Christian revelation; and the testimony, derived from his private correspondence and from the uniform tenour of his life and writings, ought surely, with impartial and candid judges, to outweigh the evidence deduced from a single story, however well authenticated. In his letters to Mr. Pope, and to his other correspondents, bishop Atterbury appears in a very pleasing light, both as a writer and a man. In ease and elegance, these letters are superior to those of Mr. Pope, which are more studied. If we were to form our judgment of him, as a man, from these letters, we should incline to think that it was his sole wish to spend his life in a learned and elegant social intercourse with a few private friends; and yet numerous facts sufficiently shew, that nothing could be more distant from his real disposition and character, and that he was actuated in early life and in the progress of his years, by a restless and turbulent ambition. His panegyrist, bishop Smalridge, in the speech which he made, upon presenting him to the upper house of convocation, as Prolocutor, represents him as "*Vir in nullo literarum genere hospes, in plerisque artibus et studiis diu et feliciter exercitatus, in maxime perfectis literarum disciplinis perfectissimus: i. e.*" "one, who is well acquainted with all parts of literature, long and successfully exercised in most arts and studies, and most accomplished in those sciences which admit of the greatest perfection." Although it is allowed, that he was sometimes too severe upon his adversary, and dealt rather too much in satire and invective, yet this is imputed by his panegyrist more to the natural fervour of his wit, than to any bitterness of temper, or premeditated malice. As a composer of sermons and a preacher, he excelled his cotemporaries, and in this respect few English authors have attained to so high a rank. Of his character, as a preacher, the following encomium is bestowed upon him by the author of the "*Tatler*" (N^o. 66; who, having observed that the English clergy too much neglect the art of speaking, makes a particular exception with regard to this prelate. "Atterbury," says he, "has so particular a regard to his congregation, that he commits to his memory what he has to say to them; and has so soft and graceful a behaviour, that it must attract your attention. His person, it is to be confessed, is no small recommendation, but he is to be highly commended for not losing that advantage, and adding to the propriety of speech (which might pass the criticism of Longinus), an action which would have been approved by Demosthenes. He has a peculiar force in his way, and has many of his audience, who could not be intelligent hearers of his discourse, were there not explanation as well as grace in his action. This art of his is used with the most exact and honest skill. He never attempts your passions, till he has convinced your reason. All the objections, which you can form, are laid open and dispersed, before he uses the least vehemence in his sermon; but when he thinks he has your head, he very soon wins your heart, and never pretends to shew the beauty of holiness, till he has convinced you of the truth of it." Dr. Blair (*Lectures on Rhetoric*, &c. vol. ii. p. 127—155.), says of this prelate, that he is deservedly accounted one of our most eloquent writers of sermons. "At the same time," he adds, "he is more distinguished for elegance and purity of expression, than for profoundness of thought: his style, though sometimes careless, is, upon the whole, neat and chaste; and more beautiful than that of most writers of

sermons. In his sentiments, he is not only rational, but pious and devotional, which is a great excellency." Dr. Warton (*ubi supra*, p. 435.), thinks, that Atterbury was, on the whole, rather a man of ability, than a genius; and that he writes more with elegance and correctness, than with any force of thinking or reasoning. Biog. Brit. Gen. Dict.

ATTERBURY, *Lewis*, the elder brother of the bishop, was born at Caldecot, in the parish of Newport-Pagnel in 1656, and after finishing his grammatical education under Dr. Busby at Westminster school, removed to Christ church college, Oxford, in 1674. In 1695, he was elected preacher to the chapel at Highgate, in the neighbourhood of London; and in 1707, he was presented by the queen to the rectory of Shepperton, in Middlesex. In 1719, he was collated to the rectory of Horsey, in Middlesex, in which parish the chapel of Highgate is situated. Upon application to his brother for the archdeaconry of Rochester, he was refused; probably more from a mean opinion of his talents, than from delicacy. However, he sustained the character of an useful parish priest, annexing the profession of physic, which he studied for the benefit of his poor parishioners, to the clerical character; and he acquired the reputation of a plain, solid, useful preacher. At the age of seventy he had a stroke of the palsy, and died at Bath in the year 1731. He published several sermons, which formed two volumes, and other pieces; and since his death, two volumes of his sermons have been published, in consequence of his testamentary directions, by Mr. E. Yardley, archdeacon of Cardigan. Dr. Atterbury was intimately acquainted with archbishop Tillotson, formed his style of preaching on his model, and published a defence of him against the attack of an Irish priest. Biog. Brit.

ATTERKLAA, in *Geography*, a town of Germany, in the archduchy of Austria, six miles north-west of Entzerstorff.

ATTERMINING, in our *Old Writers*, is used for a time or term granted for payment of debt, according to Blount.

ATTEN, in *Geography*, a town of Hindoostan, in the country of Agra, thirty-eight miles S.S.E. of Agra, and thirty-nine north-east of Gwalior.

ATTESTATION, compounded of *ad*, *to*, and *testis*, *witness*, the giving testimony or evidence of the truth of any thing; especially in writing.

ATTESTATION of *Deeds*, in *Law*. See DEED.

ATTESTATION of *Devises*. See DEVISE.

ATTHIS, in *Ornithology*, a species of GRACULA, called by Hasselquist *corvus Ægyptius*; and by Latham, the *Egyptian grackle*. The colour of this bird is greenish; belly ferruginous; legs sanguineous. Gmelin. It inhabits Egypt, as the synonymous names imply; and is believed to live on centipedes, scorpions, and other insects, the remains of such having been found in the stomach.

It is about the size of a lark; bill dull black, reddish at the base; eye blueish; head rather flattened at the top; upper parts of the plumage deep green, spotted with blue-green on the crown, hind part of the neck, and the shoulders; neck and back of the same deep green, but not spotted. On each side of the neck and back is a longitudinal broad line, the fore-part of which is ferruginous, the rest of a whitish lucid blue; throat whitish; tail nearly even at the end, and of a deep blue colour; claws blackish. Lath. Gen. Syn.

Among the ancients, the name of atthis was given to some bird at present not very accurately known. By Aldrovandus, and other naturalists, the same name has been also

assigned to birds altogether different from the present species.

ATTIA, in *Geography*, a town of Persia, ten leagues south of Kin.

ATTIC, something relating to Attica, or the city of Athens. In matters of *Philology*, we use, Attic salt, *sales Attici*, meaning a delicate, poignant kind of wit and humour, peculiar to the Athenian writers. Attic witness, was a witness incapable of corruption: so an Attic muse was an excellent one; &c.

ATTIC Dialect, in *Grammar*, one of the four Grecian dialects, which was used in Athens and the adjoining country. Those who have chiefly distinguished themselves in this dialect, are Thucydides, Aristophanes, Plato, Isocrates, Xenophon, and Demosthenes. Its general properties are, that it affects contractions of syllables in the same word, and also the joining of words; it often changes σ into ξ, ε, and τ, as ξυνηγορῶ for συνήγορῶ, *prudent*, διατρεφω for διατρω, *to confide*, and πράττω for πρᾶσσω, *to do*; it casts away ι from ωι and ει, as κλαω for κλαιω, *to weep*, and πλεω for πλειω, *more*; it changes ο into ω, as νεωσ for νεως, *a temple*; it joins εν to the end of words, giving it a circumflex accent, as ὅτι, *what*; and it annexes ι to the end of adverbs, as ὡν, *now*. Besides, the Attics have several phrases peculiar to themselves. Port Royal Greek Grammar, vol. ii. p. 332, &c.

ATTIC, or *Attic Story*, in *Architecture*, a low story erected over an order of architecture, to finish the upper part of a building. It is so called because supposed to have been first used in Attica; but whether it was originally employed to conceal the roof, or from some reasons of convenience in the internal distribution, does not clearly appear; what has been mentioned respecting it by ancient authors being very obscure. There is no instance of an Attic among the existing antiquities of Athens. In Italy it is met with in the triumphal arches, and in the forum of Nerva.

It has been much employed by the moderns, and particularly by the Italian architects. But the rules which they give for its proportions are various, some making it in height equal to one half, and others to one third of the principal order. It is usually decorated with pilasters, and frequently with basso-relievos, in the spaces between; or there are windows in these spaces. The pilasters are sometimes plain, and sometimes have a sunk pannel, or other ornaments. They have no diminution, nor have they any peculiar base or capital, the mouldings at the top and bottom of the Attic continuing round the pilasters. In the arch of Constantine at Rome there are statues placed over the columns of the principal order, immediately before the pilasters of the Attic; and this has frequently been imitated in modern buildings.

ATTIC Story is also frequently applied to the upper story of a house, constructed in a roof, when there is no order of architecture employed in its decoration.

ATTIC Order. This term has been by some authors used to denote the pilasters that are employed to decorate an Attic story. Pliny, after enumerating the other orders, says, "Præter hæc sunt quæ vocantur Atticæ columnæ quaternis angulis pari laterum intervallo." But how these square columns were formed is very uncertain, since we have no remains of columns which are known to have been of the kind here described; and Vitruvius makes no mention of them. The Attic of the forum of Nerva corresponds most with Pliny's description, there being projections that come forward from the attic over the detached columns, faced with square pilasters, whose sides are nearly equal in width to their fronts. It seems improper, however, to call this an order of architecture, as it has no peculiar parts essentially

tially constituting an order, such as capital, base, entablature, &c.

ATTIC or Atticurgic Base. Vitruvius, lib. iii. cap. 3. speaking of the bases of columns, says, "This done, the bases are fixed in their places, and are so proportioned that, including their plinth, they have in height half the thickness of the column; and in projection, which the Greeks call *εκπόρις*, they should have one quarter of the thickness of the column; so that their breadth and length will be once and a half the thickness of the column. Their height, if they are to be in the Attic mode, is so divided, that the upper part is one third of the thickness of the column, and the remainder is left for the plinth. The plinth being excluded, the remaining part is divided into four parts, and the upper torus has one of them; the remaining three parts are equally halved, and one half makes the lower torus, and the other the scotia, which the Greeks call *τροχιλος*, with its squares."

This kind of base is frequently found in the ancient examples of the Ionic and Corinthian orders, both Greek and Roman, but the proportion of its parts varies in almost every different example. We sometimes also meet with astragals between the toruses and fillets, and all its mouldings are in Roman architecture, frequently covered with ornaments. This base is extremely beautiful, and has been much employed by modern architects, who have, though very improperly, applied it also to the Doric order, or rather to the order which has long been called Doric by the moderns. See **Doric Order**.

For an example of the Attic base we refer the reader to **Plate XVI. of Architecture**.

ATTIC or Atticurgic Door. Vitruvius, lib. iv. cap. 6. says, in speaking of doors, that "they are of three kinds, Doric, Ionic, and Attic." And he afterwards proceeds to describe the manner of forming the Attic door, concluding with this remarkable passage, "These rules, which are practised in the composition of Doric, Ionic, and Corinthian temples, I have explained as well as I have been able, according to the approved methods;" intimating thereby, that he has applied the term Attic only as relating to the Corinthian order.

ATTIC Year. See **YEAR**.

ATTICA, in *Ancient Geography*, one of the eight districts into which Achaia was divided, anciently called *Attæ*, *Attæa*, and *Athia*. Plin. l. iv. c. 7. Pausan. in Attic. c. 11. Mela, l. ii. c. 3. This country is a kind of peninsula of a triangular form, bounded on the north by Bœotia and the gulph of Euripus, on the west by Megaris, on the south by the Saronic gulph, and on the east by part of the Ægean sea; and extending from north-west to south-east about eighty miles with decreasing breadth, but at an average about fifty miles, so that its area is considerably less than that of Yorkshire. This little country, every where intersected with rocks and mountains, is by nature extremely barren. The sterility of the soil requiring assiduous industry to produce the common necessaries of life, rendered the territory much less inviting to plundering or conquering invaders than the fruitful lands in other parts of Greece. Hence Thucydides observes, in his Introduction to his History, that a much greater portion of its inhabitants was aboriginal than those of neighbouring divisions. The physical deficiencies of Attica tended to invigorate the intellectual and moral energies of the people; and a political establishment happily adapted to the circumstances and characters of the citizens, cherished and improved the genius and spirit from which it sprung. A region less extensive and naturally productive than North Wales, was transcendent in the arts of war and of peace, and repelled the chosen myriads of the most potent monarch. Inspired by freedom, this little body made the

gigantic despot of the East tremble on his throne, and left monuments of military achievements, springing from liberty and patriotism, and guided by wisdom, which have only been surpassed by the tranquil and pacific efforts of its genius in the various departments of the arts, literature, and philosophy.

Though in the early periods of their history, they were little subject to foreign invasions that sought to dispossess them of their habitations, their maritime exposure opened the way to emigrations of sea-faring adventurers who sought establishments, not by exterminating and enslaving the natives, but by conciliating them through an interchange of benefits. The first navigators recorded in history to have visited the Autoclitones, or aboriginal possessors of Attica, came from the mother country of erudition and science. Cecrops, an Egyptian (B. C. 1556), led a colony of his countrymen into Greece, (See Strabo, lib. ix.) The colony of Cecrops derived its origin from the city of Sais, in Egypt. The adventurers who composed it had quitted the banks of the Nile, to withdraw themselves from the tyranny of an inexorable conqueror; and after a tedious voyage, reached the shores of Attica, at all times inhabited by a people whom the fierce nations of Greece had disdained to bring under the yoke. Their sterile fields offered no plunder, nor could their weakness inspire any dread. Habituated to the enjoyments of peace, free without knowing the value of independence, rude rather than barbarous, they must have united themselves without difficulty to strangers instructed by misfortune. In a short time, the Egyptians and the inhabitants of Attica, formed but one people; the former, however, assumed over the latter that ascendancy which sooner or later invariably attends superiority of knowledge; and Cecrops, placed at the head of the united people, conceived the noble design of bestowing happiness on his adopted country.

The ancient possessors of these lands yearly saw a regular succession of the wild fruits of the oak, and relied on nature for a reproduction which secured their annual subsistence. Cecrops first engaged the wandering hunters or shepherds of Attica to unite in villages of husbandmen. Corn, wine, and oil, rewarded their useful labours; and these productions, being acquired by common toil, were regarded, with the ground itself, as a common property. The idea of an exclusive and permanent right to all the uses of a piece of land, whether belonging to communities or to individuals, is one of the most interesting steps in the progress of society. In Attica, this invaluable right was immediately followed by such institutions as tended to secure its enjoyment, and to check the injustice of man, who is seldom willing to acquire by slow labour what he can ravish by sudden violence. The salutary influence of religion was employed on this important occasion. With agricultural property religious rites were introduced, and Cecrops instituted sacrifices to the attributes of wisdom and of power under the names and sensible representations of Minerva and Jupiter. He is also by some historians said to have taught his subjects the art of navigation; to have instituted the areopagus, and to the institution of civil rights to have added the punishment of crimes. Aware of the advantages which might be derived from union of effort, Cecrops proposed to facilitate it by contiguity of residence; he induced his subjects to collect and secure themselves within a wall, and laid the foundation of Athens. He placed this new city on a hill in the midst of a large plain, and built the citadel on the rock in which the hill terminated; this prince reigned fifty years. For an abstract of the history of this country, and other particulars relating to it, see **ATHENIANS**, and **ATHENS**.

The

The chief city of Attica, next to Athens, was ELEUSIS. Rhamnus was famous for the temple of Amphiaræus and the statue of Nemesis. The principal river was ASOPUS; as to the Ilissus, Eridanus, and Cephissus, they were rather brooks than rivers; but Attica, having a number of havens, was less in want of rivers. The riches of this kingdom, according to Thucydides (l. ii.) occasioned by its frugality and commerce, are said to have amounted to 1200 Attic talents a year; hence it was enabled to maintain a powerful army and navy, and thus to extend its possessions. The coin of Attica was commonly stamped with the figure of an ox, and this circumstance gave occasion to the phrase frequent among the Greeks, of a thing being worth 10 or 100 oxen; and hence also arose the common proverb "bovem habet in lingua," when a man was thought bribed to speak contrary to his own sentiments. But the wealth, strength, and population of Attica, were principally displayed in the number of tribes, amounting to thirteen, into which it was divided, and the great number of cities and towns belonging to each tribe.

ATTICHY, in *Geography*, a town of France in the department of the Oise, and chief place of a canton in the district of Compiègne. The place contains 830 and the canton 12,621 inhabitants: the territory includes 267½ kilometres and 22 communes.

ATTICUS, HERODES TIBERIUS CLAUDIUS, in *Bio-graphy*, was descended of a noble family, which traced their pedigree as high as Cimon and Miltiades, and born at Marathon in the territory of Athens. His father, Julius Atticus, was reduced to a low condition by the proscription of his father; but by the accidental discovery of a treasure in his house, he was unexpectedly raised to the possession of affluence. Dreading the event of this discovery he communicated it to the emperor Nerva, who empowered him to use it at his pleasure; and on a second representation, that it was too large for a private person, the emperor renewed his licence, adding that if it was too large for use, he might abuse it, if he pleased, for it was his own. Atticus having increased his wealth by marriage, lived at Athens with very singular magnificence, giving to the people frequent largesses, and offering to the gods very splendid sacrifices. Whilst he had the command of the free cities in Asia, in the time of Adrian, he perceived that the city of Troas wanted water, and he obtained of this emperor a grant of three millions of drachmas, in order to defray the expence of procuring the necessary supply; but the charge of executing his project for this purpose amounted to seven millions of drachmas instead of three, and the additional expence he defrayed out of his own fortune. The great wealth of Atticus enabled him to make very liberal provision for the education of his son, Herodes; and accordingly he employed Scopelian, one of the most eminent orators of the age, as his instructor, and rewarded him liberally for his services. Herodes possessed distinguished talents, which he cultivated with diligence; and his attention was principally directed to the study of rhetoric. In this science, as it was then practised, he made great proficiency; and such were the ardour of his pursuit, and his ambition of gaining applause, that when he was deputed at an early age to address a speech to the emperor Adrian, who was then in Pannonia, the young orator is said to have failed in the attempt, and to have been almost urged by shame and despair to throw himself into the Danube. The misfortune, however, served only as an incitement to future diligence. Having finished his attendance in the schools of rhetoric, Herodes returned to his own country, and delivered public lectures, which were popular and much frequented by the sophists, philosophers, and rhetoricians of the age, who were

munificently rewarded for their attendance and applause. The liberality of Herodes was, however, somewhat imposed upon and abused. Aulus Gellius, who was himself a disciple of Herodes, mentions one instance to this purpose. A man with a cloak, long hair, and a beard down to his waist, presented himself to the orator, and supplicated alms. Being interrogated who he was, the pretended philosopher indignantly replied, that he was a philosopher, and expressed surprise at the question. "I see," replied Herodes, "the cloak and the beard, but I do not see the philosopher." One of the company interposed, and observed, that this person was an impudent beggar, who spent his time in the tavern, and insulted those who refused to relieve him. "Well then," said Herodes, "let us give as men, though not as to a man;" *tanquam homines non tanquam homini*.

The fame of Herodes having extended through Greece, and even to Rome, he was appointed by the emperor Titus Antoninus the preceptor of eloquence to his two sons Marcus Aurelius and Lucius Verus; and being there introduced into the way of promotion, he was created consul in the year 143. About this time he was appointed prefect of the free cities of Asia, and president at the Panhellenia and Panathenian games, at which he was crowned. On this occasion he erected the stadium, 600 feet in length, and formed of white marble, a most sumptuous work, of which some remains are still visible. He also constructed a magnificent theatre at Athens, called Regillum, in honour of his wife Regilla; he also repaired and beautified the odeum of Pericles; and decorated many other places in Greece and Asia with useful and ornamental works. He likewise consecrated rich offerings in the temples at Athens, Delphos, Olympia, Pisa, and other places. To this liberal and even profuse expenditure of his wealth it is owing, that his name has not sunk into oblivion; as the productions of his eloquence, some of which existed in the time of Philostratus and Suidas, have been all lost. Notwithstanding these displays of his public spirit, and the benefits he bestowed on his country, his influence excited jealousy; and two brothers, named Quintillii, who commanded in Greece, seized occasion for transmitting complaints against him to the emperor Aurelius. Herodes presented himself before the emperor, but instead of employing his eloquence for the purpose of conciliation, he rudely reproached him with a predetermination to ruin him. An officer, who stood by, exclaimed, that this insolence merited death. "A man of my age," said Herodes, "does not fear death." The mild emperor contented himself with punishing the freedmen of Herodes; who himself retired to Attica; and attempting by a letter to Aurelius to regain his kindness, the emperor returned a friendly answer. Herodes was again mortified by a charge of having been accessory to the death of his wife, preferred against him before the senate by his brother, who had been consul; but he was acquitted. In token of his sorrow for her loss, he erected to her memory a statue, bearing an inscription, still subsisting. The close of his life was spent at Marathon, where he died at the age of 76; and his countrymen honoured him with a public funeral at Athens. Crevier's Hist. Emp. vol. vii. p. 250, &c. Mem. de l'Acad. des Inscript. vol. xxx. Gen. Biog.

ATTICUS, TITUS POMPONIUS, a Roman knight, lived in the latter period of the Roman republic, and acquired great celebrity from the splendour of his private character. He inherited from his father, and from his uncle Q. Cæcilius, who adopted him, great wealth; and availed himself of his liberal education to such a degree, that he was exhibited as a pattern to his school-fellows, among whom were the younger Marcus and Cicero. When he attained maturity, the republic was disturbed by the factions of Cinna

and

and Sylla; but endowed with a peculiar suavity of manners, which made him uniformly averse from civil contentions, he retired to Athens with a great part of his property, and there devoted himself to study, and particularly to Grecian literature, in which he excelled his cotemporaries of his own country. At Athens he became popular by his conciliatory disposition and conduct, by the liberal distribution of his money, and by his charity to the poor and distressed. The Athenians wished to confer on him the honour of a citizen, which he declined; and though during his abode with them, he would not suffer them to erect statues to him, they testified their respect in this way immediately on his departure, an event which occasioned a general mourning through the city. The surname of *Atticus*, which he acquired from his attachment to this city, and his familiarity with its language and manners, became his usual appellation during his life, and continued to distinguish him in after ages. At a distance from the scene of political contention, he interested himself in the welfare of his friends; and at the risk of displeasing the triumphant party, he served a friend in distress, for he assisted young Marius, when declared a public enemy, by supplying him with money to escape from his enemies. He even occasionally made journeys to Rome to support his friends in contested elections, and embraced every opportunity that occurred of serving those who needed his assistance. To Cicero he was particularly attached, partly from affinity, as his sister Pomponia was married to Quintus Cicero, but chiefly from similarity of disposition; and he supplied him with money in the time of his exile; and also intimate with Hortensius, the rhetorical rival of Cicero, he exerted himself in preserving a good understanding between them. When Rome was in a tranquil state, it was the place in which Atticus chose to reside; but he never engaged in public business. He availed himself of none of the opportunities that occurred of increasing his fortune; whilst he was honoured with a nomination to public offices, he disregarded the emoluments accruing from them. He never engaged in a law-suit, nor was ever concerned in an accusation as the principal, or second. He never bid for estates at public auctions, or in any way partook of the spoils of the unfortunate. When the war broke out between Cæsar and Pompey, Atticus was sixty years old; and his age was a plea of which he availed himself for not taking part with either; and by his subsequent conduct he offended neither the one nor the other. After the death of Cæsar, whose favour he had conciliated, he successfully opposed the establishment of a private treasure for the use of the party which had taken him off, though he was upon very intimate terms with Brutus. Nevertheless, when Brutus and Cassius were obliged to leave Italy, he supplied Brutus with a large sum of money. He afterwards exerted himself to the utmost of his power in favour of Antony and his family. Upon the return of Antony from his retreat, and when every friend of the republican party was exposed to great danger, Atticus withdrew into a place of refuge; and though Antony was urged to destroy him, he remembered his obligations to his benefactor, assured him by a letter written with his own hand of his safety, and appointed a guard for his protection. In this season of distress, Atticus succoured the fallen party, and supplied the necessities of those who, under proscription, had fled to Epirus, out of his own estates; and he shewed no less respect to Servilia the mother of Brutus, after the death of this patriot, than he had done during his prosperity. His family afterwards became allied to the imperial family by the marriage of his daughter with M. Agrippa, the friend and favourite of Octavius, who formed with Atticus an

intimate acquaintance, and communicated to him all his movements and designs. While Antony lived, an intimate correspondence was carried on between him and Atticus. Thus from the first to the last, he maintained the character of "the general friend of all parties, in all fortunes." The conduct by which this character was acquired and maintained, has not escaped censure; and Atticus has been charged with a neutrality and indifference, with regard to public concerns, which was dishonourable and criminal. To his Epicurean principles, which he imbibed at Athens under Phædrus and Zeno the Sidonian, some have ascribed the peculiarities of his temper, and the resolution by which he seems to have been actuated, that amidst the fluctuation and vicissitudes of political events he would maintain a composed and tranquil mind. But others have attributed his discriminating character to natural disposition and early habits, more than to any speculative principles. In domestic life, as well as in the more extended circle of social intercourse, he possessed a degree of self-command, which, all circumstances considered, appears to have been very extraordinary and singular. The temper of his uncle Cæcilius was intolerably perverse, and yet Atticus humoured it in such a manner that he retained his favour to the last, and inherited the greatest part of his very large fortune. With his mother, who died at the age of 90, when he was 67 years old, and with his sister, who was nearly of the same age with himself, he lived with a harmony so uninterrupted, that he never had occasion to be reconciled to the former, nor ever had any quarrel with the latter. By his own patrimony and his uncle's bequest, he was master of a large fortune, which he expended with liberality. His mode of living corresponded to his affluence, and to his taste and habits, as a man of literature and philosophy. His domestics were select, but not numerous; several of them had been born and brought up in his own family; and many of them were in one way or other, as readers or copyists, employed to the purposes of literature. His table was elegant, but not costly. Reading was always an accompaniment of the supper; and he had no guests to whom such an entertainment was not acceptable. In his enjoyments he was moderate; in his studies, which formed a great part of his occupation, he was particularly attached to inquiries relative to the antiquities of his country; its laws, treaties, customs, and the genealogies of its illustrious families. On these subjects he wrote several treatises, which were held in high estimation. His poetical talents were employed in concise descriptions of the characters and actions of illustrious men, which were placed under their statues. He wrote in Greek a history of the consulate of his friend Cicero. Of the writings of Atticus, none remain; but we have a large number of the letters of Cicero, addressed to him, and written from the year of his consulship almost to the time of his death. These letters are confidential, and contain a variety of curious particulars; both political and literary. Atticus having attained to the age of 77, with little interruption of health, was seized with a disorder of the intestines, which terminated in a painful and incurable ulcer. Apprized of the danger of his case, he communicated to his son-in-law Agrippa, and other friends, his resolution of putting a period to a life that was no longer valuable to himself and others. Unmoved by their remonstrances, he determined to abstain from food; and though his fever left him and his pain abated, after an abstinence of two days, he persisted in his purpose, and on the fifth day, death closed the scene, in the year of Rome 721, B.C. 33. *Corn. Nepos in Vit. Attici. Gen. Dict. Gen. Biog.*

ATTICUS, a Platonic philosopher, lived under the emperor M. Aurelius, and took pains in ascertaining the precise difference

ence between the doctrines of Plato and those of Aristotle. Eusebius has preserved several fragments of his works, in which he argues against Aristotle, concerning the ultimate end of man, providence, the origin of things, the immortality of the soul, and other topics. Plotinus, of the Eclectic school, held the writings of Atticus in high estimation, and recommended them as very useful for obtaining an accurate knowledge of the Platonic system. Atticus pronounced it impossible for those who had imbibed the Peripatetic notions, to elevate their minds to a capacity of understanding a relishing the sublime conceptions of Plato. Euseb. Chron. sub. Aurel. A. 170. Prep. l. xv. c. 4, &c. Fab. Bib. Græc. v. ii. p. 54.

ATTICUS, a patriarch of Constantinople in the fifth century, was a native of Sebastia in Armenia, and having received his education among the Macedonian monks, became first presbyter, and afterwards, viz. in 406, patriarch of the church of Constantinople. But having seized this see while John Chrysostom was living, he was excommunicated by pope Innocent I. and the western bishops. However, on the death of Chrysostom he was again restored, on condition of replacing his name in the diptychs, or list of the archbishops of Constantinople, whose names were recited at the altar, as having died in the communion of the church. Atticus is extolled for his learning, prudence, and piety; for the gentleness of his temper and manners; for his zeal against the Nestorians; and for his charity to the poor, without discrimination of religious party and profession. He died in the year 427. Whilst he was presbyter, he committed his sermons to memory; but when he became a bishop he preached extempore. Of his writings there are extant "A Letter to Cyril of Alexandria," on the restoration of the name of Chrysostom in the diptychs (apud Nicephor. Hist. Eccl. l. xiv. c. 26.); "A Letter to Calliopius, presbyter of the church at Nice," accompanying 300 crowns sent to the poor of that city (Socrat. l. vii. c. 25.); and another (in Nicephor. ubi supra) addressed to the deacons of the church of Alexandria, concerning the means of restoring peace to the church. He also wrote a book "On Faith and Virginity," dedicated to the daughters of Arcadius, and cited by Cyril in his book to the empresses. Socrat. H. E. l. vii. c. 2. Sozom. H. E. l. viii. c. 27. Cave, H. L. vol. i. p. 384.

ATTIDIUM, now ATTIGIO, in *Ancient Geography*, a city of Umbria, situated between Sentium, Camerinum, and Matilica, near the sources of the river Æsis. Pliny calls the inhabitants Attidites. Several ancient inscriptions have been found in the vicinity of Attigio.

ATTIGNY, in *Geography*, a town of France, and seat of a tribunal, in the department of Ardennes, and chief place of a canton in the district of Vouziers: two leagues north-west of Vouziers, and six south of Mezieres. The place contains 950, and the canton 6136, inhabitants: the territory includes 105 kilometres and 15 communes.

ATTILA, in *Biography and History*, king of the Huns, and by the modern Hungarians denominated "The Scourge of God," was the son of Mundzuk, and deduced his descent from the ancient Huns, who had formerly contended with the monarchs of China. Indeed the modern Hungarians have traced his genealogy upwards, in the thirty-fifth degree, to Ham, the son of Noah. At the death of Rugilas, A. D. 433, his two nephews, Attila and Bleda, succeeded to the throne of their ancestors. Having concluded an humiliating peace with the emperor Theodosius II., they extended their arms towards the north with so much success, as to reduce all the nations between the Danube and the Euxine under their dominion. Under pretence of an offence

given them by the Romans, they made an irruption into the eastern empire, took several towns on the south of the Danube by storm, defeated several imperial armies, and laid waste the whole adjacent country with fire and sword. Theodosius, thinking himself insecure at Constantinople, retired into Asia, and was glad to purchase an inglorious peace. At this time the two nephews of Rugilas shared the government of the Huns; but Attila, whose ambition admitted of no partnership in power, caused Bleda to resign both his sceptre and his life, and acquired the sole sovereignty of the nation and its dependent territories. The extent of his empire affords the only evidence of the number and importance of his victories. If a line of separation were drawn between the civilized and the savage climates of the globe; between the inhabitants of cities, who cultivated the earth, and the hunters and shepherds who dwell in tents; Attila might aspire to the title of supreme and sole monarch of the Barbarians. He alone, among the conquerors of ancient and modern times, united the two mighty kingdoms of Germany and Scythia, in their most ample latitude; Thuringia, extending to the Danube, was in the number of his provinces; he interposed with the authority of a powerful neighbour, in the domestic affairs of the Franks; and one of his lieutenants chastised, and almost exterminated, the Burgundians of the Rhine. He subdued the islands of the ocean, the kingdoms of Scandinavia, encompassed and divided by the waters of the Baltic; towards the east his dominion extended over the Scythian deserts to the banks of the Volga; and he sent ambassadors to negotiate an equal alliance with the empire of China. He also reckoned among his subjects the numerous and warlike tribes of the Gepide and Ostrogoths. "The crowd of vulgar kings, the leaders of so many martial tribes, who served under the standard of Attila, were ranged in the submissive order of guards and domestics, round the person of their master. They watched his nod; they trembled at his frown; and, at the first signal of his will, they executed, without murmur or hesitation, his stern and absolute commands. In time of peace, the dependent princes, with their national troops, attended the royal camp in regular succession; but when Attila collected his military force, he was able to bring into the field an army of five, or, according to another account, of 700,000 Barbarians." The portrait of Attila, says Jornandes, a Gothic historian, exhibits the genuine deformity of a modern Calmuck; with a large head, a swarthy complexion, small deep-seated eyes, a flat nose, a few hairs in the place of a beard, broad shoulders and a short square body, of nervous strength, though of a disproportioned form. His haughty step and demeanour expressed conscious superiority; and by fiercely rolling his eyes, he seemed to enjoy the terror which he inspired. Nevertheless, this savage hero was not inaccessible to pity; his suppliant enemies might confide in the assurance of pardon and peace; and Attila was regarded by his subjects as a just and indulgent master. His delight was war, and he indulged his passion for it to the destruction of myriads. Apprized of the influence of superstition over ignorant and savage minds, he availed himself of it, as a collateral and useful instrument for the accomplishment of his purposes. Accordingly he pretended to have discovered, by means of a shepherd, the famous sword of the Scythian Mars; and being in possession of this, he asserted his divine and indefeasible claim to the dominion of the earth. As the favourite of Mars, whom he propitiated by bloody rites and sacrifices, Attila soon acquired a sacred character, which rendered his conquests more easy and more permanent; and the Barbarian princes confessed, in the language of devotion, or of flattery, that they could not presume to gaze, with

with a steady eye, on the divine majesty of the king of the Huns. In his garb and mode of living, the king of the Huns affected no peculiar distinction, but rigidly adhered to the simplicity of his Scythian ancestors. His dress, his arms, and the furniture of his horse, were plain, without ornament, and of a single colour. The royal table was served in wooden cups and platters; flesh was his only food; and the conqueror of the north never tasted the luxury of bread. His palace, though it surpassed all other houses in his dominions, was built entirely of wood; and it contained, within a pallisadoed inclosure, a variety of separate buildings, appropriated to his numerous wives. When the Roman ambassadors were introduced into the private apartment of Cerca, the principal queen, she received their visit, reclining on a couch; her domestics formed a circle round her; and her damsels, seated on the ground, were employed in working the variegated embroidery which adorned the dress of the Barbaric warriors. The other wives of Attila politely admitted them to their presence and table, nor was there any appearance among them of the rigid and illiberal confinement imposed by Asiatic jealousy. When these ambassadors had audience of Attila himself, he was surrounded by a formidable guard; and when they were invited to the royal feast, they had reason to praise his politeness and hospitality. On this occasion the company were diverted by a variety of buffooneries, which produced loud and licentious peals of laughter; but Attila himself maintained an inflexible gravity, and never relaxed his features except on the reception of his favourite son, Irmac, who, by the assurance of his prophets, was to be the future support of his family and empire. Thus did this powerful monarch live familiarly among his people, and pride himself in trampling upon the pomp and parade of kings and emperors.

After the last peace with Theodosius, Attila sent various embassies, with complaints and threats, to Constantinople; and, to the dishonour of the imperial court, a base design was formed, with the privity and sanction of the emperor, of murdering Attila, under the disguise of a solemn embassy. The conspiracy was discovered, and the king of the Huns, with a singular moderation, contented himself with exacting a large ransom for the immediate agent in the business, and with severely reprimanding Theodosius. The treaty with the eastern emperor was renewed, at the expense of fresh payments. On the accession of Marcian, in 450, Attila's demand of tribute was refused; upon which he sent a threatening message to the emperors of the east and west, which was delivered by his envoys in these terms: "Attila, my lord, and thy lord, commands thee to provide a palace for his immediate reception." He proposed, however, to direct his arms, in the first instance, against Valentinian III. a weak and unwarlike prince. The pretext of this hostility was founded on the following circumstance. Honoria, the sister of Valentinian, having dishonoured herself by an intrigue with her chamberlain, was banished to the court of Constantinople. Here she found means to send an offer of her person to Attila, with a ring, and an urgent request that he would march and claim her for his spouse. These overtures were at first received with coolness on the part of Attila, but afterwards conceiving that he might derive advantage from them, he made a formal demand of Honoria, with an equal share of the imperial patrimony, before he proceeded on his intended irruption into Gaul. His demand was refused, and Honoria was married to an obscure person in Italy, and there consigned to perpetual imprisonment. Attila, professing to be satisfied with respect to Honoria, entered Gaul, under a pretence of making war upon Theo-

doric, king of the Visigoths, in Languedoc. With this view he assembled, in 451, an immense army of northern Barbarians, and without opposition crossed the Rhine. In his progress through Gaul, he desolated the country, pillaged and burnt several cities, and at length laid siege to Orleans. Here he was overtaken by the armies of Theodoric, and of the empire, under count Ætius, who obliged him to retire. After the bloody battle of Chalons, he marched without molestation to the confines of Thuringia, where he passed the Rhine, and continued his progress to Pannonia. At the commencement of the following year, Attila, having recruited his forces, passed the Alps, entered Italy, and invested Aquileia, which he utterly destroyed. He then ravaged Lombardy, sacked and reduced to ashes many of their towns; and thus, by means of the fugitives who fled from the terror of his name, was unintentionally instrumental in laying the foundation of the Venetian republic. Valentinian, incapable of resistance, fled from Ravenna to Rome, and sent a deputation to Attila, at the head of which was Leo, bishop of Rome, for the purpose of deprecating his wrath, and proposing terms of accommodation. Attila consented to leave Italy, on the payment of a very large sum, as the dowry of the princess Honoria, and an annual tribute. But this was only a temporary truce; as he threatened to return the next year, if Honoria and her dowry were not punctually transmitted to him. Attila, however, did not long survive his return into his own country. Having added to the number of his wives a beautiful young virgin, whose name was Ildico, he celebrated his marriage with great pomp and festivity at his wooden palace beyond the Danube; and, oppressed with wine and sleep, he retired at a late hour to the nuptial bed. In the night a blood-vessel burst, and as he lay in a supine posture, he was suffocated by a torrent of blood. His attendants found the trembling bride sitting by the side of the bed, hiding her face with a veil, and lamenting the death of the king, as well as her own danger. His body was exposed in the midst of the plain, under a silken pavilion; and "the chosen squadrons of the Huns, wheeling round in measured evolutions, chaunted a funeral song to the memory of a hero glorious in his life, invincible in his death, the father of his people, the scourge of his enemies, and the terror of the world. According to their national custom, the Barbarians cut off a part of their hair, gashed their faces with unseemly wounds, and bewailed their valiant leader as he deserved, not with the tears of women, but with the blood of warriors. The remains of Attila were inclosed within three coffins, of gold, of silver, and of iron, and privately buried in the night; the spoils of nations were thrown into the grave; the captives who had opened the ground were inhumanly massacred; and the same Huns, who had indulged such excessive grief, feasted with dissolute and intemperate mirth about the recent sepulchre of their king." The death of Attila is commonly dated in the year 454; by some in 453. With him the empire of the Huns terminated; for, after his death, his numerous sons either destroyed one another by their mutual contests, or were dispossessed by those bold chieftains who aspired to the rank of kings. Anc. Un. Hist. vol. xviii. p. 144—159. Gibbon's Hist. vol. vi. p. 40—135.

ATTILE, ATTILUM, in *Antiquity*, denotes the rigging or furniture of a ship. Fleta, l. i. c. 25.

ATTILUS, in *Ichthyology*, a term synonymous with adella, adano, and adalus Autorum; and applied by Pliny and Rondeletius to the variety β of the Linnæan *acipenser sturio*, or common sturgeon.

ATTINGA AMERICANA, in *Ornithology*, a name by which

which Briss. calls the pinnated grouse of the Arctic Zoology, and *tetrao cupido* of Gmelin.

ATTIRE, in *Botany*, is used by some to denote the third part or division of the flower of a plant; the other two being the *empalement* and the *foliation*.

The attire is of two kinds, *semiform* and *florid*.—The semiform attire consists of two parts; chives or stamens, and summits or apices, one upon each stamen.

The florid attire is usually called the thrums, as in the flowers of marygold, tansey, &c. Those thrums are called suits, which consist of two, but most times of three pieces. And the outer part of the suit is the floret, whose body is divided at the top like a cowslip flower, into five parts, or distinct leaves.

ATTIRE, in *Heraldry*, signifies a single horn of a stag.

ATTIRE, in *Hunting*, denotes the head or horns of a deer. The attire of a stag, if perfect, consists of bar, pearls, beam, gutters, antler, fur-antler, royal, fur-royal, and croches:—of a buck, of the bar, beam, brow-antler, advancer, palm, and spellers.

ATTIRED, in *Heraldry*, a term used in speaking of the horns of a stag, hart, or buck.

ATTIRES, are both the horns of a stag, hart, or buck.

ATTITUDE, in *Painting* and *Sculpture*, the posture or gesture of a figure or statue; or such a disposition of their parts, as seems to express the action and the sentiments of the person represented. See MECHANICAL MOTION of the *Human Figure*, and *Composition*, and *Contrast*, under the article SCULPTURE.

ATTIUM, in *Ancient Geography*, a promontory on the western coast of the island of Corsica; now called *Punta di Acciaolo*.

ATTLEBOROUGH, in *Geography*, a township of America, in Bristol county, Massachusetts, eighty-two miles south from Boston, and nine north from Providence.

ATTLEBURGH, a town of England, in Norfolk, distant N.N.E. from London ninety-four miles.

ATTMELLA. See Acmella.

ATTNANG, in *Geography*, a town of Germany, in the archduchy of Austria, one mile W.S.W. of Schwannstadt.

ATTOCK, a city and fortress of Hindoostan, on the eastern bank of the Indus, built by Acbar, in 1581, to command the pass that leads from Cabul to Lahore. This pass is so confined, either by the nature of the banks, or of the channel of the river, or both, that the passage from the landing place leads through the very fortress itself. The ancient Taxila, where Alexander crossed the Indus, stood on or near to the site of Attock. N. lat. 33° 6'. E. long. 71° 15'. That part of the river Indus, called also Nilab and Sinde, that separates the province of Lahore from Paislawur, is denominated the Attock, probably from the city founded on its banks. At Attock, the river Cabul, after receiving the rivers of Sewad, Bijore, &c. joins the Indus, and very considerably increases it. For though the Indus is sometimes fordable above Attock, and Mr. Forster actually forded it at twenty miles above this place, July 10th, 1783; we never hear of its having been forded below that point. "From Attock downwards to Moultan, or to the conflux of the Panjab waters, this river (says Major Rennell) has obtained the name of Attock;" but spoken of generally, it is called Sinde.

ATTOLLENS, compounded of the Latin *ad, to*, and *tollo, I lift*, in *Anatomy*, a name common to several muscles, whose office or action is to raise the parts they belong to.

The attollent muscles are otherwise called *levators* and *elevators*.

ATTOLLENS *Musculus Aurem*, is a thin broad muscle connected at its upper part to the tendon of the fronto-occipitalis, and at the lower to the pinna of the ear opposite to the antihelix. Its use is to draw the external ear upwards, and to render it tense. This muscle is called *superior auris* by Winslow.

ATTOMBISSEUR, in *Ornithology*, a term by which the French falconers distinguish those falcons which will attack the heron in its flight; such a bird they call *un bon attombisseur*.

ATTORE, in *Geography*, a town of Hindoostan, in the Mysoor country, fifty-four miles north of Trichinopoly, and twenty-nine N.N.W. of Rajanagur.

ATTORNARE, in the original sense, signified to turn over money and goods, that is, to assign and appropriate them to certain persons, or use. This is properly called *attornare rem*. *Attornare personam* denotes to depute a representative, or proxy, to appear and act for another.

ATTORNATO *faciendo vel recipiendo*, in the *Common Law*, a writ to command a sheriff, or steward, of a county-court, or hundred-court, to receive and admit an attorney to appear for the person that oweth suit of court. F. N. B. 156. Every person that owes suit to the county-court, court-baron, &c. may make an attorney to do his suit. Stat. 20 H. III. c. 10.

ATTORNEY, ATTORNATUS, in *Law*, a person appointed by another to do something in his stead, particularly to solicit and carry on a law-suit.

The word is compounded of the Latin *ad, to*, and the French *tourner, to turn*, q. d. *to turn a business over to another*. The ancient Latin name, according to Bracton, is *responsalis*.

An attorney is either public, in the courts of records, the king's bench, common pleas, &c. and made by warrant from his client; or private, upon occasion for any particular business, who is commonly made by letter of attorney.

Attorneys, in *Common Law*, are much the same with procurators, proctors, or syndics, in the *Civil* and *Canon Law*.

Attorneys are properly those who sue out writs or process, or commence, carry on, and defend actions, or other proceedings, in the names of other persons, in any of the courts of common law.—They are distinguished from *solicitors*, who do the like business in courts of equity; as the chancery, equity-court in the exchequer, chamber-court of the duchy, or the like.

Formerly every suitor was obliged to appear in person to prosecute or defend his suit, according to the old Gothic constitution, unless by special licence under the king's letters patent. F. N. B. 25. This is still the law in criminal cases. Nor can an idiot appear to this day by attorney, but in person; because he is supposed not to have sufficient discretion for appointing a proper substitute; and upon his being brought before the court in so defenceless a condition, the judges are bound to take care of his interests, and they shall admit the best plea in his behalf that any one present can suggest. But as in the Roman law "*cum olim in usu fuisset, alterius nomine agi non posse, sed, quia hoc non minimam incommoditatem habebat, ceperunt homines per procuratores litigare*," (Inst. 4. tit. 10.); so with us, upon the same principle of convenience, it is now permitted, in general, by divers ancient statutes, of which the first is stat. Westm. 2. c. 10. (13 Ed. I. A. D. 1285.) that attorneys may be made, as if they had letters patent, to prosecute or defend any action in the absence of the parties to the suit. These attorneys are now formed into a regular corps; they are admitted to the execution of their office by the superior courts of

of Westminster-hall; and are in all points officers of the respective courts in which they are admitted; and as they have many privileges on account of their attendance there, so they are peculiarly subject to the censure and animadversion of the judges. No man can practise as an attorney in any of those courts, but such as is admitted and sworn an attorney of that particular court; an attorney of the king's bench cannot practise in the court of common pleas; nor *vice versa*. To practise in the court of chancery, it is also necessary to be admitted a solicitor therein; and by the stat. 22 Geo. II. c. 46. no person shall act as an attorney at the court of quarter sessions, but such as has been regularly admitted in some superior court of record. With respect to the several courts, there are attorneys at large, and attorneys special belonging to this or that court only. An attorney may be a solicitor in other courts by a special retainer; one may be an attorney on record, and another do the business; and there are also attornies who manage the business out of the courts. So early as the statute 4 Hen. IV. c. 18. it was enacted that attorneys should be examined by the judges, and none admitted but such as were virtuous, learned, and sworn to do their duty. And many subsequent statutes have laid them under farther regulations. By 3 Jac. I. c. 7. attorneys, &c. shall not be allowed any fees laid out for counsel, or otherwise, unless they have tickets thereof signed by them that receive such fees, and they shall give in true bills to their clients of all the charges of suits under their hands, before the clients shall be charged with the payment thereof. If they delay their client's suit for gain, or demand more than their due fees or disbursements, the client shall recover costs and treble damages; and they shall for ever after be disabled to be attorneys. None shall be admitted attorneys in courts of record, but such as have been brought up in the said courts, or are well skilled, and honest; and no attorney shall suffer any other to follow a suit in his name, on pain of forfeiting 20 l. to be divided between the king and the party aggrieved. By 12 Geo. I. c. 29. if any person who hath been convicted of forgery, perjury, subornation of perjury, or common barratry, shall practise as an attorney or solicitor in any suit or action in any court, the judge where such action shall be brought hath power to transport the offender for seven years, by such ways and under such penalties as felons. The act 2 Geo. II. c. 23. ordains that all attorneys shall be sworn, admitted, and inrolled, before they sue out writs in the courts of Westminster; and they are required to have served a clerkship of five years, and to be examined, sworn, and admitted in open court; and attorneys shall not have more than two clerks at one time, except the prothonotaries in the common pleas, and the secondary in the king's bench, and the several prothonotaries in the counties palatine and great sessions in Wales, each of whom may have three. Attorneys, upon being sworn and admitted, shall pay a stamp-duty, by several acts, of 16 l. When the attorney's bills are taxed, he is to pay the costs of taxation, if the bill be reduced a sixth part. A penalty of 50 l. and disability to practise, are the consequences of acting contrary to this statute. By stat. 6 Geo. II. c. 27. attorneys of the courts at Westminster may practise in inferior courts. By 12 Geo. II. c. 13. attorneys, &c. that act in any county-court, without admission according to the statute 2 Geo. II. c. 23. shall forfeit 20 l.; and no attorney who is a prisoner, shall sue out any writ, or prosecute suits; if he doth, the proceedings, &c. shall be void, and such attorney, &c. shall be struck off the roll. By 22 Geo. II. c. 46. persons bound clerks to attorneys or solicitors are to cause affidavits to be made and filed of the execution of the articles, names,

and places of abode of attorney or solicitor, and clerk; and none to be admitted till the affidavits be produced and read in court. Clerks are actually to serve during their whole time, and make affidavits thereof. Persons admitted sworn clerks in chancery, or serving a clerkship to such, may be admitted solicitors. By 23 Geo. II. c. 26. any person duly admitted a solicitor, may be admitted an attorney without any fee for the oath, or any stamp; and by stat. 2 Geo. II. c. 23. § 20. attorneys may be admitted solicitors. By 25 Geo. III. c. 80. every admitted attorney, solicitor, notary, proctor, agent, or procurator, shall annually take out a stamped certificate, with a five pound stamp within the bills of mortality, and three pound elsewhere, from the courts in which they practise, on penalty of 50 l. and incapacity of practising. By 34 Geo. III. c. 14. every person who shall become bound to serve as a clerk in order to his admission as a solicitor or attorney in any of the courts at Westminster, shall be charged an additional stamp-duty of 100 l. And in any of the courts of great session in Wales, or in the counties of Chester, Lancaster, or Durham, or in any court of record in England holding pleas, where the debt or damage shall amount to 40 s. and not in any of the said courts at Westminster, a stamp duty of 50 l. And by the several stamp acts, if the consideration money given with such clerk or apprentice be under 10 l. a stamp duty of 10 s. If above 10 l. be given by 37 G. III. c. 3. 10 s. more. The indenture shall be inrolled, and affidavit shall be made within six weeks. Persons who have paid the duty of 100 l. in any of the courts at Westminster, may be admitted in any of the other courts without payment of any further duty. New contracts with other masters are subject to no further duty. The privileges belonging to attorneys are as follow: an attorney, in respect of his attendance at the court, cannot be pressed for a soldier; but he is not privileged from serving in the militia, or finding a substitute: an attorney shall not be made constable, nor be elected into any other office against his will; as to the office of overseer of the poor, or churchwarden, or any office within a borough. Attorneys have the privilege to sue and be sued only in the courts at Westminster, where they practise; they are not obliged to put in special bail, when defendants; but when they are plaintiffs, they may insist upon special bail in all bailable cases. 1 Vent. 299. Wood's Inst. 450. But an attorney of one court may, in that court, hold an attorney of another court to bail. Payment to the attorney is payment to the principal. Dougl. 623. 1 Black. R. 8. An attorney has a lien in the money recovered by his client, for his bill of costs; if the money come to his hands, he may retain to the amount of his bill. He may stop it *in transitu*, if he can lay hold of it; if he apply to the court, they will prevent its being paid over until his demand is satisfied. If the attorney give notice to the defendant not to pay till his bill be discharged, a payment by the defendant after such notice would be in his own wrong, and like paying a debt which has been assigned after notice. Dougl. 238.

Attorneys are liable to be punished in a summary way, either by attachment, or having their names struck out of the roll, for ill practice, attended with fraud and corruption, and committed against the obvious rules of justice and common honesty; but the court will not easily be prevailed upon to proceed in this manner, if it appears that the matter complained of was rather owing to neglect or accident than design, or if the party injured has other remedy by act of parliament, or action at law. 12 Mod. 251. 318. 440. 583. 657. 4. Mod. 367. If an attorney, defendant in an action, does not appear in due time, the plaintiff may sign a "*forejudger*," which enables him to strike the defendant

off the roll, and then he may be sued as a common person (ft. 2 Hen. IV. c. 8.), and cannot be proceeded against by bill. On making satisfaction to the plaintiff, an attorney so forejudged may be restored. Impey's Instructor Clerical, C. P. 521.

Attorneys are sometimes struck off the roll on their own application, for the purpose of being called to the bar, &c.; and in this case they must be disbarred by their inn, before they are re-admitted attorneys. Dougl. 144. An attorney convicted of felony is struck off the roll. Cowp. 829. Attorneys are also liable to be punished for base and unfair dealings towards their clients in the way of business, as for protracting suits by little shifts and devices, and putting the parties to unnecessary expence, in order to raise their bills; or demanding fees for business that was never done; or for refusing to deliver up their clients' writings with which they had been intrusted in the way of business, or money which has been recovered and received by them to their clients' use, and for other such like gross and palpable abuse. 2 Hawk. P. C. 144. 8 Mod. 306. 12 Mod. 516.

ATTORNEY of the Duchy Court of Lancaster, attornatus curie ducatus Lancastrie, is the second officer in that court; being there, for his skill in law, placed as assessor to the chancellor of the court, and chosen for some special trust reposed in him, to deal between the king and his tenants. Cowel.

ATTORNEY-General, is a great officer under the king, made by letters patent. It is his province to exhibit informations, and to prosecute for the crown, in matters criminal; and to file bills in the Exchequer, for any thing concerning the king in inheritance or profits; and others may bring bills against the king's attorney. His proper place in court, upon any special matters of a criminal nature, in which his attendance is acquired, is under the judges, on the left hand of the clerk of the crown; but this is only upon solemn and extraordinary occasions; for usually he does not sit there, but within the bar in the face of the court.

ATTORNEY, Letter of. See LETTER.

ATTORNEY, Warrant of. See WARRANT.

ATTOURNMENT, or *ATTORNMENT*, a transferring of duty and service to another lord; or an acknowledgment which a tenant makes of homage and service to a new lord.

By the nature of the feudal connection, it was not thought reasonable nor allowed, that a feudatory should transfer his lord's gift to another, and substitute a new tenant to do the service in his own stead, without the consent of the lord; and, as the feudal obligation was considered as reciprocal, the lord also could not alienate his seignory without the consent of his tenant, which consent of his was called an "*attornment*." This doctrine of attornment was afterwards extended to all lessees for life or years. For if one bought an estate with any lease for life or years standing out thereon, and the lessee or tenant refused to attorn to the purchaser, and to become his tenant, the grant or contract was in most cases void, or at least incomplete (Lit. §. 551.): which was an additional clog upon alienations. But after the statute "*quia emptores terrarum*" (18 Ed. I. ft. 1.), was passed, by which subinfeudation was prohibited, it became necessary that when the reversion or remainder-man after an estate for years, for life or in tail, granted his reversion or remainder, the particular tenant should attorn to the grantee. The necessity of attornment was, in some measure, avoided by the statute of uses (27 Hen. VIII. c. 10.), as by that statute, the possession was immediately executed to the use; and by the statute of "*Wills*" (34 & 35 Hen. VIII. c. 5.), by which the legal estate is immediately vested in the devisee.

Attornments, however, still continued to be necessary in many cases; but both their necessity and efficacy are now almost wholly taken away; for by stat. 4 & 5 Ann. c. 16. it is enacted, that all grants and conveyances of manors, lands, rents, and reversions, &c. by fine or otherwise, shall be good, without the attornment of the tenants; but notice must be given of the grant to the tenant, before which he shall not be prejudiced by the payment of any rent to the grantor, or for breach of the condition for non-payment. And by stat. 11 Geo. II. c. 19. attornments of lands, &c. made by tenants to strangers claiming title to the estate of their landlords shall be null and void, and their landlord's possession not affected thereby; though this shall not extend to vacate any attornment made pursuant to a judgment at law, or with consent of the landlord; or to a mortgagee on forfeited mortgage. Till these statutes were passed, the doctrine of attornment was one of the most copious and abstruse points of the law. But these acts having made attornment both unnecessary and inoperative, the learning upon it may be deemed almost entirely useless. 1 Inst. 309. Jacob's Law Dict. by Tomlyns, tit. *Attornment*.

ATTOWAI, in *Geography*. See ATOOI.

ATTRACTION, in *Natural Philosophy*, a general term used to denote the power or principle, by which all bodies mutually tend towards each other, without regarding the cause or kind of action that may be the means of producing this effect.

The existence of a principle of this kind is so clearly manifested by many of the most common phenomena of nature, which fall under our daily inspection, that it must have been known in very early times; but the information we have hitherto obtained of the progress made by the ancients in physical investigations, is too vague and obscure to afford any proof of their ever having applied the action or influence of this power to the purposes of science. The philosopher Anaxagoras, who flourished about 500 years before the Christian æra, is reported, by Diogenes Laertius, to have attributed to the celestial bodies a tendency towards the earth, which he considered as the centre of their motions; and the doctrines of Democritus and Epicurus are founded upon the same principle, as appears from their elegant interpreter Lucretius, who thence derives the consequence of the universe being without bounds. But though some bold and original characters had embraced these opinions, it is no less certain, from the testimonies of other writers, that they were far from being generally received in the ancient world.

The first, among the moderns, who appears to have had just notions of this doctrine, was Nicholas Copernicus, the celebrated restorer of the old Pythagorean system of the universe; who in his work "*De Revolut. Orb. Cælest.*" (lib. i. c. 9.), expresses himself thus: "I consider gravity as nothing more than a certain natural appetite (*appetentia*) that the Creator has impressed upon all the parts of matter, in order to their uniting and coalescing into a globular form for their better preservation; and it is probable that the same power is also inherent in the sun, moon, and planets, that those bodies may constantly retain that round figure in which we behold them." He also considered the sun as the chief governing power of all the rest, as may be inferred from some of the last words of Tycho Brahe, who perceiving the approach of death, called for the celebrated Kepler (then a young man, and his assistant in his observatory at Prague), and after charging him with completing the Astronomical Tables which he had left unfinished, thus addressed him: "My friend, although what I ascribe to a voluntary, and as it were, an obsequious motion of the planets round the

A T T R A C T I O N.

the fun, you attribute to an attractive energy of that body, yet I must entreat, that, in the publication of my observations, you would explain all the celestial motions by my hypothesis, rather than by that of Copernicus, which I know you would otherwise incline to follow." (Life of Tycho Brahe.)

Kepler, however, in his own works, constantly maintains the doctrine of attraction, and even carries it farther than Copernicus had ever done. Thus, he calls gravity "a corporeal and mutual affection between similar bodies, in order to their union." He also remarks, with Copernicus, against the Peripatetics, that "the heavenly bodies do not tend to the centre of the universe, but to the centre of those larger round bodies, of which they make a part; so that if the earth were not spherical, things would not fall from all points towards its centre. If a stone, for instance, were to be placed at a distance from another stone, in any part of the universe, without the sphere of action of a third body like two magnets, they would come together in some intermediate point; each advancing, in space, in the inverse proportion of their quantities of matter. Hence, if the moon and the earth were not kept asunder by some power, in their respective orbits, they would move towards each other; the moon passing over fifty-three parts of the way while the earth passed over one, supposing their densities equal." (Astron. Nov. in Introduct.)

From the same principle, Kepler also accounted for the general motion of the tides; viz, by the attraction of the moon, and expressly calls it *virtus tractoria quæ in luna est*; adding, that if the earth did not exert an attractive power over its own waters, they would rise and rush to the moon. We also find him suspecting that certain irregularities in the motion of the moon are owing to the combination of the earth and sun upon this body. (Ibid.)

These and other reflections concerning the universality of attraction, he accompanies with an ingenious anticipation of a law of nature, from conjecture only, but which was afterwards verified by experiment. The schools had taught that some bodies were by their nature heavy, and so fell to the ground; and that others were naturally light, and for that reason ascended. But Kepler pronounced, that no bodies whatever are absolutely light, but only relatively so; and consequently that all matter is subject to the law of gravitation. So far the genius of Kepler was fortunate, in tracing out the great principle which prevents the planets from flying off from the sun; but his sagacity failed him, when he endeavoured to shew by what means they were kept from falling into that immense body, and what power perpetuated their motion in their orbits: a general investigation of the laws of motion was yet wanting; the discovery of which, as well as many other things, being reserved, as he himself prophesies at the end of his work, "for the succeeding age, when the Author of nature would be pleased to reveal these mysteries."

The first person in this country, who embraced the doctrine of attraction, was Dr. Gilbert, a native of Colchester, and a physician at London, in a work published in the year 1600, intitled, "*De Magnete Magneticisque Corporibus*;" which contains a number of curious things; but he did not properly distinguish between attraction and magnetism. The next after him was lord Bacon, who, though not a convert to the Copernican system, yet acknowledged an attractive power in matter (Nov. Organ. lib. ii. aprior. 36. 45. & 48.); and in the dawn of philosophy, in which he lived, he constantly recommends an inquiry into the physical causes and reasons of things; observing, "that he who shall duly attend to the appetences and general affections of matter (which

both in the earth and heavens are exceedingly powerful, and indeed pervade the universe) will receive, from what he sees passing on the earth, clear information concerning the nature of the celestial bodies; and, contrariwise, from motions which he shall discover in the heavens, will learn many particulars relating to the things below, which now he concealed from us." (De Dign. & Augm. Scient. lib. iii. c. 4.)

In France, also, we find Fermat and Roberval, mathematicians of great eminence, maintaining the same opinion. The latter, in particular, made it the fundamental principle of his system of physical astronomy, which he published in 1644, under the title of "*Arist. Samii de Mundi System.*" In this work, Roberval attributes to all the parts of matter of which the universe is composed, the property of having a tendency towards each other; observing, that this is the reason why they arrange themselves in spherical figures, not by virtue of a centre, but by their mutual attractions, and so that one may be placed in an equilibrium with another. Galileo, in Italy, had likewise conceived this idea; but with far less precision and extension than we find it in his contemporaries Bacon and Kepler.

But no one, before Newton, had entertained such just and clear notions of the doctrine of universal gravitation, or had approached so near to the making a general application of it to the laws of nature, as the celebrated Dr. Hooke. The philosophers before mentioned had seized, some one branch, and some another; but Hooke, in his work, called "*An Attempt to prove the Motion of the Earth*," 1674, 4to., appears to have embraced it in nearly the whole of its generality. He there observes, that the hypothesis upon which he explains the system of the world, is, in many respects, different from all others; and which is founded upon the three following principles: 1. That all the celestial bodies have not only an attraction or gravitation towards their proper centres, but that they mutually attract each other within their sphere of activity. 2. That all bodies which have a simple and direct motion, continue to move in a right line, if some force, which operates without ceasing, does not constrain them to describe a circle, an ellipse, or some other more complicated curve. 3. That attraction is so much the more powerful, as the attracting bodies are nearer to each other.

He also made several experiments with a view to strengthen the preceding conjectures. For this purpose, he suspended a bullet to the end of a long string, and after it had been made to oscillate, he impressed upon it a small lateral motion; and remarked, that the bullet described an ellipse, or a curve of that form, round the vertical line. He then attached to the string of the first bullet, another, which carried a smaller one; and after having given to the latter a circular motion round the vertical line, he put the other in motion, as in the former experiment; when it was found, that neither one nor the other described an ellipse, but moved round a point at a mean distance between them, which appeared to be their centre of gravity. (Life of Dr. Hooke, prefixed to his posthumous works.)

This was certainly very ingenious; but Hooke did not consider that the centre of force resides in one of the foci of the ellipse, and not in its centre; and though the observation was suggested to him, and he was even excited by the promise of a very considerable reward, to determine the law of attraction, which would occasion a body to describe an ellipse round another quiescent body, placed in one of its foci, he was unable to accomplish the undertaking. The problem, which belongs to the higher geometry, was too difficult for that time; this admirable discovery, which does the highest honour to the human mind, being reserved for the

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the genius of Newton ; and though Hooke claimed a share of the glory of this discovery, it was without the smallest foundation ; as his conjectures were far short of the proofs which were required in the sublime demonstration by which the former established this law of the universe.

Such was the progress of the system of universal gravitation, when this extraordinary man first appeared ; who, according to Pemberton (*View of sir Isaac Newton's Philosophy*, 1725, 410.), first began about the year 1666, to suspect the existence of this principle, and to attempt to apply it to the celestial motions. Having retired into the country to avoid the plague, which about this time prevailed in London and its vicinity, his meditations turned upon the nature of gravity ; and one of his first reflections appears to have been, that this power, which, by its continual action, occasions the fall of bodies towards the surface of the earth, to whatever height they are taken, might possibly extend much farther than was commonly imagined ; as for instance, to the distance of the moon or still higher. And if so, he began to consider that it might be this force which retained the moon in her orbit, by counterbalancing the centrifugal force which arises from her revolution round the earth. It also occurred to him at the same time, that though this power appears to suffer no diminution at any heights to which we can ascend, these being comparatively extremely small, yet it was highly probable, that, at very great distances from the earth, it might be considerably weakened.

In following therefore this conjecture, he was farther led to conceive, that if the attraction of the earth was the cause of retaining the moon in her orbit, the planets, in like manner, must be retained in their orbits by the attractive force of the sun ; and as the squares of the times of the revolutions of the planets had been found by Kepler to be proportional to the cubes of their mean distances from the sun, it followed that the diminution of their centrifugal forces, and of course that of gravity, would be reciprocally as the squares of their distances from that body. Hence, from the experiments which had been already made on the descent of heavy bodies at small elevations, he determined the height from which the moon, if left freely to herself, would descend towards the earth in a short interval of time : this is well known to be the versed sine of the arc that she describes in that time ; and which, by means of the lunar parallax, may be determined in parts of the earth's radius ; so that to compare the diminution of gravity with the observations, nothing more was necessary than to know the magnitude of this line.

But Newton, having at that time only an incorrect measure of the terrestrial meridian, obtained a result considerably different from that which he expected ; whence, imagining that some unknown forces might be connected with the gravity of the moon, he abandoned his first ideas. Some years afterwards, however, his attention was again called to the subject by a letter of Dr. Hooke ; and as Picard, about this time, had measured a degree of the earth in France with great exactness, he employed this measure in his calculations instead of the one he had before made use of, and found, by that means, that the moon is retained in her orbit by the sole power of gravity, supposed to be reciprocally proportional to the squares of the distances.

According to this law, he also found that the line described by bodies in their descent is an ellipse, of which the centre of the earth occupies one of the foci ; and considering, afterwards, that the orbits of the planets are, in like manner, ellipses, having the centre of the sun in one of their foci, he had the satisfaction to perceive, that the solution which he had undertaken, only from curiosity, was applicable

to some of the most sublime objects of nature. These discoveries gave birth to his celebrated work entitled, "*Philosophiæ Naturalis Principia Mathematica*," which appeared in 1677 ; and is justly considered as one of the greatest monuments that has ever been erected by human genius to the honour of science.

In generalising these researches, this profound geometer afterwards shewed, that a projectile may describe any conic section whatever, by virtue of a force directed towards its focus, and acting in proportion to the reciprocal squares of the distances. He also developed the various properties of motion in these kinds of curves, and determined the necessary conditions, so that the section should be a circle, an ellipse, a parabola, or an hyperbola, which depend only upon the velocity and primitive position of the body ; assigning, in such case, the conic section which the body would describe. He also applied these researches to the motion of the satellites and comets, shewing that the former move round their primaries, and the latter round the sun, according to the same law ; and he pointed out the means of determining, by observation, the elements of these ellipses.

In considering that the satellites move round the planets in nearly the same manner as if these planets were quiescent, Newton perceived that they must all equally gravitate towards the sun. The equality of action and re-action did not allow him to doubt that the sun gravitates towards the planets, as well as these towards their satellites ; and that the earth is attracted by all the bodies that are attracted towards her. He afterwards extended, by analogy, this property to all the parts of which bodies are composed, and established it as a principle, that every molecule of matter attracts every other body in proportion to its mass and reciprocally as the square of the distance from the body attracted.

Having arrived at this principle, Newton soon saw that all the great phenomena of the system of the world might be easily derived from it. In considering the force of gravity at the surface of the celestial bodies as the *resultante* of the attractions of all their molecules, he arrived at these remarkable conclusions : that the attractive force of a body, or spherical stratum, on a point placed without it, is the same as if the whole of its mass was united in the centre ; and that a point placed within the body, or more generally in any stratum terminated by two similar elliptical surfaces, similarly situated, is equally attracted on all parts. He also proved that the rotation of the earth upon its axis must occasion a flattening of it about its poles, which was afterwards verified by an actual measurement ; and he determined the law of the variation of the degrees, in different latitudes, upon the supposition that the matter of the earth was homogeneous. He likewise saw, that the actions of the sun and moon upon the terrestrial spheroid, must produce a movement of rotation of its axis, as well as occasion a retrocession of the equinoxes, and the various oscillations of the waters of the ocean which are called the tides. In short, he also assured himself, that the inequalities of the motion of the moon arise from the combined actions of the sun and earth upon this satellite.

But, with the exception of what concerns the elliptical motions of the planets and comets, and the attractions of spherical bodies, these discoveries were not wholly completed by Newton. His theory of the figures of the planets is limited by the supposition of their homogeneity ; and his solution of the problem of the precession of the equinoxes, although extremely ingenious, and nearly agreeing with the results obtained from observations, is defective in several respects ; as among the great number of perturbations of the celestial motions, several small ones, and particularly that

that which arises from the ejection of the moon, escaped his researches. He has perfectly established the principle which he had discovered; but left the complete development of its consequences and advantages to the geometers that should succeed him.

The profound analysis, of which this great man was also the inventor, had not, at this time, been sufficiently perfected, to enable him to give complete solutions to all the difficult problems which arise in considering the theory of the system of the world; so that he was sometimes obliged to give only imperfect sketches or approximations, and leave them to be verified by a more rigorous calculation. But, notwithstanding these inevitable defects, the importance and generality of his discoveries, and the great number of his original and profound views, which have given rise to the most brilliant mathematical theories of the present age, will always assure to this performance the pre-eminence above every other similar production of the human mind.

Having thus given a concise history of the discovery of this extensive principle, and its application to the laws of motion, it is proper to observe, that though Newton makes use of the word attraction in common with the school philosophers, yet he very studiously distinguished between the ideas. The ancient attraction was supposed to be a kind of quality, inherent in certain bodies themselves, and arising from their particular or specific forms; but the Newtonian attraction is a more indefinite principle, denoting no particular kind or manner of action, nor the physical causes of such action, but only tendency in the general, a *conatus accedendi*, to whatever cause, physical or metaphysical, such effects be owing, whether to a power inherent in the bodies themselves, or to the impulse of an external agent.

He accordingly shews in his *Philosoph. Nat. Prin. Math.* that he uses the words attraction, impulse, and propension to the centre, indifferently; and cautions the reader not to imagine, that by attraction he expresses the modus of the action, or the efficient cause thereof, as if there were any proper powers in the centres, which in reality are only mathematical points; or as if centres could attract. *Lib. i. p. 5.* In like manner he considers centripetal powers as attractions, though physically speaking, it were more just to call them impulses. *Ib. p. 148.* He also adds, that what he calls attraction may possibly be effected by impulse, though not a common or corporeal impulse, but after some other manner unknown to us. *Optics, p. 322.*

Attraction indeed, if considered as a quality arising from the specific forms of bodies, ought, together with sympathy, antipathy, and the whole tribe of occult qualities, to be exploded. But when we have set these aside, there will remain innumerable phenomena of nature, and particularly the gravity or weight of bodies, or their tendency to a centre, which argue a principle of action seemingly distinct from impulse, or where at least there is no sensible impulsion concerned. It is also well known, that this action differs, in some respects, from all impulsion we know of, the latter being always found to act in proportion to the surface of bodies; whereas gravity acts according to their solid contents; and consequently must arise from some cause that penetrates or pervades their whole substances. This unknown principle, which can be considered so only with respect to its cause (for its phenomena and effects are most obvious), with all the species and modifications of it, is what we call attraction, which is a general name under which all mutual tendencies, where no physical impulse appears, and which cannot therefore be accounted for from any known laws of nature, may be ranged; and here arise

several particular kinds of attractions, as gravity, magnetism, electricity, &c. which are so many different laws; and only agreeing in this, that we do not see any physical causes of them; but that as to our senses, they may really arise from some power or efficacy in such bodies, by which they are enabled to act, even upon distant bodies, though our reason absolutely disallows of any such action.

Attraction may be divided with respect to the law it observes, into two kinds: 1. That which extends to sensible distances; such are the attractions of gravity found in all bodies; and the attraction of magnetism and electricity found in some particular bodies; the several laws and phenomena of which see under their respective articles.

Among these, the attraction of gravity, which is also called the centripetal force, is one of the greatest and most universal principles in nature; we see and feel it operate on bodies near the earth, and find by observation, that the same power also obtains in the moon, and in both the primary and secondary planets, as well as in the comets; and that this is the power by which they are all retained in their orbits, &c.: and hence, as gravity is found in all the bodies which come under our observation, it is easily inferred, by one of the settled rules of philosophizing, that it obtains in all others; and as it is found to be as the quantity of matter in each body, it must be in every particle thereof; and hence, every particle in nature is proved to attract every other particle, &c. See the demonstration of this laid down at large under the articles *CENTRIFUGAL, CENTRIPETAL, COMET, MOON, NEWTONIAN Philosophy, PLANET, SATELLITE, SUN, &c.*

From this attraction arises all the motion, and consequently all the mutation, in the universe; by this, heavy bodies descend and light ones ascend, projectiles are directed, vapours and exhalations arise, and rains, &c. fall. Also from the same cause rivers glide, the air presses, the ocean swells, &c. In effect, the motions arising from this principle, make the subject of that extensive branch of mathematics called *Mechanics*, or *Statics*, with the parts or appendages thereof *Hydrostatics, Pneumatics*. See *MATHEMATICS, PHILOSOPHY, &c.*

2. That which extends only to small distances.—Such is found to obtain in the minute particles whereof all bodies are composed, which attract each other at or extremely near the point of contact, with a force much superior to that of gravity; but which at any distance from it decreases much faster than the power of gravity. This power is known by the name of the *Attraction of Cohesion*, as being that by which the atoms or insensible particles of bodies are united with larger and more sensible figures. See *COHESION*.

The latter kind of attraction owns Newton for its discoverer, as the former does for its improver. The laws of motion, percussion, &c. in sensible bodies under various circumstances, as falling, projected, &c. ascertained by the later philosophers, do not reach to those more remote intestine motions of the competent particles of the same bodies, on which the changes of their texture, colour, properties, &c. depend; so that our philosophy, if it were founded wholly on the principle of gravitation, and carried no farther than that would lead us, would necessarily be very deficient.

But beside the common laws of sensible masses, the minute parts which they are composed of are found subject to some others which have been only of late taken notice of, and are yet very imperfectly known. Newton, to whose happy penetration we owe the hint, contents himself with establishing that there are such motions in the *minima natura*, and that they flow from certain powers or forces

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not reducible to any of those in the great world.—By virtue of these powers he shews, “that the small particles act on each other even at a distance, and that many of the phenomena of nature are the result of this action. Sensible bodies, as we have already observed, act on each other several ways; and as we thus perceive the tenor and course of nature, it appears highly probable that there may be other powers of the like kind, nature being always uniform and consistent with herself:—Those just mentioned, reaching to sensible distances, have been generally observed; but there may be others, which reach to such small distances as have hitherto escaped observation; and this, it is probable, may be the case with electricity, even without being excited by friction.

He then proceeds to confirm the reality of these suppositions from a great number of phenomena and experiments, which plainly argue such powers and actions between the particles of bodies, e. g. of salts and water, oil of vitriol and water, aqua fortis and iron, spirit of vitriol and salt-petre, and many other chemical substances. He also shews that these powers are unequally strong between different bodies; e. g. stronger between the particles of salt of tartar and those of aqua fortis, than those of silver; and between aqua fortis and lapis calaminaris, than iron; between iron and copper, than silver, or mercury, &c. So spirit of vitriol acts on water, but more on iron or copper, &c. The other experiments which countenance the existence of such principles of attraction in the particles of matter are innumerable, many of which may be found enumerated under the articles AFFINITY, ACID, MATTER, MENSTRUUM, SALT, &c.

These actions, by virtue of which the particles of the bodies above mentioned tend towards each other, are called by the general indefinite name attraction, which is equally applicable to all actions by which distant bodies tend towards each other, whether by impulse, or by any other more latent power; and hence we can account for an infinity of phenomena which would otherwise be inexplicable from the principle of gravity; such as cohesion, dissolution, coagulation, crystallization, the ascent of fluids in capillary tubes, animal secretion, fluidity, fixity, fermentation, &c.; which see under their proper names.

“Thus” (adds our incomparable author) “will nature be found conformable to herself, and very simple, performing all the great motions of the heavenly bodies by the attraction of gravity which intercedes those bodies, and almost all the small ones of their parts, by some other attractive power diffused through their particles. Without such principles, there never would have been any motion in the world; and without the continuance thereof, motion would soon perish; there being otherwise a great decrease or diminution thereof which is only supplied by these active principles.” *Optics*, p. 373.

For these reasons it is certainly unjust to declare against a principle which furnishes so beautiful a view, for no other reason but because we cannot conceive how one body should act on another at a distance. It is certain that philosophy allows of no action but what is by immediate contact or impulsion (for how can a body exert any active power where it does not exist? to suppose this of any thing, even of the Supreme Being himself, would perhaps imply a contradiction); yet we see effects without seeing any such impulse; and where there are effects, we can easily infer there are causes, whether we see them or not. We may consider such effects, therefore, without entering into the consideration of the causes, as indeed it seems the business of a philosopher to do; for to exclude a number of pheno-

mena which we see, would be to leave a great chasm in the history of nature: and to argue about those which we do not see, would be to build castles in the air. Hence it follows, that the phenomena of attraction are matter of physical consideration, and as such entitled to a share in the system of physics; but that the causes of them will only become so when they become sensible, i. e. when they appear to be the effect of some other higher causes (for a cause is no otherwise seen than as itself is an effect, so that the first cause must, from the nature of things, be invisible); we are, therefore, at liberty to suppose the causes of attraction what we please, without any injury to the effects. The illustrious Newton himself seems, indeed, a little irresolute as to the causes, inclining sometimes to attribute gravity to the action of an immaterial cause, *Optics*, p. 343, &c.; and sometimes to that of a material one, *Ibid.* p. 325.

In his philosophy, the research into causes is the last thing, and never comes under consideration till the laws and phenomena of the effects be settled; it being to these phenomena that the cause is to be accommodated. The cause even of any of the grossest and most sensible actions is not adequately known; how impulse or percussion itself, for instance, produces its effect, that is, how motion is communicated by one body to another, confounds the deepest philosophers; yet is impulse received not only into philosophy, but into mathematics; and accordingly the laws and phenomena of its effects make the greatest part of common mechanics.

The other species of attraction, therefore, in which no impulse is remarkable, when their phenomena are sufficiently ascertained, have the same title to be promoted from physical to mathematical consideration; and this without any previous inquiry into their causes, which our conceptions may not be proportioned to; let them be occult, as all causes strictly speaking are, so that their effects, which alone immediately concern us, be but apparent. See CAUSE.

Our illustrious countryman, therefore, far from adulterating philosophy with any thing foreign or metaphysical, as many have reproached him with doing, has the glory of having thrown every thing of this kind out of his system, and of having opened a new source of the most sublime mechanics yet known; it is hence, therefore, that we must expect to learn the manner of the changes, productions, generations, corruptions, &c. of natural things; with all that scene of wonders which is opened to us by the operations of chemistry.

The cause of attraction was long accounted for, by supposing that there existed a certain unknown substance which impelled all bodies towards each other; an hypothesis to which philosophers had recourse, from an opinion which had constantly been admitted as a first principle, “that no body can act where it is not;” as if it were more difficult to conceive why a change is produced in a body by another which is placed at a greater distance, than why it is produced by one which is situate at a small distance; it being not only as impossible to explain the phenomena of attraction by impulsion as it is to conceive how bodies should be urged towards each other by the action of an external substance, as how they should be urged towards each other by a power inherent in themselves. The fact is, that we can neither comprehend the one nor the other; nor can any reason be assigned why the Creator might not as easily bestow upon matter the power of acting upon matter at a distance, as the power of being acted upon and changed by matter in actual contact.

But we have no reason besides for supposing that bodies are ever in any case actually in contact. For all bodies are diminished in bulk by cold, that is to say, their particles are

are brought nearer each other, which would be impossible, unless they had been at some distance before the application of the cold. Almost all bodies are diminished in bulk by pressure, and consequently their particles are brought nearer each other; and the diminution of bulk is always proportioned to the pressure. Newton has also shewn that it requires a force of many pounds to bring two glasses within the 800th part of an inch of each other; that a much greater force is necessary to diminish that distance, and that no pressure whatever is capable of diminishing it beyond a certain point. Consequently there is a force which impedes the actual contact of bodies, which increases inversely as some power or function of the distance, and which no power whatever is capable of overcoming. Boscovich has likewise demonstrated, that a body in motion communicates part of its motion to another body before it actually reaches it. Hence we may conclude, that, as far as we know, there is no such thing as actual contact in nature; and that bodies of course always act upon each other at a distance. Even impulsion, therefore, or pressure, is an instance of bodies acting on each other without being in contact, and consequently this is no better an explanation of attraction, than the supposition that it is an inherent power. We must therefore be satisfied with considering attraction as an unknown power, by which all bodies are drawn towards each other, and which acts constantly and uniformly in all times and places, so as always to diminish the distance between them, unless when they are prevented from approaching each other by some force equally powerful. But why it diminishes as the distance increases, it is impossible to say; although the fact is certain, and is almost incompatible with the supposition of impulsion being the cause of attraction. The truth is, that we must not be too precipitate in drawing conclusions, but must wait, with patience, till future discoveries shall enable us to advance farther; satisfying ourselves, in the mean time, in arranging the laws of nature which have been ascertained, without attempting to develop the causes upon which they depend.

ATTRACTION, in *Chemistry*. See AFFINITY.

ATTRACTION, *Centre of*. See CENTRE.

ATTRACTION of *Mountains*. According to the Newtonian theory of attraction, this principle pervades the minutest particles of matter, and the combined action of all the parts of the earth forms the attraction of the whole. For the same reason, therefore, that a heavy body tends downwards in a perpendicular to the earth's surface, considered as smooth and even, it must be attracted towards the centre of a neighbouring mountain, by a force proportional to the quantity of matter contained in it; and the effect of this attraction, or the accelerative force produced by it, must depend on the nearness or distance of the mountain from the gravitating body, because this force increases as the squares of the distances decrease. Upon these principles it is obvious, that the plumb-line of a quadrant, or of any other astronomical instrument, must be deflected from its proper situation, by a small quantity, towards the mountain, and the apparent altitudes and zenith distances of the stars, taken with the instrument, be altered accordingly: e. g. if the zenith distance of a star on the meridian were observed at two stations under the same meridian, one on the south side of a mountain, the other on the north; and the plumb-line of the instrument were attracted out of its vertical position by the mountain, the star must appear too much to the north, by the observation at the southern station, and too much to the south by that at the northern station; and consequently the difference of the latitudes of the two stations resulting from these observations, would be greater than it really is. If then the true difference of their lati-

tudes be determined by measuring the distance between the two stations on the ground, the excess of the difference, found by the observations of the star above that found by this measurement, must have been produced by the attraction of the mountain; and the half of it will be the effect of such attraction on the plumb-line at each observation, provided that the mountain attracts equally on both sides.

The first hint for determining the quantity of this attraction was suggested by Newton, in his *Treatise of the System of the World*; and the first experiment for this purpose was conducted by M. Bouguer, and M. de la Condamine, in the year 1738. Whilst they were employed in measuring three degrees of the meridian, near Quito in Peru, they endeavoured to ascertain the effect of the attraction of Chimborazo, a mountain in that neighbourhood, which, by a rough computation, they supposed to be equal to about the 2000th part of the attraction of the whole earth. By observing the altitudes of fixed stars at two stations, one on the south side of the mountain, and the other on the north, they found the quantity of $7\frac{1}{2}''$ in favour of the attraction of the mountain by a mean of their observations; whereas the plumb-line, according to the theory, should have declined from the true vertical line $1' 43''$. However, though the general result is favourable to the Newtonian doctrine, the experiment was performed under so many disadvantages, as not to afford the satisfaction which was to be wished; and M. Bouguer terminates his account of their observations, with expressing his hopes, that the experiment might be repeated under more favourable circumstances, either in France or in England. Bouguer, *Figure de la Terre*.

Nothing was afterwards done, till Mr. (now Dr.) Maskelyne, the present astronomer royal, made a proposal to the Royal Society for this purpose, in the year 1772; and in 1774, he was deputed to make the trial, accompanied with proper assistants, and furnished with the most accurate instruments. He made choice of the mountain Schehallien, in Scotland, for the scene of his operations, the direction of which is nearly from east to west, its mean height above the surrounding valley about 2000 feet, and its highest part above the level of the sea 3550 feet. Two stations for observations were selected, one on the north, and the other on the south side of the mountain. Every circumstance that could contribute to the accuracy of the experiment was regarded; and from the observation of ten stars near the zenith, Mr. Maskelyne found the apparent difference of the altitudes of the two stations to be $54.6''$; and from a measurement by triangles, formed from two bases on different sides of the mountain, he found the difference of their parallels to be 4364 feet, which, in the latitude of Schehallien, viz. $56^{\circ} 40'$, answers to an arch of the meridian of $43''$, which is less by $11.6''$ than that found by the sector. Its half, therefore, or $5.8''$ is the mean effect of the attraction of the mountain. From this experiment, conducted with great assiduity and accuracy, and tending to the establishment of the Newtonian theory, Mr. Maskelyne infers, that the mountain Schehallien exerts a sensible attraction; and, therefore, that every mountain, and every particle of the earth, is endued with the same property, in proportion to its quantity of matter. The law of the variation of this force, in the inverse ratio of the squares of the distances, is likewise confirmed by it; for if the force of the attraction of the hill had been only to that of the earth as the matter in the hill to that of the earth, and had not been greatly increased by the near approach to its centre, the attraction must have been wholly insensible. He infers also, that the mean density of the earth is at least double of that at the surface; and consequently, that the density of the internal parts of the earth is much greater than that of those near

the surface; also that the whole quantity of matter in the earth will be at least twice as great as if it were composed of matter of the same density with that at the surface; and therefore that the hypothesis of those naturalists, who suppose the earth to be only a great hollow shell of matter, is groundless. And finally, that the sensible deflections in the plumb-lines of astronomical instruments, by the density of the superficial parts of the earth, must cause apparent inequalities in the mensuration of degrees in the meridian. He candidly acknowledges, however, that a single experiment is not sufficient to ascertain a matter of such importance, and recommends other experiments of a similar kind to be repeated in various places, and attended with different circumstances; since Schehallien may differ in its internal constitution from other mountains, as there is no appearance of its ever having been a volcano, which is the case of many others. Phil. Trans. vol. lxxv. part 2. N° 48 and 49.

ATTREBATII, in *Ancient Geography*. See ATREBATII.

ATTRIBUTE, from *attribuo*, in a general sense, that which agrees to some person or thing; or a quality which determines something to be after a certain manner. Among logicians, it denotes the predicate of any subject, or whatever may be affirmed or denied concerning it. But more strictly speaking, an attribute is the same with an essential mode, or it is that which belongs to the nature or essence of the subjects in which it is. Thus, understanding is an attribute of mind; figure, an attribute of body, &c.

Of the several attributes belonging to any substance, that which presents itself first, and which the mind conceives as the foundation of all the rest, is called its *essential* attribute. Thus, extension is by some, and solidity by others, made the essential attribute of body or matter. The other attributes are called *accidental* ones; e. gr. roundness in wood, or learning in a man. Mr. Locke endeavours to prove, that thinking, which the Cartesians make the essential attribute of the mind, is only an accidental one.

Mr. Harris (Hermes, p. 29.) considering all things whatever that exist either as the energies or affections of some other thing, or as not being the energies or affections of something else, refers the former to the denomination of attributes, and the latter to that of substances. Thus, to think is the attribute of a man; to be white, of a swan; to fly of an eagle, &c. If they exist not after this manner, then they are called substances.

Spinoza makes the soul and the body to be of the same substance, with this only difference, that the soul is to be conceived under the attribute of thought, and the body under that of extension.

ATTRIBUTES, in *Theology*, denote the several qualities and perfections which we conceive in God, and which constitute his proper essence; as justice, goodness, wisdom, &c. The perfections of God are called his attributes, because he cannot be without them. Theological writers have distributed the attributes of the deity into natural, such as knowledge and power; and moral, such as justice and benevolence. Of these writers some have maintained that all the natural attributes are comprehended under power and knowledge; and that benevolence comprehends all those that are denominated moral. Others, alleging that God always does that which is right and fit, have considered all his moral attributes, viz. justice, truth, faithfulness, mercy, patience, &c. as merely different modifications of rectitude. Others, again, have represented wisdom as the spring of all the divine actions. Accordingly, they have stated the moral attributes of God to be only different ways of considering his will, as invariably determined by his wisdom to that which is best in all possible circumstances. The attributes

discriminated by this denomination are goodness, justice, truth, and faithfulness. Goodness is the will of God, determined by his wisdom, to the communication of being and happiness because it is fit, and as far as it is fit; justice is the will of God, determined by his wisdom, to maintain right and order, and for this purpose to do all that is necessary for convincing his reasonable creatures of the regard he hath for the preservation of his own rights and of theirs; truth, or sincerity, is the will of God, determined by his wisdom to avoid using all signs in his intercourses with his intelligent creatures, from which they may not only take occasion, without necessity, to deceive themselves, but would have just ground to charge him with being their deceiver, having a meaning to himself quite different from that which the words or other signs he made use of naturally suggested, and were intended to suggest; faithfulness is the will of God, determined by his wisdom to make good all his promises and engagements; and the holiness of God seems to stand for all these perfections in conjunction, the Deity being separated by them from all society and friendship with false Gods. According to this statement it is alleged, that we have clear, distinct, and proper, though not adequate, ideas of the moral attributes of the divine nature; whereas some have maintained, that our notions of justice and goodness do not at all agree to these attributes as they pertain to the Deity, in whom they signify something, of which we have only a confused or rather no apprehension, and very different from what they do when ascribed to men. To this purpose, lord Bolingbroke (Works, vol. iv. and v.) founds his system on this extravagant paradox, as it has been justly called, that we have no adequate ideas of God's moral attributes, his goodness and justice, as we have of his natural, his wisdom and power; and accordingly he denies justice and goodness to be the same in *kind* in God as in man; and he pretends, that the ideas of God's moral attributes cannot be acquired by any reasoning at all, either *a priori* or *a posteriori*, and hence concludes, that if a man has such ideas, they were not found but invented by him. See his objections stated and answered by the late Bishop Warburton, in his "View of Lord Bolingbroke's Philosophy," Letter I. See Hartley's Obs. on Man, p. 316. Bays on Divine Benevolence. Wollaston's Rel. of Nat. p. 116—119. Grove's Wisdom the first Spring of Action in the Deity, in his Works, vol. iv. p. 1—46, &c. Balguy's Divine Rectitude, p. 3—8.

The heathen mythologists divide the deity into as many distinct beings as he has attributes: thus the power of God was called *Jupiter*; the wrath of God, *Juno*; the absolute will of God, *Fate*, or *Destiny*, to which even his power is subject.

ATTRIBUTES, in *Painting and Sculpture*, are symbols added to figures and statues, to denote their particular office and character. Thus the club is an attribute of Hercules; the palm is an attribute of victory; the peacock, of Juno; the eagle, of Jupiter; the trident, of Neptune; the balance of justice; the olive, of peace, &c. See PAINTING.

ATTRIBUTIVES, in *Grammar*, are words which are significant of attributes; and thus include adjectives, verbs, and participles, which are attributes of substances, and adverbs, which denote the attributes only of attributes. Mr. Harris, who has introduced this distribution of words, denominates the former attributives of the first order, and the latter attributives of the second order. Harris's Hermes.

ATTRITION, formed of *atterere*, to wear, triture or friction, expresses such a motion of bodies against one another, as strikes off some superficial particles, whereby they gradually become less and less. The grinding and polishing of bodies is performed by attrition. The effects of attrition

tion in exciting heat, light, electricity, &c. see under ELECTRICITY, FIRE, HEAT, and LIGHT.

ATTRITION, among *Divins*, denotes a sorrow or regret for having offended God; arising from a sense of the odiousness of sin, and the apprehension of punishment; i.e. of the loss of heaven, and the pains of hell.

Attrition is esteemed the lowest degree of repentance, being a step short of contrition, which supposes the love of God an ingredient or motive of our sorrow and repentance. Attrition, in the church of Rome, was considered as a sufficient disposition for a man in the sacrament of penance to receive absolution, and be justified before God, by removing his guilt, and the obligation to punishment. Hence Dr. Jer. Taylor mentions this notion as one of those which accidentally taught or led to an ill life. *Liberty of Prophecy*, p. 252.

ATTROW, in *Botany*, a name given by the people of Guinea to a plant which they use in cases of swellings, boiling the leaves in water, and using the decoction by way of a fomentation.

It is a species of *KALI*, and is called by Petiver *kali Guineense foliis polygoni, floribus verticilli in modum dispositis*, from its leaves resembling the common knot-grass, and its flowers growing in bundles round the stalks. *Phil. Trans.* N° 232.

ATTRUMAPHOC, a name given by the people of Guinea to a shrub which they use in medicine; they boil it in water, and give the decoction in the venereal disease. The juice of it, when fresh pressed out, is also used, snuffed up the nostrils, to promote sneezing, and cure several disorders of the head and eyes. *Phil. Trans.* N° 232.

It is a species of *COLUTEA*, called by Petiver, *COLUTEA lanuginosa floribus parvis filiquis pilosis deorsum tendentibus*; and Dr. Herman calls it an *asragalus*.

ATTUARII, in *Ancient Geography*, a people of Germany, called by Strabo *Chattuarii*, and placed by him in the neighbourhood of Cattes. By Tacitus they are denominated *Chasuarii*. Julian marched against these people, and after an expedition of three months, defeated them.

ATTUIE, in *Geography*, a town of Arabia, 76 miles W.S.W. of Saada.

ATTUND, or OSTUND, a country of Sweden, being one of the three parts of Upland, between Stockholm, Upland, and the Baltic sea; famous for its mines.

ATTURNATO *faciendo vel recipiendo*, in *Law*. See ATTORNATO, &c.

ATTUSA, in *Ancient Geography*, a town of Asia Minor, on the confines of Bithynia and Mysia. Pliny.

ATUACA, or ATUATUCA, a town of Belgic Gaul, mentioned by Cæsar as belonging to the Eburones, and called by Anton. (Itin.) *Advoca Tungrorum*. This city, under the appellation of Tongres, was ruined by Attila in 451, and its episcopal see was transferred to Maestricht; and from thence, in 881, to Liege.

ATUED, or ATUET, in *Geography*, a town of Sweden, in East Gothland, having in its vicinity some good mines; six leagues south-east of Lindköping.

ATUN-JAUXA. See JAUXA.

ATUN-CANAR, or GREAT CANAR, a village of South America, in the jurisdiction of Cuença, and province of Quito, famous for its fertility and the treasures supposed to be buried in the earth. One of the Incas is said to have built in this place several magnificent temples, splendid palaces, and forts of stone, like those of Cuzco, and to have plated the inside of the walls with gold. Some remains of its ancient magnificence are still visible. Juan and Ulloa's *Voyage to South America*, by Adams, vol. i. p. 319.

ATURÆ, or ATURENSIUM CIVITAS, in *Ancient Geography*, a town of Gaul, in the district of Novem-popu-

lania, seated on the river Aturus; now AIRE on the Adour.

ATURES, in *Geography*, a famous cataract of the river Oronoko, in South America.

ATURI, a town of European Turkey, in Bessarabia, twenty-two miles south of Bender.

ATURIA, or ATYRIA, in *Ancient Geography*, a name given by Strabo to Assyria.

ATWOOD'S KEY, in *Geography*, a small island surrounded by rocks, twelve miles north-east from Crooked island, and fifty east from Yuma, or Long island, one of the Bahamas. N. lat. 23° 28'. W. long. 73°.

ATYADÆ, in *Ancient Geography*, the first race of kings who reigned in Lydia, so called from Atys, the son of Coctys, and grandson of Manes, who was said to be the son of Jupiter and Tellus. The Atyadæ were succeeded by the Heraclidæ, or descendants of Hercules. See LYDIA.

ATYMNUS, in *Entomology*, a species of *PAPILIO* (*Pleb. Rur.* Linn.) that inhabits China and Siam. The wings are tailed, fulvous; with the anterior ones black at the apex. Fabricius. Donovan's *Inf. China*, &c. *Obs.* This is *Hesperia Atymnus* of Fab.

ATYPOS, from α negative, and τυπος, *form*, or *tenor*, *erratic*, or *irregular*, a word used by the old writers in medicine, for such diseases as did not observe any regularity in their periods.

Others have also used the same word in a very different sense, namely, for deformities and irregularities in the limbs; and others, for persons who, from some defects in the organs of speech, cannot articulate certain particular sounds.

ATYS, in *Ancient Geography*, a river of Sicily, now called the Corbo.

ATYS, in *Zoology*, a species of *SIMIA*, in Audebert's *Histoire des Singes*. (Fam. 4. sect. 2. fig. 8.) It belongs to the family of *Guenons*, and measures one foot five inches from the muzzle to the tail. The whole body is of a dirty whitish colour; the feet, hands, face, and ears are of a flesh colour; the muzzle is long; tail moderate; ears nearly square. This is represented as a mischievous and choleric animal; and capable of biting with great violence. It is conjectured to be the great white East Indian Ape figured by Albert Seba in his *Theaurus Rer. Natur.* t. 1. pl. 48. fig. 3. by some modern French naturalists; and also the *Cercopithecus senex* of Erxleben. *Syst. Reg. Anim.* p. 24.

ATZEL, ORIOULUS NOBILIS, in *Ornithology*, the name given in Merrem Beytr. to the bird called by Latham the long-billed Grackle; *Gracula longirostra* of Pallas and Gmelin. Merrem also calls it *Oriolus chryscephalus* of Gmelin, *Goldkropfige gelbschulderichte Atzel*.

ATZMANSDORF, in *Geography*, a town of Germany, in the circle of the Lower Rhine, four miles south-east of Erfurt.

AU, a town of Germany, in the arch-duchy of Austria, six miles north of Gmunden.—Also, a town in Lower Bavaria, twelve miles north-west of Mosburg.

AVA, a kingdom of Asia, in the peninsula of India beyond the Ganges; for an account of which see *BERMAN Empire*.

AVA, or *Aungwa*, the capital city of the kingdom of the same name, or of the whole of the Birman empire, situate in N. lat. 22° 5'. E. long. 97° 54'. It is divided into an upper and lower city, both of which are fortified: the lower is the most extensive, and is supposed to be about four miles in circumference: it is protected by a wall thirty feet high, with a deep and broad fosse. The communication between the fort and the country is over a mound of earth, crossing a ditch that supports a causeway; the upper or smaller fort, which may be called the citadel, and does not exceed

a mile in circuit, was much stronger and more compact than the lower; but neither the upper nor the lower had a ditch on the side of the river. This ancient capital has been suffered to sink into ruins, since the recent foundation of Ummerapoora. "The walls," says colonel Symes, "are now mouldering into decay; ivy clings to the sides; and bushes, suffered to grow at the bottom, undermine the foundation, and have already caused large chasms in the different faces of the fort. The materials of the houses, consisting chiefly of wood, had, on the first order for removing, been transported to the new city of Ummerapoora; but the ground, unless where it is covered with bushes, or rank grass, still retains traces of former buildings and streets. The lines of the royal palace of the Lotoo, or grand council hall, the apartments of the women, and the spot on which the piasath, or imperial spire, had stood, were pointed out to us by our guide. Clumps of bamboos, a few plantain trees, and tall thorns, occupy the greater part of the area of this lately flourishing capital. We observed two dwelling houses of brick and mortar, the roofs of which had fallen in; these, our guide said, had belonged to Colars, or foreigners: on entering one, we found it inhabited only by bats, which flew in our faces, whilst our sense of smelling was offended by their filth, and by the noisome mildew that hung upon the walls. Numerous temples, on which the Birmans never lay sacrilegious hands, were dilapidated by time. It is impossible to draw a more striking picture of desolation and ruin." To the gloomy and deserted walls of Ava, a fine contrast is exhibited by the new city of Ummerapoora.

AVA, *River of*, now called *Irrawaddy*, is the chief river of the Birman empire; according to major Rennell (Memoir, p. 298.), it is the Nou-Kian, little, if at all, inferior to the Ganges, and it runs to the south through that angle of Yunan which approaches nearest to Bengal. It is said to be navigable from the city of Ava to Yunan; it passes by Moguang to Bamoo, and thence to Ummerapoora and Chagain, and thence to Prome towards the sea, into which it discharges itself by many mouths, after a comparative course of near 1200 British miles. The two extreme branches of the Ava river are the Persian and Syrian rivers, which major Rennell (Mem. p. 39.) has been able to trace to the place where they separate from the main river, at about 150 geographical miles from the sea. The bearings of these two branches intersect each other at an angle of about sixty degrees. The mouths of the Ava river form an assemblage of low islands like those of the Ganges. M. D'Anville erroneously supposed the Sanpoo, Thibet river, or Burrampoote, to be the same with that which is called, in the lowest part of its course, the river of Ava; and the Nou-Kian he supposed to be the same with the river of Pegu. This river of Pegu, according to Buchanan (see Symes's Embassy, vol. ii. p. 414.), which is supposed to come from China, rises among hills about 100 miles from the sea, which form the boundary between the Birman and Pegu kingdoms. The river coming from Thibet, supposed to be that of Arracan, is in reality the Keenduem, or the great western branch of the Ava river. That which is supposed to be the western branch of the Irrawaddy, is in fact the eastern one, which passes by Ava, and runs to the north, keeping west from the province of Yunan, and leaving between it and that part of China a country subject to the Birmans. He adds, that between the Pegu and Martaban rivers there is a lake from which two rivers proceed; the one runs north to Old Ava, where it joins the Myoungnya, a little river of Ava, which comes from mountains on the frontiers of China; the other river runs south from the lake to the sea, and is called Sitang. The country bordering on the Ava river, from the sea to Lundsey, is flat, and the soil

rich, and resembles the lower parts of the courses of the Ganges, Indus, and other capital rivers, formed out of the mud deposited by the inundations of the river. This low tract is called *PEGU*. Rennell's Mem. p. 297. Symes's Embassy to Ava, vol. ii. p. 413.

AVA, *Cape*, a point of land in the island of Japan, in the eastern ocean, lying in N. lat. $34^{\circ} 45'$, and E. long. $140^{\circ} 55'$.

AVA AVA, in *Botany*, a plant so called by the inhabitants of Otaheite, in the South Sea, from the leaves of which they express an intoxicating juice. It is drank very freely by the chiefs and other considerable persons, who vie with each other in drinking the greatest number of draughts, each draught being about a pint: but it is carefully kept from their women. Hawkesworth's Voyages, vol. ii. p. 200.

AVADIÆ, in *Ancient Geography*, a people of Asia, placed by Ptolemy in Bactriana.

AVADOUTAS, a sect of Indian bramins, distinguished by their austerity and abstinence, and depending on accidental beneficence for their necessary supplies.

AVAIL of *Marriage*, in *Scots Law*, denotes that casualty in ward-holding, by which the superior was entitled to a certain sum from his vassal, upon his attaining the age of puberty, as the value or avail of his tocher.

AVAILLE, in *Geography*, a town of France, in the department of the Vienne, and chief place of a canton in the district of Civray; five leagues east of Civray, and six and a half S.S.W. of Montmorillon. The place contains 2115, and the canton 5194 inhabitants: the territory includes 212½ kilometres and 4 communes.

AVAL, the largest of the islands in the gulf of Persia, known to the Europeans by the name of Bahrein. In this island were once 360 towns and villages; but at present it contains, besides Bahrein the capital, only sixty wretched villages; the others having been ruined by a long series of wars. This island produces great abundance of dates; but its chief dependence is upon the pearl-fishery, as the best pearls are supplied by it. The duties upon the two articles of dates and pearls affords its sovereign a lack of rupces, out of which he is obliged to maintain a garrison in the city.

AVALANCHES, a name given in Switzerland and Savoy to those prodigious masses of snow, which are precipitated, with a noise like thunder, and in large torrents, from the mountains, and which destroy every thing in their course, and have sometimes overwhelmed even whole villages. In 1719, an avalanche from a neighbouring glacier overspread the greater part of the houses and baths at Leuk, and destroyed a considerable number of inhabitants. The best preservative against their effects being the forests, with which the Alps abound; there is scarcely a village situated at the foot of a mountain, that is not sheltered by trees; which the inhabitants preserve with uncommon reverence. Thus, what constitutes one of the principal beauties of the country, affords also security to the people.

Our readers may be gratified by the description which Thomson has given of the avalanches, in his "Seasons:—"

"Among these hilly regions, where embrac'd
In peaceful vales, the happy Grisons dwell;
Off, rushing sudden from the loaded cliffs,
Mountains of snow their gathering terrors roll
From sleep to sleep, loud thund'ring down they come,
A wintry waste in dire commotion all;
And herds and flocks, and travellers and swains,
And sometimes whole brigades of marching troops,
Or hamlets sleeping in the dead of night,
Are deep beneath the smothering ruin hurl'd."

AVALAS, a town of Servia, twelve miles south of Belgrade.

AVALITES SINUS, in *Ancient Geography*, a gulf on the

the right of the Erythrean sea. In this gulf was a sea-port, called Avalis, on the coast of Ethiopia: the people of Ethiopia who lived near this gulf were called Avalites, and Abalites. Ptolemy.

AVALLON, in *Geography*, a town of France, in the department of the Yonne, and principal place of a district, seated on the river Cousin. This is a town of considerable trade in grain, wine, and cattle, with a cloth manufactory; twenty-three miles S.S.W. from Auxerre, and fifty south of Troyes. The place contains 5045, and the canton 9668, inhabitants: the territory includes 157½ kilometres and 11 communes. N. lat. 47° 29'. E. long. 3° 5'.

AVALON, a peninsula of the island of Newfoundland, not far from the south-east part of it, with Placentia bay on the south, and Trinity bay on the north.

AVANCAY, a jurisdiction in the diocese of Cusco, in South America, lying north-east from the city of Cusco, and extending above thirty leagues. The climate is variable, but in general hot, and many parts of it are cultivated with canes, which yield a very rich sugar. The more temperate parts abound in wheat, maize, and fruits, which are sent to the city of Cusco. In this province is the valley of Xaquijaguna, or Xajaguana, where Gonzalo Pizarro was defeated and taken prisoner by Pedro de la Gasca.

AVANCHE. See AVENCHE.

AVANIA, in the *Turkish Legislature*, a fine for crimes, and on deaths, paid to the governor of the place. In the places where several nations live together under a Turkish governor, he takes this profitable method of punishing all crimes among the Christians or Jews, unless it be the murder of a Turk. Pococke's *Eg.* vol. ii. part ii. p. 30.

AVANT, a French preposition, signifying *before*, or any priority either in respect of time or place; sometimes used in composition in our language, but more usually contracted, and wrote vaunt, or vant, or even van.

AVANT-Fosse, &c. See VAN-Fosse.

AVANT-Guard, &c. See VAN GUARD, &c.

AVANTICI, in *Ancient Geography*, a people reckoned among the inhabitants of the Alps, and, according to Pliny, comprehended by Galba within the province called Narbonensis. Some have represented them as the inhabitants of Avanticum or Aventicum, the capital of Helvetia; but as Gallia Narbonensis never extended so far, Hardouin rejects this opinion. Menard (*Mem de Liter.* t. xxix. p. 248.) fixes them in a place, now called Avancion, between Gap and Embrum.

AVANTURINE, in *Natural History*, a yellowish stone full of sparkles, resembling gold, very common in France. An artificial imitation is made of it by mixing sparkles of copper with glass, whilst it is in fusion, which is used by enamellers, and to sprinkle as sand upon writing. Various stones have been known by this appellation. See QUARTZ, and FELSPAR.

AVAOU, in *Ichthyology*, the name given by the natives of Otaheite to a species of Gobius figured by Broussonet in his decade of fishes. See GOBIUS OCELLARIS.

AVARA, or AVERA, in *Ancient Geography*, a river of Gaul, which passes by the town of AVARICUM.

AVARAY, in *Geography*, a town of France, in the department of the Loir and Cher, and chief place of a canton in the district of Mer, 12 miles N.E. of Blois.

AUARCAVELICA. See GUAMANGA.

AVARES, or AVARI, a tribe of Sarmatian origin, denoting *far distant*, and formerly applied to a class of the inhabitants of the southern parts of Russia, from their dwelling farther to the east than any of the Sarmatian stocks.

In the dissertation of M. Peyssonnel on the origin of the Slavonian language, we are informed that the slaves, who

possessed Macedonia, Greece, and Epirus, were also called *avares* or *avari*; and that they were unknown to the inhabitants of Constantinople till the end of the reign of Justinian. At this time, says Gibbon, A.D. 558, their ambassadors addressed the Roman emperor who admitted them to an audience, as the representatives of the strongest and most populous of nations, the invincible, the irresistible Avars. Their friendship was purchased by the timid emperor, and Valentin, one of the emperor's guards, was sent under the character of an ambassador to their camp at the foot of mount Caucasus. He persuaded them to invade the enemies of Rome. These fugitives, who had fled before the Turkish arms, passed the Tanais and Borysthenes, and boldly advanced into the heart of Poland and Germany, violating the law of nations and abusing the rights of victory. Before ten years had elapsed, their camps were seated on the Danube, and the Elbe, many Bulgarian and Slavonian names were obliterated from the earth, and the remnants of their tribes are found, as tributaries and vassals, under the standard of the Avars. The Chagan, by which appellation their king was distinguished, still affected to cultivate the friendship of the emperor; and Justinian entertained some thoughts of fixing them in Pannonia, to balance the prevailing power of the Lombards. But the virtue or treachery of an Avar betrayed the secret enmity and ambitious designs of their countrymen; and they loudly complained of the timid, though jealous policy of detaining their ambassadors, and denying the arms which they had been allowed to purchase in the capital of the empire. An embassy that was received about this time from the conquerors of the Avars, might possibly have produced an apparent change in the disposition of the emperors. The Turkish ambassadors having pursued the footsteps of the vanquished to the Jaik, the Volga, mount Caucasus, the Euxine, and Constantinople, at length appeared before the successor of Constantine, to request that he would not espouse the cause of rebels and fugitives. In consequence of this embassy, the emperor renounced, or seemed to renounce, the fugitive Avars, and accepted the alliance of the Turks. In the year 566, Justin II. gave audience to the ambassadors of the Avars, and the scene was decorated to impress the barbarians with astonishment, veneration, and terror. After the first emotions of surprise, the chief of the embassy extolled the greatness of the Chagan, by whose clemency the kingdoms of the south were permitted to exist, whose victorious subjects had traversed the frozen rivers of Scythia, and who now covered the banks of the Danube with innumerable tents. It was also alleged, that the late emperor had cultivated, with annual and costly gifts, the friendship of a grateful monarch, and that the enemies of Rome had respected the allies of the Avars. The same prudence, it was intimated, would instruct the nephew of Justinian to imitate the liberality of his uncle, and to purchase the blessings of peace from an invincible people, who delighted and excelled in the exercise of war. To this address the emperor replied in the same strain of haughty defiance; and he derived his confidence from the God of the Christians, the ancient glory of Rome, and the recent triumphs of Justinian. The Chagan was awed by the report of his ambassadors; and instead of exercising his threats against the eastern empire, he marched into the poor and savage countries of Germany, which were subject to the dominion of the Franks; but after two doubtful battles, he consented to retire. The spirit of the Avars being chilled by repeated disappointments, their power would have dissolved away in the Sarmatian desert, if the alliance of Alboin, king of the Lombards, had not given a new object to their arms, and a lasting settlement to their wearied fortunes. (See ALBOIN, and LOMBARDS.) By the departure

departure of the Lombards, and the ruin of the Gepidæ, between the years 570 and 600, the balance of power was destroyed on the Danube; and the Avars, at this time, spread their permanent dominion from the foot of the Alps to the sea-coast of the Euxine. The reign of Baian is the brightest æra of their monarchy; and the Chagan, who occupied the rustic palace of Attila, appears to have imitated his character and policy. The pride of Justin II., of Tiberius, and of Maurice, was humbled by a proud barbarian, more prompt to inflict, than exposed to suffer, the injuries of war; and as often as Asia was threatened by the Persian arms, Europe was oppressed by the dangerous inroads, or costly friendship, of the Avars. As the successor of the Lombards, the Chagan asserted his claim to the important city of Sirmium, the ancient bulwark of the Illyrian provinces. The plains of the Lower Hungary were covered with the Avar horse, and a fleet of large boats were built in the Hercynian wood, for the purpose of descending the Danube, and transporting into the Sava, the materials of a bridge. But as the strong garrison of Singidunum, which commanded the conflux of the two rivers, might have stopped their passage and baffled his designs, he dispelled their apprehensions by a solemn oath that his views were not hostile to the empire. Sirmium, however, was invested by the perfidious Baian, and its defence was prolonged above three years; but at length distressed by famine, a merciful capitulation allowed the escape of the naked and hungry inhabitants. Singidunum, at the distance of fifty miles, experienced a more cruel fate: its buildings were razed, and the vanquished people condemned to servitude and exile. From Belgrade to the walls of Constantinople a line extended of 600 miles, which was marked with flames and blood. The horses of the Avars were alternately bathed in the Euxine and the Adriatic; and the Roman pontiff, alarmed at the approach of a more savage enemy, was reduced to cherish the Lombards as the protectors of Italy. The despair of a captive, whom his country refused to ransom, disclosed to the Avars the invention and practice of military engines, but in the first attempts they were rudely framed and awkwardly managed; and the resistance of Diocletianopolis and Beroa, of Philipopolis and Adrianople, soon exhausted the skill and patience of the besiegers. Although the warfare of Baian was that of a Tartar, his mind was susceptible of sentiments that were generous and humane; accordingly, he spared Anchialus, by whose salutary waters the health of the best beloved of his wives was restored; and the Romans confess, that their starving army was fed and dismissed by the liberality of a foe. His empire extended over Hungary, Poland, and Prussia, from the mouth of the Danube to that of the Oder; and his new subjects were divided and transplanted by the jealous policy of the conqueror. The eastern regions of Germany, which had been left vacant by the emigration of the Vandals, were replenished with Slavonian conquests; the same tribes are discovered in the neighbourhood of the Adriatic and the Baltic, and with the name of Baian himself, the Illyrian cities of Neys and Lissa are again found in the heart of Silesia. In the disposition both of his troops and provinces, the Chagan exposed the vassals, whose lives he disregarded, to the first assault, and the swords of the enemy were blunted before they encountered the native valour of the Avars. The emperor Maurice, after having, for ten years, supported the insolence of the Chagan, declared his purpose of marching against the barbarians. Deaf to the advice and intreaty of the senate, the patriarchs, and the empress Constantina, who dissuaded him from personally encountering the fatigues and perils of a Scythian campaign, he boldly advanced seven miles from the capital; but Anchialus was the limit of his progress both by sea and land.

In five successive battles, 17,200 barbarians were made prisoners; near 60,000, with four sons of the Chagan, were slain; the Roman general, Priscus, surprised a peaceful district of the Gepidæ, protected by the Avars; and his last trophies were erected on the banks of the Danube and the Teyfs. Baian, however, again prepared, with dauntless spirit and recruited forces, to avenge his defeat under the walls of Constantinople. In the reign of Heraclius, A. D. 610—622. Syria, Egypt, and the provinces of Asia, were subdued by the Persian arms under Chosroes; while Europe, from the confines of Istria to the long wall of Thrace, was oppressed by the Avars, unsatiated with the blood and rapine of the Italian war. They had coolly massacred their male captives in the field of Pannonia; the women and children were reduced to servitude, and the noblest virgins were abandoned to the promiscuous lust of the barbarians.

When Heraclius was preparing to abandon his capital, and to transfer his person and government to the more secure residence of Carthage, the Chagan was encamped in the plains of Thrace; and dissembling his perfidious designs, solicited an interview, for the purpose of reconciliation with the emperor, near the town of Heraclea. On a sudden, the Hippodrome was encompassed by the Scythian cavalry; the tremendous sound of the Chagan's whip gave the signal of assault; and Heraclius was saved by the fleetness of his horse. So rapid was the pursuit, that the Avars almost entered the golden gate of Constantinople with the flying crowds; but the plunder of the suburbs rewarded their treason, and they transported beyond the Danube 270,000 captives. The Persian king having ratified a treaty of alliance and partition with the Chagan, A. D. 626; 30,000 Barbarians, the vanguard of the Avars, forced the long wall of Constantinople, and drove into the city a promiscuous crowd of peasants, citizens, and soldiers. In the mean while the magistrates of the capital repeatedly strove to purchase the retreat of the Chagan; but their deputies were rejected and insulted; and he suffered the patricians to stand before his throne, while the Persian envoys, richly dressed, were seated by his side. For ten successive days, the capital was assaulted by the Avars, who had made some progress in the science of attack. At length however, by the vigorous resistance of the inhabitants, the Avars were repelled; a fleet of Slavonian canoes was also destroyed in the harbour; the vassals of the Chagan threatened to desert; his provisions were exhausted, and after burning his engines, he gave the signal of a slow and formidable retreat. To the hostile league of Chosroes with the Avars, the Roman emperor opposed the honourable and useful alliance of the Turks; and the Persians were then reduced to the necessity of retreating with precipitation. Gibbon's Hist. vol. vii. viii.

From the annals of France, cited by Bolandus, we learn, that Thudun, a leader of the Avars, sent ambassadors to Charlemagne, in 795, with proposals for surrendering himself and his people to that prince, and for embracing Christianity under his auspices.

At this day there exists an Avarian nation in Daghestan, in the district of Derbent and Kubet, who, though by their cohabitation for several centuries with various nations, they have adopted their language and the Mahometan religion, have nevertheless retained some Sarmatian words, that prove their ancient origin. They marched, says Mr. Tooke (Hist. Russ. vol. i. p. 9.), in the fourth century to Pannonia, dispossessed the slaves, and established themselves with those that remained. On the arrival of the Massares and Komanes, they collectively assumed the name Massares, and by this name they are still distinguished.

AVARICUM, called also BITURIGES, now *Bourges*, the capital of the Bituriges-Cubi, and afterwards of Aquitania

tania Prima, was one of the most considerable cities of Gaul at the time of the Roman conquest. About the forty-seventh Olympiad, or 592 years before the Christian æra, it was the capital of Gaul, or of that part of it which was subject to the Celtes. The Romans erected an amphitheatre in this place, which was not demolished before the year 800; and also a capitol.

AVARILLO, *Cape*, lies N.E. from Padaran bay, and nearly in the south-east extremity of Cambodia. N. lat. $11^{\circ} 35'$. E. long. $109^{\circ} 21'$. See *COMORIN Bay*.

AVAROMO TEMO, in *Botany*, the name of a filiquose tree, which grows in the Brasils. The bark is externally of a cineritious, and internally of a deep red colour; and is the only part of the plant used by the skilful for medicinal purposes: though the same astringent qualities are by some applied to the leaves: for the bark, which is of a bitter taste, whether reduced to a powder, or boiled and used by way of fomentation, happily cures inveterate and obstinate ulcers, and, as it is said, has been found to cure cancers themselves, by means of its remarkably cleansing and drying nature.

Beside these purposes, it is also made use of on account of its effectually astringent quality, for baths designed to strengthen and invigorate the muscular parts of the body, when weakened, or too much relaxed. Ray says it is much used by courtezans for contracting the *puenda*.

AVARUM, in *Ancient Geography*, a promontory of Hispania Tarragonensis. Ptolemy.

AVAS. See *ATHAMANIA*.

AVAS, in *Geography*, a mountain of Hungary, in the district of Marmarufs.

AVAST, a term frequently used on board a ship, signifying to stop, hold, or stay. The word is formed of the Italian *vasta*, or *basta*, it is enough, it suffices.

AVASTOMATES, in *Ancient Geography*, a people of Africa, in Mauritania. Amm. Marc.

AVATSCHA, or **AWATSKA**, called also *St. Peter and St. Paul*, in *Geography*, a sea-port of Kamtschatka, lying in N. lat. $52^{\circ} 51'$. and E. long. $158^{\circ} 48'$. The bay of Avatscha lies in the bight of another formed by cape Gavareea to the south, and Cheeponskoi-nofs to the north: the latter bearing from the former N.E. by N. and distant from it thirty-two leagues. From cape Gavareea to the entrance of Avatscha bay the coast bears to the north, extends about eleven leagues, consists of a chain of ragged cliffs and rocks, and presents in many parts an appearance of bays or inlets, which on a nearer approach are found to be low grounds connecting the head-lands. From the entrance of Avatscha bay, Cheeponskoi-nofs bears E.N.E. at the distance of seventeen leagues. The shore on this side is flat and low, with hills behind that rise gradually to a considerable height. When navigators approach this bay from the southward, this difference of the land on both sides of cape Gavareea in lat. $52^{\circ} 21'$, will direct them in their course: when they approach it from the northward, Cheeponskoi-nofs becomes very conspicuous, as it is a high projecting head-land, united to the continent by a large extent of level ground lower than the Nofs, and it presents the same appearance both from the north and south. The situation of Avatscha may be also known, in clear weather, by the two high mountains to the south of it; of which that nearest to the bay is in form of a fugar-loaf, and the other flat and not so high: These very conspicuous mountains also appear on the north side of the bay; that to the west being the highest; the next, which is a volcano, may be known by its smoke; and the third, which is the most northerly, is a cluster of mountains, with several flat tops. Within the capes, the entrance of Avatscha bay to the north is pointed

out by a light-house on a perpendicular head-land, to the eastward of which are many funken rocks, stretching two or three miles into the sea: four miles to the south of the entrance lies a small round island, principally composed of high pointed rocks. The entrance into the bay is at first about three miles wide, and in the narrowest part $1\frac{1}{2}$; the length in a north-west direction is four miles. Within the mouth is a noble basin about twenty-five miles in circumference; in which are the harbours of Rakoweera to the east, Tarcinska to the west, and St. Peter and St. Paul to the north. Such is the account of Avatscha given in the continuation of Cook's voyages. The bay of Avatscha, according to the relation of La Perouse, who visited it in 1787, is certainly the finest, most commodious, and safest that can possibly be met with in any part of the world. Its mouth is narrow, and ships would be compelled to pass under the guns of the fort, which might be erected there. It has excellent holding ground, as the bottom is of mud. Two vast harbours, one on the east, and the other on the western coast, would contain all the ships of England and France. The rivers of Avatscha and Paratounha empty themselves into this bay; but they are impeded by sand banks, and can only be entered at high water. The village of St. Peter and St. Paul is situated on a tongue of land, which, like an artificial bank, forms behind the village a little harbour, inclosed like a circle, which might accommodate three or four dismantled ships during the winter: its entrance is less than 25 toises wide. On the side of this basin M. Kasloff, the governor, proposed to mark out the plan of a town destined to be the capital of Kamtschatka, and perhaps the grand centre of commerce with China, Japan, the Philippines, and America. A large lake of soft water lies to the north of the site of this projected city, and at the distance of only 300 toises are many small brooks, the junction of which would facilitate the conveyance of all the commodities necessary for a large establishment. M. Kasloff gave orders for announcing, that an union of several districts with that of St. Peter and St. Paul would soon take place, and that he intended immediately to build a church. The ice in the bay of Avatscha never extends within 3 or 400 toises from the bank; and during the winter it often happens, that the land winds disperse that which obstructs the passage into the rivers of Paratounha and Avatscha, when the navigation again becomes practicable. This bay is said to bear a great resemblance to that of Brest, but it affords better anchorage by the mud of its bottom; its mouth is narrower, and of course more easily defended. The two shoals at the entrance of this bay, which are separated by a large channel for the passage of ships, may be easily avoided, by leaving two detached rocks on the east shore open with the light-house point, and by keeping, on the contrary, shut in with the west shore, a large rock on the larboard-hand, and which is only separated from the shore by a channel less than a cable's length wide. The tides in this bay are very regular; and the greatest rise of high water, which happens at half past three on the days of new and full moon, is four feet. From M. Dagelet's observations, the governor's house at St. Peter and St. Paul, is situated in N. lat. $53^{\circ} 1'$. and E. long. from Paris, $156^{\circ} 30'$. La Perouse's Voyage, vol. ii. ch. 22. p. 177, &c. Eng. Transf.

AVATHA, in *Ancient Geography*, a town of Arabia Petrea. Ptolemy,—Also a town of Phœnicia. Notit. Imp.

AVATICI, a people of Europe, in Gallia Narbonensis, whose capital according to Pliny was *Maritima*; or as Steph. Byz. has it, *Mastramela*.

AVAUNCHERS, among *Hunters*, the second branches of a hart's horn.

AUAXA,

AUAXA, or AUAZA, in *Ancient Geography*, a town of Asia, in Pontus. Not. Imp.

AUB, in *Geography*, a town of Germany, in the circle of Franconia, and bishopric of Wurzburg, on the river Gollach, seventeen miles south of Wurzburg, and twenty eight north-west of Anspach.

AUBADE, Fr. in *Musie*, a concert given at day-break in hot climates, in the open air; generally by a lover under the window of his mistress. The Italians term this harmonical morning salutation, *matinata*; a noon song of the same kind, *giornata*; evening song or concert, *serenata*; a midnight concert, *notturno*.

AUBAGNE, in *Geography*, a town of France in the department of the mouths of the Rhone, and chief place of a canton in the district of Aix; three leagues east of Marseilles and 5 S. S. E. of Aix. N. lat. $43^{\circ} 17'$. E. long. $5^{\circ} 52'$.

AUBAINE, in the *French Customs*, a right vested in the king, of being heir to a foreigner, who died within his dominions.

The word is formed of *aubain*, a *foreigner*; which Menage derives farther from the Latin *alibi natus*; Cujas, from *advena*, which is the name foreigners bear in the capitularies of Charlemagne; Du-Cange, from *Albanus*, a Scot or Irishman; because these were anciently much given to travelling and living abroad.

The king of France, by the right of aubaine, claimed the inheritance of all foreigners in his dominions; exclusive of all other lords, and even of any testament the deceased could make. An ambassador, though not naturalized, is not subject to the right of aubaine. The Swiss, Savoyards, Scots, and Portuguese, are also exempted from the aubaine, as being reputed natives and regnicoles.

M. de Lauriere (Glossaire du Droit François, art. Aubaine, p. 92.) produces several ancient deeds which prove, that in different provinces of France, strangers became the slaves of the lord on whose lands they settled. Beaumanoir says (Coust. de Beauv. ch. 45. p. 254.) that there are several places in France, in which if a stranger fixes his residence for a year and a day, he becomes the slave of the lord of the manor. As a practice so contrary to humanity could not subsist, the superior lords found it necessary to rest satisfied with levying certain annual taxes from aliens, or imposing upon them some extraordinary duties or services. But when any stranger died, he could not convey his effects by a will; and all his real as well as personal estate fell to the king, or to the lord of the barony, to the exclusion of his natural heirs. This practice of confiscating the estates of strangers upon their death, was very ancient. It is mentioned, though very obscurely, in a law of Charlemagne, A. D. 813. Not only persons who were born in a foreign country were subject to the droit d'aubaine, but in some countries such as removed from one diocese to another, or from the lands of one baron to another. "It is scarcely possible," says Dr. Robertson (Hist. Ch. V. vol. i. p. 397.), "to conceive any law more unfavourable to the intercourse between nations. Something similar to it may be found in the ancient laws of every kingdom in Europe. With respect to Italy, see Murat. Ant. vol. ii. p. 14." It is no small disgrace to the French jurisprudence, that this barbarous, inhospitable custom, should have so long remained in a nation so highly civilized.

AUBAIS, in *Geography*, a town of France in the department of the Gard, one league S. E. of Sommieres, and three and a half S. W. of Nîmes.

AUBAN, a town of France in the department of the Var, and chief place of a canton in the district of Grasse; the place contains 624, and the canton 3931 inhabitants; the territory includes $272\frac{1}{2}$ kilometres and 14 communes.

AUBAREDE, a town of France, in the department of the Higher Pyrenées, and chief place of a canton in the district of Tarbes: the place contains 404, and the canton 5595 inhabitants: the territory includes 130 kilometres and 29 communes.

AUBE, a river of France, which rises near Auberive, in the department of the Upper Marne, passes by Fert sur Aube, Bar sur Arce, Dienville, Arcis, &c. and joins the Seine seven miles below Mery. Aube gives name to a department which it waters. This department is one of the four into which the province of Champagne is distributed. It is bounded on the north by the departments of Upper Marne, Marne and Seine, and Marne; on the east by that of the Upper Marne; on the south by those of Cote d'Or and the Yonne; and on the west by this last, and that of the Seine and Marne. The superficies is about 1,196,370 square acres, or 610,608 hectares; its population consists of 228,814 persons; and it is divided into five communal districts.

AUBEL, a town of France, in the department of the Ourte, and chief place of a canton, in the district of Malmédy. The place contains 3004, and the canton 12,649, inhabitants: the territory includes 130 kilometres and 11 communes.

AUBENAS, a town of France in the department of the Ardèche, and chief place of a canton in the district of Privas, three and a half leagues S. W. of Privas. N. lat. $44^{\circ} 32'$. E. long. $5^{\circ} 32'$. The place contains 3315 and the canton 12,944 inhabitants: the territory includes $137\frac{1}{2}$ kilometres, and 16 communes.

AUBENTON, a town of France, in the department of the Aisne, and chief place of a canton, in the district of Vervins, nine leagues N. E. of Laon, and three and three quarters east of Vervins. The place contains 1100 and the canton 9020 inhabitants: the territory includes $142\frac{1}{2}$ kilometres and 13 communes.

AUBERG, a town of Germany, in the archduchy of Austria, on the north side of the Danube, opposite to Lintz.

AUBERIVE, a town of France, in the department of the Marne, and chief place of a canton, in the district of Rheims, on the Suippe, 15 miles north of Chalons—Also a town of France, in the department of the Upper Marne, and chief place of a canton in the district of Langres, 12 miles south west of Langres. The place contains 535 and the canton 6966 inhabitants: the territory includes $367\frac{1}{2}$ kilometres and 29 communes.—Also, a town of France in the department of the Isère, and chief place of a canton in the district of Vienne, five miles south of Vienne.

AUBERT, PETER, in *Biography*, a French lawyer, was born at Lyons in 1642, and at an early age discovered marks of genius, and a fondness for books. He was distinguished by reputation and success in his profession, and employed in several offices in his native city. His library, which was large and valuable, he left for public use to the city of Lyons. He published, besides a small romance which he wrote at seventeen, intitled "Retour de l'Isle Amour," a collection of "Factums" of various advocates, in 2 vols. 4to., printed at Lyons in 1710; and a much improved edition of "Richelet's Dictionary," published in 1728, in 3 vols. fol. Nouv. Dict. Hist.

AUBERTIN, EDMUND, a learned French divine of the reformed church, was born at Chalons on the Marne, in 1595, chosen minister of the church of Chartres, in 1618; and removed to the church of Paris, in 1631. His famous work, intitled "L'Euchariste de l'Ancienne Eglise," and printed in folio in 1633, was highly esteemed by the reformers but gave great offence to the catholics. In this work

work he discusses the subject of the ancient church, on the grounds of reason and scripture, and examines the faith of the church for the six first centuries, in order to shew, that, through the whole of this period, the doctrines of transubstantiation and of the real person were unknown. The Historical part of this performance was answered by Arnaud, and other Port Royal divines, in a work intitled "La Perpetuité de la Foi." Aubertin became the object of clerical odium; a process was instituted against him for styling himself pastor of the reformed church of Paris, and he was suspended two or three years for some expressions which he used in the pulpit. Intolerant bigotry pursued him to his last moments. On his death-bed, and when he was just expiring, Ollerius, the curate of St. Sulpice, with a bailiff and an armed mob, consisting of forty persons, intruded on his retirement; under a pretence, that he wished to make an abjuration before a priest, which he was prevented from doing, and that they would give him an opportunity of disburdening his conscience. The leader of this gang obtained admittance by feigning himself to be a physician. The honest Aubertin, roused by this intrusion and assault, distinctly declared his perseverance in the faith of the reformed church. When the curate and bailiff withdrew, the mob were with difficulty persuaded to depart without plundering the house. In these happier days this extreme of bigotry, which would not allow a man of distinguished probity and worth to die in peace, and which at a season when

"Claudicat ingenium, delirat linguaque mensque,"

Lucret. l. iii. v. 454.

"When reason halts, and thought and speech are wild," endeavoured to extort from him a declaration, which his sound reason had disclaimed, will be universally reprobated and condemned. This good man died at Paris, in the year 1652, at the age of 57 years. A Latin translation of his work by himself, was published at Deventer in 1654, folio. Gen. Dict.

AUBERY, or AUBRY, JOHN, was physician to the Duc de Montpensier. He was educated under the famous Du Laurens; and published in 1604, "Les Bains de Bourbon-Lancy;" and in 1608, "De restituenda et vindicanda Medicinæ Dignitate;" both at Paris: but the work which gained him most reputation, and which is still in request, is his "Antidote de l'Amour," 12mo., first printed in 1599, and since at Delft, 1663.

AUBERY, ANTHONY, a French historian, was born in 1617, and after having been educated at Paris for the law, retired into the tranquillity of private life, and devoted himself to historical researches. In 1642, his "General History of the Cardinals" was published in 5 vols. 4to.; in 1649, appeared his historical treatise "On the Pre-eminence of the Kings of France above the Kings of Spain and the Emperors;" in 1654, the "History of the Cardinal de Joyeuse, and Collection of Letters written by that Cardinal to Henry III.;" and in 1660, his "History of Cardinal Richelieu, containing the principal events in the reign of Louis XIII." in folio, which was accompanied by two other volumes of titles, letters, dispatches, instructions, and memoirs, serving as documents and vouchers to the general history. When Bertier the printer waited upon the queen regent, requesting her authority for the publication of the work, which contained severe strictures on many persons in high life, it is said that the queen replied, "Finish your work without fear; and put vice to the blush, that virtue alone may dare to shew her face in France." Aubery, notwithstanding the freedom with which he wrote, has been charged with drawing, in this work, too flattering a picture of Cardinal Richelieu, and it has been said that this was done from lucrative motives, for gratifying the

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vanity of the dukes d'Arguillon, the cardinal's niece. A book, written by Aubery, in 1667, on the just pretensions of the king of France to the empire, and dedicated to Louis XIV. alarmed the princes of the empire, and excited complaints against the author, who was committed to the Bastille, in order to silence and conciliate them, but he was soon released. This work was followed by a treatise "On the dignity of Cardinal," and another of little value, "On the Regale, or the right of enjoying the Revenues of vacant Bishoprics." His last work, published in 4 vols. 12mo. in 1751, was "The History of Cardinal Mazarin." The facts collected in this publication from the registers of parliament, now no longer to be found, constitute its chief excellence; for neither the style nor method of it have much to recommend them, and the author had not sufficient independence of mind or situation to write with impartiality. While he was preparing for the press other historical collections, his life, which had been spent in a course of literary labour and industry, was terminated by an accident in 1695, at the age of 78. Journal des Sçavans, t. xxiii. p. 185. Nouv. Dict. Hist.

AUBERY, LOUIS DE MAURIER, a French historian of the 17th century, accompanied his father, who went, whilst he was young, as ambassador to Holland, and visited Germany, Poland, and Italy. On his return to Paris, he obtained the favour of the queen regent; but having no public employment, he retired, after the death of Richelieu, to his family mansion, and spent his time in literary avocations. He died in 1687, and his works were "Memoirs for the History of Holland," published in two vols. 12mo. in 1682; and "Memoirs of Hamburg, Lubeck, Holstein, Denmark, Sweden, and Poland," published after his death, and both printed together at Amsterdam in 1736. The former work contains interesting facts, though it gave offence to the Dutch. Nouv. Dict. Hist.

AUBETERRE, in *Geography*, a town of France, in the department of the Charente, and chief place of a canton in the district of Barbezieux, six leagues south-east of Barbezieux, and $7\frac{1}{2}$ south of Angoulême. The place contains 776, and the canton 8813 inhabitants; the territory includes 135 kilometres, and 13 communes. N. lat. $45^{\circ} 15'$. E. long. $0^{\circ} 10'$.

AUBETTE, a river of France, which runs into the Seine, near Rouen.

AUBEVILLIERS, a town of France, in the department of the Somme, and chief place of a canton in the district of Montdidier, thirteen miles S. S. E. of Amiens.

AUBEVILDIERS (*Les*), a town of France, one league N. N. E. of Paris.

AUBIERES, a town of France, in the department of Puy de Dome, and chief place of a canton in the district of Clermont-Serand, one league south-east of Clermont.

AUBIERES (*Les*), a town of France, in the department of the Two Sevrès, and chief place of a canton in the district of Chatillon sur Sevre, $2\frac{1}{4}$ leagues E. N. E. of Chatillon.

AUBIGNE', THEODORE-AGRIPPA D', in *Biography*, was born at St. Maury, near Pons, in Saintonge, in 1550; but, although he was betimes a proficient in literature, the circumstances of his family, on the death of his father, obliged him to recur to the profession of arms. In the service of Henry IV. of France, then king of Navarre, he so far recommended himself to the royal favour, as to obtain several considerable posts, both of honour and profit. Such was his known and approved fidelity, that his royal master received his remonstrances on such parts of his private and public conduct as deserved amendment, without offence. "The word of D'Aubigné discontented (said Henry on one occasion) is worth as much as the gratitude of another man:"

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and

and when he was reproached for his friendship for La Tremouille, whom Henry had disgraced and banished, he excused himself by saying, "Sire, he is unfortunate enough to have lost the favour of his master—could I withdraw from him my friendship when he has most need of it?" D'Aubigné, however, found at length that extreme frankness becomes not only unacceptable but offensive to the best of princes. He therefore quitted the court and the kingdom, and retired to Geneva, where he died much honoured and regretted, in 1630, at the age of 80 years. By his wife, Susanna de Lezai, he had several children, one of whom was the father of the famous madame de Maintenon. The principal of his works is "An Universal History from 1550 to 1601, with an abridged account of the death of Henry IV." in 3 vols. folio, printed in 1616, 1618, and 1620. The style is exceptionable, being partly vulgar and partly affected and turgid, but the sentiments are free, and the representations of the transactions and characters of the times in general are impartial. On the appearance of the first volume, in which the character of Henry III. is represented in an odious and contemptible light, the parliament of Paris condemned it to the flames. The detail of the military operations is the part of the work that has been most esteemed for its accuracy. The "Confession of Sancy," and the "Baron de Fœnesté," are two satirical poems; the first of which is commended for its vein of ingenious and delicate railery; but the second, though not less acrimonious, is of a grosser kind. Besides miscellaneous pieces, tragedies, poems, &c. D'Aubigné also wrote "Memoirs of his own life," which were not published till 1731. They abound with curious and free anecdotes, and exhibit a lively picture of the man. Of these we have an English translation. Gen. Dict. Nouv. Dict. Histor.

AUBIGNY, in *Geography*, a town of France, in the department of the straits of Calais, and chief place of a canton in the district of St. Pol, eight miles W. N. W. of St. Pol.—The place contains 640 and the canton 12,152 persons; the territory includes 177½ kilometres and 30 communes. Also, a town of France, and chief place of a district in the department of the Cher, six leagues north-west of Sancerre, and 7¼ north of Bourges. The place contains 2533 and the canton 4305 inhabitants: the territory includes 242½ kilometres and 4 communes. In 1442, Charles VII. granted the estate of Aubigny to John Stuart, constable of England and his heirs male, as a recompence for services rendered to him in France, with remainder to the crown on failure of male issue. This reversionary clause took effect in the 16th century, by the death of Charles Stuart without issue. Lewis XIV. made a new grant in favour of Charles II. king of England, the descendant of John Stuart, and made the estate a duchy, annexing a peerage to it in favour of Charles Lenox, duke of Richmond, (natural son of Charles II. by Louisa de Quervuaille, the dutchess of Portsmouth), from whom it descended to the present duke. The right of peerage to this estate was guaranteed by the treaty of Utrecht, confirmed to the present duke, and registered in the parliament of Paris, in 1777. N. lat. 47° 29'. E. long. 2° 20'.

AUBIN, in French *Hoblin*, in the *Manege*, is derived from the Italian word *Ubinos*, signifying a little horse. Accordingly the light-armed troops were termed in unclassical Latin *Höbharin*, in contradistinction to the cataphracts; or heavy-armed troops. Bèranger. See HOBBY.

AUBIN'S, ST., *Bay*, in *Geography*, lies on the island of Jersey, in the English channel; and at the bottom of it is a town of the same name with a good harbour, defended by a fort near the south-west extremity; three miles west from St. Helier's. N. lat. 49° 7'. W. long. 2° 15'.

AUBIN, ST., is also a town of Switzerland, in the principality of Neuchatel.

AUBLETIA, in *Botany* (named after M. F. Aublet, author of the History of Plants in Guiana). Schreb. 889. Apeiba, Aubl. 213. Swartz. Prod. 82. Sloanea, Læf. 311. Class. *polyandria monogynia*. Gen. Char. *Cal.* perianth five-leaved, rigid, spreading, coloured within, pubescent without, deciduous, five-parted; parts linear-lanceolate, acute, with thick margins, which before flowering are contiguous. *Cor.* petals five, roundish-oblong, smaller than the calyx, with very short claws. *Stam.* filaments very many, very short; anthers ovate-oblong, outwardly gibbous, gaping on the inner side, foliaceous at the tip, acute, the exterior ones sterile, lanceolate, ending in a foliaceous point, shorter than the corolla. *Pist.* germ roundish, depressed; style long, striated, gradually thickening, slightly incurved; stigma spreading, perforated, ten-toothed. *Per.* capsule large, orbiculate, depressed, coriaceous, cchinate, ten-celled, gaping at the base. *Seeds*, very many, small, roundish, somewhat compressed; receptacle of the seeds, fleshy.

Ess. Gen. Char. *Cal.* five-leaved. *Cor.* five-petalled. *Capf.* many-celled, echinate, with many seeds in each cell.

Species, 1. *A. Tibourbou*, apeiba tibourbou. Aubl. l. c. Swartz. l. c. "Leaves acutely ferrate, hirsute." A tree of a middling size, having a trunk seven or eight feet high, and a foot in diameter, with irregular, chopped, soft bark, which is fibrous, and fit for making ropes. Wood white and light; branches spreading in all directions, and bent down; twigs villose; leaves alternate, ovate-oblong, cordate at the base, green above, on short petioles; stipules in pairs, acute; flowers in racemes, opposite to the leaves. A pair of opposite bractes is placed at the origin of each twig, and four at the peduncle. The raceme, peduncles, and under side of the leaves, are covered with russet-coloured hairs. A native of Brasil, Guiana, the islands of Cayenne and Tobago. Apeiba is the Brazilian name, and Tibourbou the Caribbean. 2. *A. Petoumo*, apeiba potoumo. Aubl. l. c. Swartz. l. c. "Leaves elliptic, acute, ferrulate, hoary beneath." This tree often rises forty feet high, with a brown, thick, filamentose bark, fit for cordage. Wood whitish, soft; branches spreading, arising from the top of the trunk; leaves alternate, nine inches long, and four broad, entire, smooth, ending in a point, petiolated; flowers yellow, in racemes opposite to the leaves, on long peduncles, surrounded by four large scales at the base. A native of Guiana, in the vast forests of Sinemari. It is called petoumo by the Caribbees. 3. *A. aspera*. Aubl. and Swartz. l. c. "Leaves quite entire, pubescent beneath; fruit compressed." A tree from thirty to forty feet high, with bark and wood like those of the preceding. Leaves alternate, ovate, smooth, pointed, rounded at the base, five inches long, on a short footstalk, at the base of which are two stipules, which soon fall off; flowers at the extremities of the branches, in racemes which have at the base two bractes, and at the divisions three or four scales, from which spring three yellow flowers. A native of Guiana and Cayenne. It is also called petoumo by the Caribbees. 4. *A. levis*. Aubl. l. c. t. 214. (apeiba glabra) "Leaves quite entire, smooth on both sides; fruit rough, depressed." A tree of middling size, with a trunk from ten to twelve feet high; its wood is very light, leaves ovate, acuminate, on short footstalks; stipules in pairs, short, deciduous; flowers in racemes, greenish. A native of Guiana, flowering in May. The inhabitants call it Ivouyira, and use pieces of the wood rounded and pointed to procure fire; hence the Creoles call it bois de méche.

AUBONDAGE, in *Geography*, a town of France, in the department of the Meurthe, and chief place of a canton in the district of Chateau-Salins, six miles N. N. E. of Chateau-Salins.

AUBONNE,

AUBONNE, the name of a government and of a town in the canton of Berne, in Switzerland, which was formerly a lordship belonging to the marquis du Quefne, purchased by him of the famous traveller, Tavernier, and afterwards sold to Berne; eleven miles W. S. W. of Lausanne. The town is situated near a river of the same name, on an eminence, with a gentle declivity, at the foot of which the river runs with an impetuous torrent. The form of the town is that of an amphitheatre, and in its upper part is a handsome castle, from the top of which may be seen not only the town and its adjacent fields, but the whole lake of Geneva, and the land that surrounds it. In the castle of Aubonne, as well as Thonon in Savoy, which is opposite to it on the other side of the lake, is a tower covered with tin, which makes a glittering appearance when the sun shines upon it. In the balliage of Aubonne are several villages, most of which lie at the foot of mount Jura; and in one part of this mountain is a deep cave, which forms a natural ice-house; and from the bottom of it ascends the noise of a subterranean river, supposed to be the river Aubonne, because it first appears, with several sources, about 100 paces from the foot of this mountain.

AUBREY, in Latin ALBERICUS, JOHN, in *Biography*, an eminent English antiquary, was born at Easton Piercy in Wiltshire, in 1625 or 1626; and after preparatory education at Malmesbury, entered in 1642 as a gentleman commoner of Trinity college at Oxford. Whilst he was at the university, he assisted in compiling materials for the "Monasticon Anglicanum." In 1646, he was admitted a student in the Middle Temple; but the death of his father, and the derangement of his affairs, devolved upon him much business and many perplexing law-suits, which prevented him from prosecuting his legal studies. However he did not abandon his favourite pursuit, but maintained a regular correspondence with the lovers of antiquities, and furnished Anthony Wood with many valuable materials for his great work. He also preserved an intimacy with several of those philosophical friends, who formed the Royal Society, of which he became a member in 1662. His domestic circumstances were peculiarly distressing; for he married unfavourably, and by the total loss of his patrimony he was reduced to absolute indigence. But he had the wisdom and fortitude to adapt his mind to his circumstances; and accordingly he says of himself, "From 1670, I have, I thank God, enjoyed a happy delirium." "This obscurity, which he calls happy, consisted in following the bent of his genius, while he owed his subsistence to the kindness of his friends; and in labouring to inform the world, in which he knew not how to live." The principal of those who contributed to his support was lady Long of Draycot in Wiltshire, in whose house he had an apartment till his death, which happened about the year 1700, as he was on a journey to Oxford. Aubrey was a good classical scholar, a tolerable naturalist, and a most laborious antiquarian; but he was credulous, and addicted to superstition. His works were numerous, but most of them were left behind him in MS. These are 1. "The life of Thomas Hobbes of Malmesbury," never published, but having supplied materials for Dr. Blackbourne's account of this philosopher. 2. "Miscellanies upon the following subjects: viz. Day-fatality, Local-fatality, Ostenta, Omens, Dreams, Apparitions, Voices, &c. &c. Corpse-candles in Wales, Magic, &c. Second-sighted persons, &c." This work, the title of which sufficiently indicates the trifling taste and credulous disposition of the author, was printed in 1696, and Aubrey left corrections and additions for a second edition, which was not printed till the year 1721. 3. "A Perambulation of the county of Surrey, begun 1673, ended

1692;" printed in 1719, in 5 vols. 8vo., and often referred to by topographical writers. 4. "The Natural History of the north division of Wiltshire, never published." 5. "Monumenta Britannica, or a discourse concerning Stonehenge, and Rollrich stones in Oxfordshire." MS. On these subjects, Aubrey's judgment was held in high estimation by Mr. Toland; and it was his opinion that these remains are druidical, and anterior to the Roman invasion of Britain. 6. "Archæologica Sacra, a dissertation concerning the manner of our church-building in England." MS. 7. "The idea of universal education," and several letters on natural philosophy, and other curious topics, published in "Ray's Letters," by Derham, and other collections. Among his MSS. at Oxford, there is one which is an account of English writers, especially poets, with many of whom the author was well acquainted. This MS. "was lent to Wood, while he was drawing up his "Athenæ;" but Wood greatly castrated the MS. while it was in his possession. Wood's account of Milton, the first that ever appeared in print, and which has since furnished the substance of all the materials now extant of Milton's life, was literally taken from this MS." See Warton's Life of Dr. R. Bathurst, p. 151—153. Biog. Brit.

AUBURG, in *Geography*, a town of Germany, in the circle of Westphalia, and county of Diepholz, six miles east of Diepholz.

AUBURN, or AUBOURN, is a small town in Wiltshire, 75 miles west from London. It is seated on a branch of the river Kennet, and has a small market on Tuesdays. Its inhabitants are principally employed in the manufacture of fustians, a considerable quantity of which is annually sent to the metropolis. The soil of Auburn and its vicinity is chiefly gravel, with a substratum of chalk. About one mile from the town is a very extensive rabbit warren, whence many hundred couple of rabbits are sent to London during the proper season. Auburn suffered materially in its trade and buildings by a furious fire that occurred here on the twelfth of September 1760, when seventy-two houses, and other property, to the estimated amount of 20,000*l.*, were consumed. By means of a public subscription, the distressed inhabitants obtained some remuneration for their losses; but the town has never recovered the serious injury it then sustained.

AUBUSSON, a town of France, and chief place of a district in the department of the Creuse, fourteen leagues west of Clermont. Its manufacture of tapestry renders the town populous. The place contains 3460 and the canton 9977 inhabitants; the territory includes 155 kilometres and 12 communes. N. lat. 45° 58'. E. long. 2° 15'.

AUCA, a town of Asia, in the kingdom of Candahar, forty-five leagues north-east of Zareng.

AUCAGUERLE, a town of Africa, in the country of Adel. N. lat. 9° 10'. E. long. 44° 25'.

AUCAS, the name of a warlike and independent tribe in South America, occupying the same parts of Paraguay with the ABIPONIANs, and resembling them in their disposition and manners.

AUCH, a city of France, and capital of the department of Gers. Before the revolution it was the capital of Armagnac, and the see of an archbishop, who had the title of primate of Aquitaine; and it was the metropolis of Gascony. It is seated near the Gers, on the declivity of a hill. Some of the streets are straight, well paved, and full of neat buildings. The cathedral is a large and beautiful building, adorned with painted windows, whose colourings are bright and superior to most of the kind. The number of inhabitants has been estimated at 7696; that of its two cantons at 21,447; the territory of both includes 515 kilometres

kilometres and 47 communes. The country round Auch consists of high limestone hills, with narrow vallies, in which are many vines, and in the vineyards are also fig-trees. N. lat. 43° 40' E. long. 0° 40'.

AUCHA, in *Ancient Geography*, a river, upon which was seated the town of Galtis.

AUCHASES, in *Geography*, the name of a tribe of mount Caucasus, called also Abases, or Abasges, who dwell on the southern side of the Kuban, and on the eastern coasts of the Euxine. The proper Auchasia or Abasia is under the Ottoman Supremacy, having a prince, who resides at Anchopia. The western races of the Auchasians acknowledge the paramount sovereignty of the khan of the Crimea; and these are they who at present belong to the Russian Kuban. They mostly live about the river Laba. See ABASSA.

AUCHATÆ, in *Ancient Geography*, a people of Asia, in Scythia.

AUCHENIA, in *Entomology*, the name of a genus of coleopterous insects, adopted after professor Thunberg, by Mr. Marshall, in his late and very excellent work intitled *Entomologia Britannica*. It comprehends a tribe of insects before arranged with the Linnæan chrysomelæ, and among them several which Linnæus had himself assigned to that genus; such as merdigera, 12-punctata, asparagi, cyanella, melanopa, flavipes, hirta, 4-maculata, and tenella; to which Mr. Marshall adds the subspinosa and rufipes (*criocerides*) of Fabricius; and a new species which he names flavicollis. The character of the auchenia genus is, antennæ filiform; head advanced; thorax cylindrical, and narrower than the wing-cases, and the body oblong. T. i. p. 213.

AUCHISÆ, in *Ancient Geography*, a people of Africa, in the Cyrenaic territory.

AUCKLAND, or BISHOP AUCKLAND, in *Geography*, is a neat market and corporate town situated about ten miles south-west from Durham, and 246 N. by W. from London. This place obtained the latter name at the time of bishop Bec, who is said to have built a magnificent castellated edifice here during his prelacy, which continued from 1283 to 1310. But this building has been wholly destroyed, and succeeding bishops have erected and enlarged another noble mansion where the present diocesan occasionally resides. Mr. Pennant describes the palace and grounds as peculiarly beautiful and grand. "Nothing," he observes, "can equal the approach to the former through the latter, which is varied with verdant slopes, rising hills, woods, and deep precipices impending over the Wear." The ground on which the town and castle are placed is of an angular form, and the streets are extended on the sides of the angle, having the castle at one of the terminating points. The eminence is washed on the north side by the river Wear, and on the south-east by the river Gainefels; the banks are formed into hanging gardens, and the whole aspect is extremely beautiful. The town is built on high ground, which rises nearly one hundred and forty feet from the level of the plain below, and the steepness of the roads that approach the town renders them very disagreeable and difficult for the passage of carriages. A free grammar school was founded here by Anne Swyfte, under letters patent from James I. in the second year of his reign. It has been further endowed in 1783, and is held in an apartment under a small and neat chapel which was then rebuilt by a subscription of the inhabitants, and dedicated to St. Ann. As the parish church is at St. Andrew Auckland, a village about one mile distant from the town, this was a necessary improvement. Here are a weekly market on Thursday, and three annual fairs. The market place is a large open space in the middle of the town, and on its western side has lately been erected and established a large manufactory for printing all kinds of cot-

tons, calicoes, muslins, &c. On the north-west is a substantial old bridge, built by bishop Skirlaw about 1403, over the river Wear; and in the vicinity of the town are four or five respectable and handsome gentlemen's seats. Leland's Itin. vol. i. and Hutchins's History of the County of Durham, vol. iii.

AUCTA, in *Entomology*, a species of CHRYSOMELA, with an azure shining thorax; wing-cases blue, dotted, with a red margin. Fabricius. A native of Europe. In size and appearance it resembles CHRYSOMELA marginata.

AUCTA, a species of VESPA, of a black colour, with the anterior margin yellow; two yellow dots and a transverse line on the scutellum; and six yellow bands, the first with a dot on each side, upon the abdomen. This kind inhabits Germany. Gmel. &c.

AUCTION, in *Commerce*, denotes a kind of public sale, much in use for estates, houses, household goods, and other commodities, subject to certain conditions, in which the highest bidder is the buyer. These sales are subject to legal regulations. By 19 G. III. c. 56. an auctioneer is required to take out a licence, setting forth his true name and place of abode; and for the said licence, if it be within the limits of the chief office of excise in London, he shall immediately pay the sum of 20s. and elsewhere 5s. over and besides any other duties or payments for trading in or vending any gold or silver plate, or otherwise; and acting without such a licence incurs, within the bills, a forfeiture of 100l. and elsewhere 50l. The said licence must be renewed annually; and bond must be given at the time of taking it out with two sureties in the sum of 200l. within the bills, and elsewhere in 50l.; that he will deliver in a just account, and make payment of the duties. These duties are as follow: viz. for every 20s. of the purchase money arising by virtue of any sale by auction of any interest in possession or reversion, in any freehold, copyhold, or leasehold lands, tenements, houses, or hereditaments, and of any annuities, or money charged thereon; and of any utensils in husbandry and farming stock, ships and vessels; and of any reversionary interest in the public funds; and of any plate or jewels, shall be paid by the auctioneer or agent 6d. viz. 3½d. by 27 G. II. c. 13. and 2½d. more by 37 G. III. c. 14. And for every 20s. of the purchase money arising or payable by virtue of any sale by auction, of furniture, fixtures, pictures, books, horses, and carriages, and all other goods and chattels whatever, 10d. viz. 7d. by 27 G. III. c. 13. and 3d. more by 37 G. III. c. 14. Piece goods are exempted from duty by 29 G. III. c. 63.; and also all goods imported from Yucatan, and sundry commodities imported from Africa in British ships, or from any British settlement abroad by 32 G. III. c. 41. There are also further exemptions specified by the statutes 17 G. III. c. 50. § 11, 12, 13. and 19 G. III. c. 56. § 13, 14, 15. The auctioneer is required to give previous notice to the office of excise of the day of sale, and deliver a written or printed catalogue specifying the several articles to be sold, attested and signed by himself or his known clerk, under a penalty of 20l. 19 G. III. c. 56. § 9. He shall also within 28 days, within the limits of the chief excise office in London, and elsewhere within six weeks, deliver in an account in writing of the total amount of the money bid at each sale, and of the several articles or lots there sold, and the price of each; and at the same time make payment of the duties: the truth of the account to be attested upon oath. And by 38 G. III. c. 54. every auctioneer, neglecting to make payment within the limited time, shall forfeit double the duty.

AUCTION, or *Autio*, was originally a kind of sale among the ancient Romans, performed by the public crier *sub hasta*

hasta," that is under a spear stuck up on that occasion, and by some magistrate, who made good the sale by delivery of the goods. The custom of setting up a spear at an auction seems to have been derived from this circumstance, that at first only those things which were taken in war were sold in that manner. Hence *hasta* is put for a public sale, and "*sub hastam venire*" denotes to be publicly sold. This was termed *auctio*, q. d. *increase*; because, according to Sigonius, the goods were sold to him, "*qui plurimum rem auget*," who would bid most for them. The day, and sometimes the hour, and the terms of the auction, were advertised, either by a common crier, or in writing; and there were courts in the forum, called "*atria auctionaria*," where auctions were made; and to these Juvenal is supposed to allude. (Sat. vii. 7.) A money-broker, "*argentarius*," was also present, who marked down what was bidden, and to whom the purchasers either paid down the price, or gave security for it. The seller was called "*auctor*," and the right of property conveyed to the purchaser was called "*auctoritas*."

AUCTION *by Inch of Candle*. See CANDLE.

AUCTORATI, in *Roman Antiquity*, an appellation given to such as entered the list as gladiators, and who received wages; or who hired themselves for money to perform in the games or spectacles. The auctorati degraded themselves by the act, and became servile and infamous.

AUCTORATI *Milites* also denoted soldiers bound by oath, and the receipt of wages, to serve in war. In this sense auctorati stand opposed to exauctorati, who were disbanded. The stipend they received for their service was denominated *auctoramentum*.

AUCTORITAS SENATUS, in *Roman Antiquity*. See SENATUS *Auctoritas*.

AUCTUS, in *Botany*, an epithet applied to the calyx, when it has the addition of another smaller calyx; or when it is augmented by a series of distinct leaves shorter than its own, that surround its base.

AUCTUS, in *Entomology*, a species of CIMEK (*Lygeus* Fabr.), the thorax of which is slightly spinous, black, with two fulvous spots; a yellow band on the upper wings; shanks of the posterior legs membranaceous and yellow. Inhabits Cayenne.

AUCUBA, in *Botany*, a large Japanese tree. Thunb. Jap. 4. Nov. Gen. 61. Schreb. 1414. Just. 382. Clafs, *monocia tetrandria*. Gen. Char. * Male flowers. *Cal.* perianth one-leafed, truncate, obscurely four-toothed, villose, very short, permanent. *Cor.* four-petalled; petals ovate, acute, spreading; underneath concave, hairy; above convex, deciduous. *Stam.* filaments four, inserted into the receptacle among the petals, thick, erect, very short; anthers ovate, twin, with four furrows. *Recept.* plano-convex, smooth, with a square hole impressed upon the middle. Female flowers on the same tree. *Cal.* and *Cor.* as in the male. *Pist.* germ inferior; style thick, short; stigma simple, capitate. *Per.* nut ovate, one-celled.

Eff. Gen. Char. Male. *Calyx* four-toothed. *Cor.* four-petalled; berry one-seeded.

Species, 1. *A. japonica*. Thunb. Jap. 94. t. 12, 13. Kämpf. Am. fasc. 5. 775. Ic. select. t. 6. A large tree. Branches and subdivisions dichotomous, smooth, divaricate, erect, angular; leaves aggregate at the tops of the branches, petiolate, opposite, oblong, sharp, remotely ferrate, smooth, nerved; flowers terminal, paniced; peduncles and pedicels villose; bractes lanceolate. It varies with brown green unspotted leaves, and bright green leaves, variegated with white. It is distinguished from the serpicula by the receptacle of the male being smooth, not torulose, but perforated in the middle. A native of Japan. Introduced by Mr. John Græfer in 1783.

AUCUN, in *Geography*, a town of France, in the department of the Higher Pyrenées, and chief place of a canton, in the district of Argelès; the place contains 1208 and the canton 10,254 persons; the territory includes 272½ kilometres and 10 communes.

AUDARISTENSES, in *Ancient Geography*, a people of Macedonia, in Pelagonia. Pliny.

AUDATTHA, a town of Arabia Deserta. Ptolemy.

AUDE, in *Geography*, a river of France, which rises in the Pyrenées, passes by Quilan, Alet, Limoux, Carcassonne, &c. and discharges itself into the Mediterranean, about ten miles east of Narbonne. It gives name to a department through which it flows. This department is one of the seven formed by Languedoc, Comminge, &c. It is bounded on the north by the departments of Herault, Tarn, and Upper Garonne; on the east, by the Mediterranean; on the south, by the departments of the eastern Pyrenées and Arriege; and on the west, by those of Arriege and Upper Garonne. Its superficies is about 1,275,593 square acres, or 650,996 hectares; its population consists of 219,201 persons; and it is divided into four communal districts.

AUDELA, in *Ancient Geography*, a town of Asia, in Mesopotamia.

AUDENA, a river of Italy, in Liguria.

AUDENAERDE, in *Geography*, a town of France, in the department of the Escaut, and chief place of a district. The place contains 4000, and its two cantons 29,924 persons; the whole territory includes 70 kilometres and 21 communes.

AUDENGE, a town of France in the department of the Gironde and chief place of a canton, in the district of Bourdeaux. The place contains 800 and the canton 4,610 persons; the territory includes 692½ kilometres and 6 communes.

AUDEUX, a town of France in the department of Doubs, and chief place of a canton, in the district of Besançon. The place contains 159 and the canton 11,567 persons; the territory includes 227½ kilometres and 44 communes.

AUDIA, a town of Arabia Petrea. Ptolemy.

AUDIANISM, in *Ecclesiastical History*, the system or sentiments of Audius, and his followers; particularly as to the belief of the human figure of the deity. See ANTHROPOMORPHITES, and AUDIUS.

AUDIENCE, in a general sense. See HEARING.

The word is formed from *audire*, to hear.

AUDIENCE is also used for the ceremonies practised in courts, at the admission of ambassadors and public ministers to a hearing. In England, audience is given to ambassadors in the presence chamber; to envoys and residents, in a gallery, closet, or any place where the king happens to be. At their admission, the way in all courts is to make three bows, after which they cover and sit down, the king first covering and sitting down, and giving them the sign to put on their hats. When the king cares not to have them be covered and sit, he continues uncovered himself, and standing all the while, which is taken as a slight and an affront. After the first audience, it does not look well to be too hasty in demanding another. At Constantinople, ministers usually have audience of the prime vizir; in his absence the caimacan admits them to audience.

AUDIENCE is also a name of courts of justice or tribunals established by the Spaniards in America, and formed upon the model of the court of chancery in Spain. Of these there are eleven, which dispense justice to as many districts, into which the Spanish dominions in America are divided. They are established at the following places; viz. St. Domingo in the island of Hispaniola, Mexico in New Spain, Lima,

Lima in Peru, Panama in Terra Firma, Santingo in Guatemala, Guadalajara in New Galicia, Santa Fe in the new kingdom of Granada, La Plata in the country of Los Charcas, St. Francisco de Quito, St. Jago de Chili, and Buenos Ayres. To each of these are subjected several large provinces; and some so far removed from the cities where the courts are fixed, that they can derive little benefit from their jurisdiction. The Spanish writers commonly reckon twelve courts of audience, including that of Manila in the Philippine islands. The number of judges is various, according to the extent and importance of their jurisdiction. Both civil and criminal causes come under their cognizance; and for each peculiar judges are set apart. The Spanish viceroys have often attempted to intrude themselves into the seat of justice; and, therefore in order to check this interference, which must have annihilated justice and security in the Spanish colonies, the viceroys have been prohibited by repeated laws, from interfering in the judicial proceedings of the courts of audience, or from delivering an opinion, or giving a voice with respect to any point litigated before them. These courts of audience are subject to restraint and limitation. They may advise, they may remonstrate; but in the event of a direct collision between their opinion and the will of the viceroy, what he determines must be executed, and nothing remains for them but to lay the matter before the king and the council of the Indies. But to be entitled to remonstrate and to inform against a person, before whom all others must be silent and tamely submit to his decrees, is a privilege which adds dignity to the courts of audience. Besides, upon the death of a viceroy, without any provision of a successor by the king, the supreme power is vested in the court of audience resident in the capital of the viceroyalty; and the senior judge, assisted by his brethren, exercises all the functions of the viceroy, while the office continues vacant. In matters which come under the cognizance of the audiences, in the course of their ordinary jurisdiction as courts of justice, their sentences are final in every litigation concerning property of less value than 6000 pesos; but when the subject in dispute exceeds that sum, their decisions are subject to review, and may be carried by appeal before the royal council of the Indies. Robertson's Hist. Amer. vol. iii. p. 286, &c.

AUDIENCE is also the name of one of the ecclesiastical courts in England, which is held wherever the archbishop calls a cause to his own hearing.

The two archbishops have their courts of audience: that of the archbishop of Canterbury is under the direction of the dean of the arches, who is official of the audience, and keeps his court in the hall of Doctors Commons.

The court of audience is chiefly concerned in differences arising upon elections, consecrations, institutions, marriages, &c.

AUDIENCES, *Chamber of*. See CHAMBER.

AUDIENDO & terminando, a writ or rather commission, directed to certain persons, when an insurrection or great misdemeanour is committed in any place, for the appeasing and punishment thereof.

AUDIENTS, or AUDITORS, in *Ecclesiastical History*, an order of catechumens; consisting of those who were newly instructed in the mysteries of the Christian religion, and not yet admitted to baptism.

AUDIERNE, in *Geography*, a town of France in the department of Finisterre, and chief place of a canton in the district of Ponterfoix, five and a half leagues west of Quimper.

AUDIFRET, JOHN-BAPTIST, in *Biography*, a French geographer, was a native of Draguignan, in Provence, or of Marfeilles, and flourished at the end of the seventeenth, or beginning of the eighteenth centuries. He was appointed

by Louis XIV. in 1698, envoy extraordinary to the courts of Mantua, Parma, and Modena. He died at Nancy, in 1733, at the age of seventy-six years. His much esteemed work, intitled, "*Geographie Ancienne, Moderne, et Historique*," was printed in three volumes, 4to, at Paris, in 1689 and 1691, and in 12mo., at Paris in 1694. This work, which unites geography and history, comprehends only Europe, and being left unfinished, it wants Spain, Italy, and part of Turkey in Europe. Nouv. Dict. Hist.

AUDIGUIER, VITAL DE, a French noble, was born at Naive, near Villefranche de Rouergue, about the year 1565, and united literature with the profession of arms. Of his writings the principal are, "*A Treatise on the true and ancient Usage of Duels*," printed in 8vo. at Paris, in 1617, shewing the injustice of common duels, and recommending a revival of the ancient practice of public combats on great occasions, under royal authority; "*Poems*," in two volumes, 8vo, printed in Paris, in 1614; and two romances under the titles of "*The Loves of Lysander and Calista*," printed at Lyons, in 1622; and "*The Loves of Aristander and Cleonice*," at Paris, in 1625. His style is clear and sprightly; and his romances were much read. He is said to have been assassinated about the year 1630. Nouv. Dict. Hist.

AUDINCOURT, in *Geography*, a town of France, in the department of the Upper Rhine, and chief place of a canton, in the district of Portentruy. The place contains 535 and the canton 6199 persons; the territory includes 137½ kilometres and 24 communes.

AUDIT, a regular hearing and examining of an account by officers appointed for that purpose. See AUDITOR.

AUDITA Querela, in *Law*, is a writ by which a defendant, against whom judgment is recovered, and who is, therefore, in danger of execution, or perhaps actually in execution (or on a statute-merchant, statute-staple, or recognizance), may be relieved upon good matter of discharge, which has happened since the judgment; as if the plaintiff hath given him a general release; or if the defendant hath paid the debt to the plaintiff, without procuring satisfaction to be entered upon the record. In these and the like cases, wherein the defendant hath good matter to plead, but hath had no opportunity of pleading it (either at the beginning of the suit, or *puis darrein continuance*, which must always be before judgment), an *audita querela* lies, in the nature of a bill in equity, to be relieved against the oppression of a plaintiff. It is a writ directed to the court, stating, that the complaint of the defendant hath been heard, *audita querela defendantis*, and then setting out the matter of the complaint, it at length enjoins the court to call the parties before them, and having heard the allegations and proofs, to cause justice to be done between them. Finch. L. 488. F. N. B. 102. It also lies for bail, when judgment is obtained against them by *scire facias*, to answer the debt of their principal, and it happens afterwards that the original judgment against their principal is reversed; for here the bail, after judgment had against them, have an opportunity to *plead* this special matter, and therefore they shall have redress by *audita querela* (1 Roll. Abr. 308.); which is a writ of a most remedial nature, and seems to have been invented, lest in any case there should be an oppressive defect of justice, where a party, who hath a good defence, is too late to make it in the ordinary forms of law. But the indulgence now shewn by the courts in granting a summary relief upon motion, in cases of such evident oppression (Lord Raym. 439.), has almost rendered useless the writ of *audita querela*, and driven it quite out of practice. Blackst. Com. vol. iii. p. 406.

AUDITIONALIS Scholasticus, in *Middle Age Writers*,

is used for an advocate who pleads causes for his clients in audiences. *Du-Cange*.

AUDITOR, a hearer, one who listens or attends to any thing.

AUDITOR is also used for several officers, appointed to audit or hear accounts, pleadings, &c.

Anciently the word auditor was also used for a judge, and even for an inquisitor, appointed by judges to examine and find out the truth of some matter in contest. Notaries are also frequently called auditors.

AUDITOR, in our *Law*, is an officer of the king, or some other person, or corporation, who yearly, by examining the accounts of under-officers that are accountable, makes up a general book, with the difference between the receipts and charges, and the allowances or allocations.

Receivers-general of *fee-farm* rents, &c. are also termed *auditors*, and hold their audits for adjusting the accounts of the said rents, at certain times and places appointed. There are also *auditors* assigned by the court to audit and settle accounts, in actions of account, and other cases, who are proper judges of the cause, and pleas are made before them, &c. 1 *Brownl.* 24. See **ACCOUNT**, and **ASSUMPSIT**.

AUDITORS of the Revenue, or of the *Exchequer*, are officers who take the accounts of those who collect the revenues, taxes, &c. raised by parliament; as also of the sheriffs, escheators, collectors, tenants, and customers; and set them down, and perfect them.

AUDITORS of the Press, or *Impress*, are officers in the exchequer, who formerly had the charge of auditing the great accounts of the king's customs, naval and military expences, and of all monies impressed to any man for the king's service: but they are now superseded by the commissioners for auditing the public accounts. See **PUBLIC ACCOUNTS**.

AUDITOR of the Receipts is an officer of the exchequer who files the tellers' bills, and makes an entry of them, and gives the lord-treasurer a certificate of the money received the week before. He makes debentures to every teller, before they receive any money, and takes their accounts. He also keeps the black book of receipts, and the treasurer's key of the treasury, (where the ancient leagues of the realm, and many records of the king's bench, and common pleas, are deposited); and sees every teller's money locked up in the new treasury. 4 *Inst.* 107. All the exchequer bills, orders, debentures, patents, and other instruments which pass the office of the exchequer, are signed by him.

There are also auditors of the first fruits; of the principality of Wales; of the duchy of Cornwall, &c. See **FIRST FRUITS**, &c.

AUDITOR of the Rota, the apostolic chamber, the chatelet, &c. See **ROTA**, **CHAMBER**, &c.

AUDITORS, in *Church History*. See **AUDIENTS**.

The auditors formed one branch of the Manichean sect, which was divided into elect and auditors; corresponding, according to some writers, to clergy and laity; and, according to others, to the faithful and catechumens among the catholics. By the Manichean rule, a different course of life was prescribed to the elect from that of the auditors. The latter might eat flesh, drink wine, bathe, marry, traffic, possess estates, bear magistracy, and the like; all which things were forbidden to the elect. The auditors were obliged to maintain the elect, and kneeled down to ask their blessing. Beausobre observes, that the elect were ecclesiastics, and in general such as made profession of observing certain counsels, called *evangelic*; such as the clergy and monks; and they were called the *perfect* by Theodoret. The auditors were the laity, and so denominated, because they heard in

the church, while others taught and instructed. *Lardner's Works*, vol. iii. p. 404, &c.

AUDITORS, *Conventual*, *Collegiate*, &c. were officers formerly appointed among the religious, to examine and pass the accounts of the house.

AUDITORIUS MEATUS, or *AUDITORY Passage*, in *Anatomy*. There are two passages distinguished by this title; an external one, by which the air has access to the tympanum; and an internal one, by which the seventh pair of nerves pass from the brain into the petrous part of the temporal bone. See the *Description of the EAR*.

AUDITORY, in an adjective sense, something belonging to the sense of **HEARING**.

AUDITORY, **AUDIENCE**, is also a collective name, denoting an assembly of persons, hearing or attending to a person who speaks in public.

AUDITORY is also used for the seat or bench where a magistrate or judge hears causes.

At Rome, the several magistrates had auditories, or seats of justice, according to their dignity.—Those of the superior officers were called *tribunals*; those of the inferior, *subsellia*.

The *pedanei* had their benches or auditories in the portico of the imperial palace. Those of the Hebrews, at the gates of cities. The judges appointed by the ancient lords distributed justice under an elm, which was usually planted before the manor-house, and served them for an auditory.

AUDITORY, *Auditorium*, in the *Ancient Churches*, was that part of the church where the audientes stood to hear, and be instructed: and it was that part now called *navis ecclesiæ*. See **NAVE**. In the primitive times, the church was so strict in keeping the people together in that place, that the person who went from thence in sermon-time was ordered by the council of Carthage to be excommunicated.

AUDITORY Passage, or *Canal*, *Dissection of the*, in *Surgery*, are described under the articles **EAR**, and **DEAFNESS**.

AUDITORY Nerves, the seventh pair. See **NERVES**, *Description of the*.

AUDIUS, in *Biography*, the founder of a Christian sect, was a native of Mesopotamia, and flourished about the year 350. In his own country he was much esteemed on account of the holiness of his life, and zeal for the faith; but he exposed himself to ill-treatment by his freedom in admonishing the bishops and presbyters, and particularly in reproving the rich clergy, who pursued a luxurious course of life. At length, he separated from the church, formed an assembly of those who were attached to him, and became their bishop. The clergy, offended by his rebukes, and jealous of his popularity, accused him to the emperor, either Constantine or one of his successors, who banished him into Scythia; and here he converted many Goths to the Christian faith. His followers, who were called Audians, adopted some peculiar tenets and customs. They celebrated Easter, or the paschal feast, with the Jews, on the fourteenth day of the moon, alleging that this was the ancient custom, confirmed by the apostolical constitutions, and that the council of Nice had innovated in compliance to Constantine; and they are also said to have used the apocryphal books in their assemblies. They have been likewise charged with some errors in point of doctrine, and particularly with attributing to the deity a human form; whence they have been classed with the Anthropomorphites. *Mosheim E. H.* vol. i. p. 630. *Lardner's Works*, vol. iv. p. 304.

AUDON, in *Ancient Geography*, a promontory of Africa, in Mauritania Cæsariensis. Ptolemy.

AUDRAN, in *Biography*, the name of a celebrated family of artists, who acquired eminence in painting and engraving.

graving. *Claude*, the first of the family, was the son of Louis, who lived in the reign of Henry IV. of France. He was born at Paris in 1592; but as he made no great progress in the art of engraving, his prints are held in little or no estimation. He resided at Lyons, and died there in 1677.

Carl, or *Karl*, was the brother, or as some say, the cousin-german of Claude, and born at Paris in 1594. For the purpose of gratifying and improving an early taste for the arts, he went to Rome, and at his return adopted that species of engraving, which is performed merely with the graver. His style was that of Cornelius Glocemart, but neater. The abbé Marolles, who speaks of this artist in terms of high commendation, attributes 130 prints to him, amongst which "The Annunciation," a middling-sized plate, upright, from Annibale Carracci; and "The Assumption," in a circle from Dominichino, are the most esteemed. His first prints were marked with the letter C; and he afterwards, by way of distinguishing his prints from those of his brother Claude, used the letter K. He died at Paris, in 1674.

Germain was the eldest son of Claude, first mentioned, and born at Lyons in 1631. At Paris he perfected himself under his uncle Carl, and on his return to Lyons, published several prints which did honour to his graver. Such was the estimation in which he was held, that he was a member and professor of the Academy established in this town. He died at Lyons in 1710, and left four sons, all artists.

Claude was the second son of Claude, and born at Lyons in 1639: having studied painting at Rome, he was, on his return, employed by Le Brun, to assist him in the battles of Alexander, which he was then painting for the king of France. He was admitted into the Royal Academy in 1675, and died at Paris in 1684, applauded no less for his virtues than his talents.

Girard, the most celebrated artist of the whole family of Audrans, was the third son of Claude, and born at Lyons in 1640. Having learned from his father the first principles of design and engraving, he removed to Paris, where his reputation introduced him to the acquaintance of Le Brun, by whom he was employed in engraving the battle of Constantine, and the triumph of that emperor. At Rome, he studied under Carlo Maratti, and engraved several fine plates, and particularly the portrait of pope Clement IX. Recalled to Paris by Louis XIV. at the instigation of M. Colbert, after a residence of three years at Rome, he assiduously applied to engraving, and was appointed engraver to the king, who greatly encouraged him. In 1681, he was named counsellor of the Royal Academy, and died at Paris in 1703. Strutt considers him as one of the greatest engravers, without any exception, that ever existed in the historical line; and a careful examination, he says, of the battles of Alexander, engraved by this artist, will of itself justify this assertion. His distinguishing excellence consists in his contracting no manner of his own, but transcribing on copper simply, with great truth and spirit, the style of the master whose pictures he copied. "On viewing his prints, you lose sight of the engraver, and naturally say, it is Le Brun, it is Poussin, it is Mignard, or it is Le Seur, &c. as you turn to the prints which he engraved from those masters." His works, exclusively of his portraits, are distributed into four classes; viz. 1. his slight prints or etchings, to which little or nothing was done with the graver, among which are the "deluge," the "passage through the red sea;" the "combat of Joshua against the Amalekites;" the "empire of Flora;" the "preservation of Pyrrhus;" a "ceiling" from Le Brun, representing the "four seasons" of the year. 2. Those more finished, but in a rough, bold manner; e.g. "Paul and Barnabas at Lystra;" "Coriolanus appeased by his family;" "Time supporting Truth;" the ceiling of the

chapel de Saulx, representing the "Accomplishment of the old law by the new one," engraved in 1631, from Le Brun, wonderfully uniting great spirit, character, expression, and beautiful drawing; and the "death of St. Francis." 3. Those in his most finished manner; as the "battles of Alexander," from Le Brun; viz. "The passage of the Granicus;" "the battle of Arbela;" "Porus brought to Alexander" after his defeat; "Alexander entering the tent of Darius;" and "the triumphal entry of Alexander into Babylon;" the "Pest," from Peter Mignard; the "baptism of the Pharisees," from N. Poussin; the "martyrdom of St. Laurence," from Le Sueur; the "martyrdom of St. Agnes," from Dominichino. 4. Such as he did with the graver only, which are few, and of inferior merit; such as "Æneas saving his father Anchises," after Dominichino; and a small folio "Frontispiece" to the effigies of the popes and cardinals, from Cyro Ferri.

Benoit, second son of Germain Audran, was born at Lyons in 1661, and after receiving instructions from his father, removed to Paris, to enjoy the tuition of his uncle Girard, where he acquired great reputation. He died at Louzouer in 1721. "His manner was founded upon the bold clear style of his uncle. His outlines were firm, and determined; his drawing correct; the heads of his figures are in general very expressive; and the other extremities well marked." But his works, compared with those of his uncle, want the mellowness and harmony, which are so conspicuous in the latter. Among his neatest prints may be reckoned that which represents "Alexander sick," from Le Sueur.

John, the third son of Germain, was born at Lyons in 1667, and perfected himself in the art of engraving, at Paris, under his uncle Girard. His reputation began to display itself at the age of twenty years; and such was his future success, that in 1707, he obtained the title of engraver to the king, and had a pension from his majesty, with apartments in the Gobelins; and in 1708, he was made a member of the royal academy. He was eighty years of age before he quitted the graver, and near ninety when he died. In his most masterly and best prints, the etching constitutes a great part; and he has finished them in a bold, rough style. The drawing of the human figure is correct; the heads are expressive, and finely finished; the other extremities are well marked; but he is inferior to his uncle. He wants that harmony in the effect; his lights are too much and too equally covered; and there is not sufficient difference in the style, in which he has engraved his back grounds, and his draperies. The following prints, besides many others, are usually much esteemed; viz. "Moses saved by Pharaoh's daughter," "Athaliah rending her clothes, on discovering the king in the temple;" "Elihu before Ananias;" "Cupid and Psyche;" all from Ant. Coypel. "The presentation of Christ in the temple," from Corneille. "The miraculous draught of fishes," and its companion "The resurrection of Lazarus," from Jouvenet. "The battles of Alexander," small, from the large prints; "Moses defending the daughters of Jethro," and its companion, "Moses espousing the daughter of Jethro;" "the miracle of the five loaves;" "Christ healing the sick and lame;" and "Christ carrying the cross," both from Ant. Dieu, &c.

Louis, the last son of Germain, was born at Lyons in 1670, and studied at Paris in the school of his uncle Girard. He died suddenly at Paris in 1712. Among his most esteemed prints are, "The seven acts of mercy," from Seb. Bourdon, and "The Cadavre or Corps," from R. A. Houasse. Strutt's Dict.

AUDRUICK, in *Geography*, a town of France, in the department of the straits of Calais, and chief place of a canton, in the district of St. Omer, and $3\frac{1}{2}$ leagues north-west

west of St. Omer. The place contains 2058 and the canton 13,209 persons; the territory includes $22\frac{1}{2}$ kilometres and 14 communes.

AUDUN Le ROMANT, a town of France, in the department of the Moselle, and chief place of a canton in the district of Briey, $3\frac{1}{2}$ leagues west of Thionville. The place contains 286, and the canton 11,529 inhabitants; the territory includes $287\frac{1}{2}$ kilometres and 43 communes.

AUDUS, in *Ancient Geography*, a river of Africa, placed by Ptolemy at the bottom of the Sinus Numidicus, but no traces of it now remain.—Also, a mountainous district in the interior part of Mauritania Sitifensis, the Mons Aurafius of the middle age, and Jibbel-Aurefs, as the Turks pronounce it. It is a chain of eminences running one into another, with several beautiful little plains and vallies intervening. The higher and the lower parts of it are very fertile, and are regarded as the garden of this province. The whole mountainous tract is reckoned to be about 120 miles in circuit, and the northern part, which is visited every year by a flying camp of the Algerines, is possessed by such a number of clans, viz. the Boozenah, Lashash, Maifah, and Booreff, that it requires 40 of their stations to bring them all under contribution. Shaw's Trav. p. 57. This mountain, according to Bruce (Travels, &c. Introd. p. 28.), is inhabited by a savage tribe, of fair complexion, red hair, and blue eyes; called Neardie, and supposed to be a remnant of Vandals, who have maintained themselves in the fastnesses, in defiance of the Moors and Arabs. Each of the people of this tribe have in the middle of the face between their eyes, a Greek cross, marked with antimony; and this mark seems to be the chief vestige of Christianity among them, which religion they not only acknowledge, but boast that their ancestors possessed it. Procopius (Bell. Vand. l. ii. c. 13.) mentions the defeat of an army of the Vandal nation near this place, of which these are probably remains. They pay no taxes to the Bey, but live in constant defiance of him. In this mountain is the Lambefa of Ptolemy.—Also, the name of a small port in the eastern part of Mauritania Cæsariensis, mentioned by Ptolemy, and placed by him in the promontory Jarfath, north-east of the mouth of the river Nasavah.

AUE, in *Geography*, a river of Germany, which runs into the Weser, three miles south of Nienburg, in the circle of Westphalia.—Also, a river of Germany, in Lower Saxony, which runs into the Fuhse, two miles S.S.E. of Zell.—Also, a town of Germany, in Upper Saxony, and circle of Erzeberg, five miles north-west of Schwartzenberg.

AVE, a river of Portugal, which runs into the sea near Villa de Conde, in the province of Entre Duero e Minho.

AVEBURY, or ABURY, a name given to a village in England, situated in the county of Wilts, about five miles west of the town of Marlborough, nineteen north of Stonehenge, and eighty west from London. As a village it presents no particular claims to public notice, but as the site of the most remarkable and stupendous monument of *British Antiquity* in the island, it becomes exceedingly interesting to the antiquary and historian.

The British bards and druids have been repeatedly noticed and often described by our ancient historians; some of whom have given very copious accounts of their religious and juridical rites and ceremonies; but none of them have left complete and satisfactory information relating to the men, their manners, or monuments. Hence arises the great difficulty of giving decisive descriptions of those subjects; and the repeated wars and invasions that have harassed this country, have nearly destroyed all documents and monuments of British antiquity. Among the vestiges of former times, we recognize the stupendous temple at Avebury,

which was unquestionably the most considerable and important in Great Britain. It consisted of a number of large unhewn stones placed perpendicularly in the ground, and disposed in parallel rows and circles. There were four of the latter included within a fifth of larger circumference, and at the end of the southern avenue, about one mile distant from the great circle, were two concentric oval arrangements of stones. The number of stones originally employed in the whole work amounted to six hundred and fifty, and most of them measured from ten to nineteen feet in height above the ground, forty feet in circumference, and weighed from forty to fifty-four tons each. The large circle, and the principal part of this temple, were surrounded with a very considerable vallum and ditch, which included an area of twenty-two acres of ground, and measured about 1400 feet in a transverse diameter. This bank and ditch must have been produced with immense labour, and its peculiarity of formation proves that it was never intended for a fortified place in time of war, as the bank is thrown up on the outer verge of the ditch; whereas all military encampments have the bank within the ditch, to give an advantageous height of ground to the besieged inhabitants. The vallum measures about 30 feet in height from the top to the middle of the ditch. Supposing that it was raised for spectators to behold any ceremonies performed in the inclosed area, it would accommodate above 70,000 persons, and allow two square feet to each. This boundary embraced one large, and four small circular arrangements of stones. The first was about thirty-five feet within the ditch, and consisted of 100 stones, placed at nearly regular distances from each other. Within this circle were two double concentric circles composed with eighty-eight stones, three others called the cove, and one called the central obelisk. From the large circle proceeded two avenues, or double rows of large upright stones, placed at nearly regular distances in each row, and from one row to the other. These consisted of 200 stones, extended about one mile in length each way, and were called the Beckhampton and Kennet avenues. The first proceeded from the temple in a westerly direction, and was terminated with a single stone; whilst the other took a south-eastern course, and had two oval rows of stones at the extremity. The objects we have already described, are considered by some persons as the whole of this extraordinary monument; but it seems very probable that Sillary Hill, some cromlechs, other circles, and numerous relics, were originally connected with it. Silbury Hill is considered as the largest tumulus, or barrow, in England, and its situation implies that it was intended to mark the meridian line from the centre of the temple. Dr. Stukeley states, that it is directly south of the great circle. It measures 105 feet diameter at top, 560 feet at the base, 240 feet in height, following the surface of its northern side, and 1680 feet in circumference at the bottom. From the top of this artificial hill a spectator commands a view of the western avenue, and the whole area of the temple, with a considerable tract of flat country to the north and west. This barrow has been dug into by some persons, who expected to make interesting discoveries; but for want of perseverance, or well-directed research, they discontinued their operations, without gratifying their curiosity, or rewarding their labour.

The Goths, Vandals, and Turks, have often been stigmatized as the merciless destroyers of every venerable and interesting monument of antiquity; but surely they are not more reprehensible than many of the inhabitants of this highly civilized and refined country; some of whom have exercised much ingenuity and labour in wantonly and deliberately destroying this singular monument of ancient customs. We have already stated that

it originally consisted of 650 stones, but most of these have been broken to pieces, by means of fire and manual labour, and the disordered fragments appropriated to the construction of walls, hovels, and common roads. In 1722, only forty remained of the great circle, of which number seventeen were standing; but these are now reduced to nine. The interior circles were almost entire in 1716, but in 1723 only two stones were left erect belonging to the outward circle of the northern temple. Of the Kennet avenue, there were seventy-two stones in 1772, of which only eight or ten remain; and only two of the Beckhampton avenue.

The stones used in forming this temple are called by the inhabitants, Bolderstones and Sarfons. They are of siliceous grit, being of the same species as those that accompany the great stratum of chalk, which crosses England from E.N.E. to W.S.W. These stones lie on the surface of the ground in detached masses, unconnected with any stratum of rock.

Having shewn what the temple was, and what it is, we will next endeavour to explain its appropriation and uses; in doing which, we found our deductions principally on the triads and traditions of the Welsh bards, a class of people more likely to preserve correct memorials of the ancient British, than will be found in any of the Roman histories. By these writers we learn that Avebury was the great national temple, or circle of convention of the Ancient Britons; in which they assembled from all parts of the island, on the four grand festivals, which were held at the time of the two solstices and the two equinoxes, but more particularly on midsummer day, and new-year's day, or the winter solstice. The Bardic triads call the temple at Avebury, one of the three primary *Gorseddau*, or supreme seats of the island of Britain, the other two were those of *Beisgarwen* and *Moel Ebor*.

The circles at Avebury and Silbury Hill had their names reciprocally from each other, for the former was termed *Garfex-Bryn-Gwyxzon*, or the supreme seat of the Hill of presence, or cognition; and the other was called *Cluder-Cyvrangon*, or the tumulus of the circle of conventions. In this place the legislative, sacerdotal, and scientific classes, which formed the ancient British constitution, held their meetings, under the appellations of *Beirz*, *Derwyxzon*, and *Ovizon*, or Bards, Druids, and Ovates. We are informed by Cæsar, that the Druids of Gaul, "who wished to be perfectly skilled in the Druidical science," occasionally visited England to learn it. From the magnitude and situation of Avebury, we are induced to believe that it was their place of meeting or convention. The situation was the most convenient of any in Great Britain; and that it was the grand metropolitan station, seems satisfactorily ascertained by its magnitude above all others in the island; by the various British roads or ridgeways which converged to this spot; by the vast number of barrows scattered all over these plains, and by several other relics of remote antiquity to be found in the neighbourhood. To Dr. Stukeley we are indebted for much information concerning this place, and but for his diligent inquiries and researches in 1722, &c. we should never have been able to ascertain the figure and dimensions of the temple; with his assistance, aided by repeated examination of the spot, we are enabled to present our readers with an account which we hope will prove as satisfactory as it is faithful. To those who wish for a more minute description, we must refer to Britton's *Beauties of Wiltshire*, vol. iii.; and for accounts of some subjects collaterally connected with this, see *BARD*, *BARROW*, *CROM-LECH*, *DRUID*, *KISTVAEN*, *STONEHENGE*, &c.

AVEHEN, a town of North America, in the country of Mexico, and district of Chiametlan.

AVEIA, in *Ancient Geography*, a town of Italy, in Samnium, south of Amiternum.

AVEIN, in *Geography*, a village of the Netherlands, in the duchy of Luxemburg, near which the army of France defeated the Spaniards; two leagues from Rochefort.

AVEIRO, or BRAGANZA NOVA, a sea-port town of Portugal, in the province of Beira, situated in a flat and marshy country, at the mouth of the Vouga, and containing about 1400 houses, divided into four parishes, and six monasteries. The river Vouga flows through the town, where it is very narrow; but it is adorned with a handsome quay. Near the town it divides into two branches, one to the left and running southward to the sea, the other flowing northward to Ovar. Its trade is inconsiderable, as small boats only come to the town; and as the bar is continually shifting, none but small ships can pass it. The fishery of this place is alone worthy of notice; for Aveiro chiefly supplies the province of Beira with Sardinhas, which are carried by large troops of mules into the higher parts of the province. Salt is also produced here in large quantities; though it is not reckoned so good as that at St. Ubes and Lisbon. The town is, on account of its marshy situation, unhealthy, which exposes the inhabitants to frequent attacks of agues and putrid disorders. Aveiro is nine leagues from Coimbra, and eleven south of Oporto. N. lat. 40° 30'. W. long. 9° 8'.

AVEIRO, a river of France, which runs into the Tarn, four leagues below Montauban.

AVELGHEM, a town of France, in the department of Leys, and chief place of a canton, in the district of Courtray. The place contains 3355 and the canton 13,716 inhabitants: the territory includes 57½ kilometres and 9 communes.

AVELINE, in *Conchology*, a name given by French naturalists to one kind of land-snail found in Amboyna, and called by Linnæus *helix scarabæus*.

AVELLA, in *Geography*, a town of Italy, in the kingdom of Naples, and country of Lavora, four miles north-east of Nola. The situation of this town, with its castle, is delightful, and it commands a view as far as Naples. Not far from this place are the ruins of Abella. It now gives the title of prince to the family of Doria.

AVELLANA, in *Botany*. See *CORYLUS*.

AVELLANA, in *Conchology*, a species of *HELIX*, with a slightly umbilicated shell, of an obtuse and somewhat triangular form, rough, plaited, and silvery within; aperture smooth and eared; and an elevated circle on the first whorls of the spire.

AVELLANA, a species of *PATELLA* with a thin white shell, very finely striated; and an oblong perforation divided by a ligament. Native place unknown. Meuschen. Naturf.

AVELLANA, in *Entomology*, a species of *PHALÆNA* (*Tortrix*) found on the nut-tree in the north of Europe. The wing-testaceous, with three short bands. Linn. Gmel. &c.

AVELLANÆ, a species of *ATTELABUS*, of a black colour, with the wing-cases, thorax, and legs red. This insect Gmelin conjectures, may be only a variety of *attelabus coryli*; it inhabits Germany, and is called by Scopoli *curculio collaris*.

AVELLANÆ, a species of *CIMEX*, of a black colour, with brown upper-wings that are white at the base and tip; legs fulvous. Found on the nut-tree. Gmel. Scop. &c.

AVELLANÆ, a species of *PHALÆNA* (*Bombyx*) that is found on the nut-trees in Europe. The wings are dull ash-coloured, with an obscure sinuous band, and without spots. Fabr. Gmel. &c.

AVELLANE, in *Heraldry*, is a term peculiar to the form of acrofs, whose quarters resemble the *nux avellana*, or filbert-nut.

AVELLINO, in *Geography*, a town of Italy, in the kingdom

kingdom of Naples, and Principato Ultra, the see of a bishop, and suffragan of the archbishop of Benevento. Avellino, which was probably founded by the Lombards, is a considerable city, extending a mile in length down the cavity of a hill, with ugly streets, but tolerable houses. The churches are crowded with monstrous ornaments in a barbarous style, which the Neapolitans seem to have borrowed from the Spaniards. The cathedral is a poor building, adorned merely with uncouth Latin distichs, and shapeless Gothic sculpture. The inhabitants have access to a statue of St. Laurence, with a phial of his blood, which for eight days in the month of August entertains them with a miraculous liquefaction similar to that of St. Januarius at Naples. The only edifice of note is a public granary, of the composite order, adorned with antique statues, and an elegant bronze one of Charles II. king of Spain, while a boy, cast by Cavalier Cosimo. The number of inhabitants amounts to 8 or 10,000. The bishop's revenue is about 6000 ducats or 1,125*l.* a year. The magistracy consists of a syndic and four eletti, who are chosen annually; but these offices are engrossed by a certain number of families of some distinction, who neither intermarry nor associate with the other burghers. The estates of the prince amount to the yearly value of 20,000 ducats or 3,750*l.* and 2000 arise from duties on the dye of cloth, which is made of various qualities and colours, but chiefly blue. The finest sells for thirty carlini a canna, and pays twenty-six grana duty of entrance into Naples. Many wealthy merchants are concerned in this cloth manufacture, some of whom employ in it a capital of 80,000 ducats, or 15,000*l.* The poor women who spin the wool, must work very diligently to earn about four grana, a day. The second article of trade is maccheroni and paste of many kinds, which are of excellent quality, and much esteemed through the country. Wooden chairs are also made and sold here in great quantities. Avellino abounds with all sorts of provisions; each street is supplied with fresh water; but the wine is indifferent. The soil of this district, consisting chiefly of volcanic substances, produces little corn, but abundance of fruit, of which the apple is held in high estimation. The most profitable of all fruit-trees, however, is the hazel. Nut-bushes cover the face of the valley, and in good years yield a profit of 60,000 ducats, or 11,250*l.* The nuts are mostly of the large round species of filberd, which we call Spanish; and the bushes were originally imported into Italy from Pontus, and known among the Romans by the appellation of "Nux Pontica," which, in progress of time, was changed into that of "Nux Avellana," from the place where they had been most successfully propagated. The proprietors plant them in rows, and, by dressing, form them into large bushes of many stems. Every year they refresh the roots with new earth, and prune off the straggling roots with great attention. Swinburne's Travels, vol. i. p. 171, &c.

AVE-MARIA, or AVE-MARY, the angel Gabriel's salutation of the Virgin Mary, at his bringing her the tidings of the incarnation; thus called, as beginning with these words, *Ave, Maria*, q. d. *Hail Mary*.

The ave-mary is a prayer or formula of devotion very usual in the Romish church. It was added to their prayers by order of pope John XXII. in the fourteenth century.—Their chaplets and rosaries are divided into so many *ave-marys*, and so many *pater-nosters*; and hence the beads themselves which indicate them, are also called *aves*, or *ave-marys*.

AVENA, in Botany, oat-grass (supposed from *aveo*, to desire, or covet; cattle being fond of it). Lin. g. 91. Schreb. 122. Juss. 32. Clafs, *triandria digynia*. Nat. Ord. *gramina*. Gen. Char. *Cal.* glume generally many-flowered, two-valved, loosely collecting the flowers; valves lance-

olate, acute, ventricose, loose, large, awnless. *Cor.* two-valved; lower valve harder than the calyx, the size of the calyx, roundish, ventricose, acuminate at both ends, emitting from the back an awn spirally twisted, reflex; nectary two-leaved; leaflets lanceolate, gibbous at the base. *Stam.* filaments three, capillary; anthers oblong, forked. *Pist.* germ obtuse; styles two, reflex, hairy; stigma simple. *Per.* none. *Cor.* most firmly closed, grows to the seed and does not gape. *Seed*, one, slender, oblong, acuminate at both ends, marked with a longitudinal furrow.

Ess. Gen. Char. *Cal.* two-valved, many-flowered; awn from the back of the corolla, jointed, twisted.

Species, 1. *A. fibrica*, Siberian oat-grass; *festuca glumis villosis, aristis calyce triplo longioribus*. Gmel. Sib. i. 113. t. 22. "Panicked; calyxes one-flowered; seeds hirsute; awns thrice the length of the calyx." Culms very slender, from two to three feet high; leaves rolled up at the edges, from six to twelve inches long; panicle resembling a spike, often directed to one side; glumes of the calyx almost equal, dagger-pointed, membranaceous towards the point; glumes of the corolla of the same length, extremely villose. A native of Siberia, introduced in 1777 by Mess. Kennedy and Lee. It flowers in July and August. 2. *A. elatior*, tall oat-grass. Hudf. With. Curt. Lond. 3. 6. (*β*) *gramen caninum nodosum*; Ger. "Panicked; calyxes two-flowered; hermaphrodite, floscule almost awnless, male awned." Root perennial; stems erect, round, smooth, with four or five purplish joints, above three feet high; leaves striated from seven inches to a foot in length; panicle erect, shining, numerous branched; spikelets two-flowered, one male and the other hermaphrodite; valves of the calyx unequal, the largest marked with three, the smallest with one green nerve. In the hermaphrodite flower, the midrib of the outer valve forms a short awn, and the bottom very hairy; nectary two small lanceolate glumes, somewhat globular at bottom; germ villose. It is common on banks, in hedges, on the borders of fields, and sometimes in wet meadows. It flowers in June and July. It is an early grass, very productive, and yields a plentiful aftermath. In particular situations the base of the stem becomes knobby and forms the variety above-noticed, which, in some arable land, is very troublesome, and is one of the several grasses confounded under the name of *quick or couch*. 3. *A. stipiformis*. "Panicked; calyxes two-flowered; awn twice the length of the seed; culm branching." Culms a foot high, often reclining, smooth, with brown joints; branches from each axil, short; one glume of the calyx lanceolate, the other ovate; florets two, sessile; corolla smooth, except the outer glume, which is rough with hairs. A native of the Cape. 4. *A. pennsylvanica*. Pennsylvanian oat-grass. "Panicle attenuated; calyxes two-flowered; seeds villose; awns twice the length of the calyx." Observed in Pennsylvania by Kalm. Introduced here in 1785, by Dr. Pitcairn. 5. *A. loeflingiana*. Spanish oat-grass. Cavan. Hisp. t. 45. f. 1. "Panicle contracted; florets in pairs, hirsute; one peduncled, with two awns at the top, the middle awn largest." Root annual, capillary; culms several, slender, from two to four inches high; leaves short, flattish; one of the florets is sessile, the other on a villose pedicel; valve of the corolla bristle-shaped at the tip, with a twisted awn on the back twice the length of the valve. It grows near Madrid, and at the Cape of Good Hope. Introduced here by Monf. Richard, in 1770. 6. *A. sativa*, cultivated oat. Of this there are four varieties, the white, black, brown or red, and the blue oat. "Panicked; calyxes two-seeded; seeds very smooth, one-awned." Annual; culm or straw upwards of two feet high; panicle various in different varieties, but always loose and pendulous; the two glumes or chaffs of the calyx are marked

with lines, pointed at the end, longer than the flower, and unequal. There are usually two flowers and seeds in each calyx; they are alternate, conical, the smaller one is awnless, the larger one puts forth a strong, two-coloured, bent awn, from the middle of the back. No botanist has been able to ascertain satisfactorily the native place of growth of this, or indeed of any other sort of grain now commonly cultivated in Europe. The varieties mentioned above have been long known, and others have been introduced, as the Poland, the Friesland or Dutch, and the Siberian or Tartarian oat. The blue oat is probably what is called Scotch greys. The white sort is most common about London, and those countries where the inhabitants live much upon oat-cakes, as it makes the whitest meal. The black is more cultivated in the northern parts of England, and is esteemed a hearty food for horses. The red oat is much cultivated in Derbyshire, Staffordshire, and Cheshire; it is a very hardy sort, and gives a good increase. The straw is of a brownish red colour, very heavy, and esteemed better food for horses than either of the former sorts. In Lincolnshire they cultivate the sort called Scotch greys. The Poland oat has a short plump grain, but the thickness of the skin seems to have brought it into disrepute among the farmers. Add to this the straw is very short. It was sown by Mr. Lisle, in 1709. Friesland, or Dutch, oat affords more straw, and is thinner skinned, and the grains mostly double. A white oat, called *the potatoe oat* in Cumberland, where it was lately discovered, promises, from the size of the grain and the length of the straw, to be the most valuable we possess; it is now very generally bought for sowing. The oat is a very profitable grain, and a great improvement to many estates in the north of England, Scotland, and Wales; for it will thrive in cold barren soils, which will produce no other sort of grain; it will also thrive on the hottest land; in short there is no soil too rich, or too poor, too hot, or too cold for it; and in wet harvests, when other grain is spoiled, this will receive little or no damage. The meal of this grain makes a tolerably good bread, and is the common food of the country people in the north. It is also esteemed for pottage and other messes, and in some places they make beer with it. 7. *A. nuda*, naked oat, pilcorn, or pillis. "Panicked; calyxes three-flowered; receptacle exceeding the calyx; petals awned at the back; the third floret awnless." This has been considered as a British plant by Ray, Hudson, and Withering; but Dr. Smith says it is by no means to be classed among our indigenous plants. Linnaeus observes it is very nearly allied to the *fatua*; and Haller remarks that the calyx is sometimes two-flowered, but that the awn is neither twisted nor jointed. We are told the seeds have been cultivated, and for the uses of the poor answer all the purposes of oatmeal. 8. *A. fatua*, wild oat or haver. Hudf. With. Smith. Brit. 139. Mart. Fl. Ruft. 81. "Panicked; calyxes mostly three-flowered; florets awned, and hairy at the base." Annual; culm erect, simple, three feet high, a little leafy, striated, very smooth; leaves linear, patent, nervose, scabrous; sheaths thin, nervose, smooth; stipules obtuse, tooth-letted, lacerated; panicle erect, much branched, and spreading; peduncles alternate, capillary, scabrous, thickened towards the apex, nodding; calycine glumes equal, lanceolate, acute, nerved, smooth, longer than the florets; florets for the most part three, remote, gradually diminishing, roundish, beset with tufts of hair at the base, awned from the middle of the back, awn twice the length of the calyx, rough, jointed, twisted at the end; interior glume concave, naked, ciliated. Seed has a soft hairy covering. It grows in fields and hedges, and is one of our most destructive annual weeds among corn. The awns are sometimes used for hydrometers, and the seeds instead of ar-

tificial flies, in fishing for trout. 9. *A. squitertia*. Scheuch. Gram. 220. t. 4. f. 17. "Panicked; calyxes mostly three-flowered; all the florets awned; receptacles bearded." Panicle oblong; the flowers appear to be hairy, but all the hairs sit on pedicels or receptacles within the calyx among the flowers. The third flower is imperfect. Haller thinks it to be only a variety of the *flavescens*. A native of Germany, Switzerland, &c. 10. *A. pubescens*, soft oat-grass. Hudf. With. Smith. "Panicle erect, almost simple, calyxes commonly three-flowered, receptacle bearded, leaves flat, pubescent." Perennial; culm one or two feet high, erect, simple, roundish, smooth, striated, leafy; leaves spreading, short, obtuse, flat, which together with the sheaths are covered with a soft down; stipule short, deltoid; panicle contracted so as to appear like a spike; calycine glumes very unequal, keeled, scabrous, pointed, membranaceous, naked; interior much longer, three-nerved; florets three, the third often abortive, remotish, clubbed-cylindric, nervose, roughish, diaphanous, awned towards the middle of the back; interior glume smaller and weaker, rough at the edge; common receptacle elongated above the florets, beset with white hairs. It grows in dry meadows and chalky pastures, flowering in June. 11. *A. sterilis*, great wild, or bearded oat-grass. "Panicked; calyxes five-flowered; the outer florets and awns hairy at the base, the inner ones awnless." Annual; culms three or four feet high, smooth; leaves smooth, flat, sharp, very long; flowers pendulous; calyxes four or five-flowered; valves lanceolate, acuminate, concave, equal, smooth, white with green streaks. In the two outer florets, the outer valve of the corolla resembles a valve of the calyx in form but shorter, and puts forth an awn two inches long. The other florets are awnless. A native of Barbary and Spain. Curt. Lond. 3. t. 5. "Panicle much branched, 1777. 12. *A. flavescens*, yellow oat-grass. Hudf. With. Smith. Curt. Lond. 3. t. 5. "Panicle much branched, loose, calyxes mostly three-flowered, unequal; receptacle hairy; leaves flat, subpubescent." Culm erect, but curved at the base, a foot and a half high, striated, jointed; leaves flat, acute, striated, more or less pubescent; panicle somewhat nodding, spreading, branched very much, many-flowered, of a shining gold colour; calycine glumes acute, keeled, scabrous on the back, one twice the size of the other, three-nerved; florets two or three, remotish lanceolate, compressed, obscurely nervose, awned; awn twice the length of the floret, scabrous; interior glume narrower; receptacle hairy. It grows in meadows, pastures, and the sides of roads, flowering in June and July. In many of our counties, this species forms the principal part of the finest pasturage on the downs, and in some meadows it contributes to the goodness as well as greatness of the crop. 13. *A. hispida*. "Panicked; calyxes three-flowered, hairy." Culms a foot high, smooth; sheaths hairy; panicle or raceme with undivided pedicels, three or four; glumes oblong, acuminate, hairy, upright; corolla awl-shaped; awns twisted, twice or three times the length of the flowers. 14. *A. capensis*. "Panicle contracted; calyxes three-flowered, subulate; corolla pubescent; middle awn twisted, curved." Root creeping; leaves few, smooth with a rugged edge; culms a foot high, smooth; panicle spike-like, ovate-oblong, purple; the last pedicels capillary; calyx the length of the flower; valves equal, attenuated into an awn; outer valve of the corolla subpubescent, bifid, terminated by two straight awns, and an intermediate one twisted, double the length of the others; inner valve short. This and the *hispida* are natives of the Cape. 15. *A. purpurea*. "Panicle contracted; calyxes two flowered, ovate; corollas villose; outer glume bifid; awn terminal, bent in." A very little, smooth, jointed grass; leaves brittle-shaped, smooth, tufted, short,

short, like those of *festuca ovina*; panicle small; glumes of the calyx purple; valves lanceolate, keeled, smooth; all the florets are awned, and covered with a white down. A native of Martinico. 16. *A. lutea*, "Panicle spreading; calyxes two-flowered; subulate; corollas naked, three-awned, middle awn flexuose." This resembles *aira flexuosa* both in habit and colour. A native of Martinico. 17. *A. lupulina*. "Panicle contracted, ovate; calyxes three-flowered, lanceolate; corollas villose, outer glume bifid; middle awn reflex." This is not readily distinguished from the 15th. It is larger, with sheaths extremely tomentose. Panicle yellow, closely crowded; flowers longer than those of the 15th, with the corollas bifid and more hirsute; the divisions subulate, awned. A native of the cape, found by Thunberg. 18. *A. fragilis*, brittle oat-grass. Schreb. Gram. t. 24. "Spiked; calyxes four-flowered, longer than the floret." Culms many, smooth, with three joints, six or seven inches high; leaves flat, ciliate; spike the length of the culm; florets in a double row, pressed close, and alternate; calyx two or four-flowered, lateral, oblong, pubescent; one valve twice the length of the other; outer valve of the corolla sharp, with an awn from the back. This is the only avena truly spiked. A native of Spain. Introduced by Monf. Richard, in 1770. 19. *A. pratensis*, narrow-leaved oat-grass. Hudf. With. Smith. Gramen aven. &c. Ray. Syn. t. 21. f. 1. ed. 2. 252. n. 2. & 345. Scheuch. Agr. 230. "Spike erect; calyxes mostly five-flowered; receptacles hairy; leaves involute, ferrulate, naked." Root perennial; culms many, a foot or a foot and a half high, erect, simple, with a single joint near the base, above naked, striated, roughish; radical leaves linear, acute, rigid, incurved, smooth on both sides, with the edges serrulate-scabrous; those on the culms broadest, nervose, with long sheaths which are nervose and smooth; stipule lanceolate; spike erect, commonly very simple; upper spikelets subsessile; under ones long, pedunculated; calycine glumes subequal, acute, three-nerved, a little keeled, scabrous of the length of the lower floret; florets four or more, subremote, roundish, roughish, nervose at the apex, membranaceous, lacerated, awned from above the middle of the back; awn double the length of the floret, purple, with a white apex; interior glume smaller, very slender, minutely ciliate; receptacle under the florets, beset with short hairs. It grows on dry pastures and heaths, flowering in July. 20. *A. spicata*. "Spiked; calyxes six-flowered, longer than the outer petal, which is awned and forked at the top." Spike compounded of three or four remote upright spikelets; flowers six, sessile, upright; calyx subulate, equal, longer than the spikelet; outer petal bifid at the top, with a jointed awn between the divisions, the length of the spikelet. It has the habit of *festuca decumbens*. A native of Pennsylvania. 21. *A. bromoides*, Gr. alpinum aven. &c. Scheuch. Gram. 228. t. 4. f. 21. "Subspiked; spicules binate, one peduncled; awns divaricate; calyxes eight-flowered." Two feet high; culm slender; spikelets round, generally in pairs, one sessile, the other peduncled; calyxes from four to eight-flowered; awns from the middle of the back, twisted. A native of Switzerland, and about Montpellier. 22. *A. strigosa*. "Panicked; calyxes two-flowered; corolla smooth at the base; outer valve ending in two awns, shorter than the valve, and with a bent awn from the back." Annual; culm and leaves bare; peduncles from one to four, rough; calyx the length of the florets; valves seven or ten-ribbed, bordered with a row of minute dots; valve of the corolla smooth below; segments terminating in purple awns white at the tip; seeds hairy. This has been found growing with the cultivated oat, but it is not a native of this country. See Smith. 23. *A. aurata*, golden oat-grass. "Calyxes two-flowered; panicle scattered, erect;

corollas golden, villose at the base." A handsome grass, nine inches high; leaves very slender, bristle-shaped; panicle stiff, with mucronate spikelets, one shorter than the other; corolla elliptic, pubescent at the base; top plaited, ferrate; at the base of the outer glume, a jointed awn, longer than the flower. When this grass arrives at maturity, it is of a resplendent gold colour. A native of the Alps, of Switzerland, and Piedmont. 24. *A. feuchzeri*. Scheuch. Gram. 23. t. 3. "Spikelets five-flowered, pubescent at the base; peduncles branching." Culm from six to twelve inches high; leaves smooth, two lines broad, keeled; panicle narrow like a spike; calyx purple, shining, curved at the top; glumes unequal, mucronate; outer glume of the corolla mucronate, green, variegated with bay and gold colour; inner with a gold and silver colour, membranaceous, awn long, brown, jointed, twisted. A native of the same places as *A. aurata*. 25. *A. filiformis*. Forst. Flor. n. 46. "Panicle erect, very slender; calyxes one-flowered; awns twice the length of the calyx." A native of New Zealand and Easter Island.

Propagation and Culture. For the grasses, see GRASS. *Oat.* The best time for sowing oats is in February or March, according as the season is early or late. The black and red oats may be sown a month earlier than the white, because they are hardier. The advantage of early sowing is proved by experiment to be found in the papers of the Bath Agricultural Society. White oats sown the last week in May have produced seven quarters the acre, and in Hertfordshire they do not sow them till after they have done sowing barley, which is found to be a good practice; this oat being more tender than the others. Mr. Marshall mentions the blowing of the fallow as a direction for the sowing of this grain. He says "most people allow four bushels of oats to an acre, but I am convinced, that three bushels are more than enough; the usual produce is about twenty-five bushels to an acre, though I have sometimes known more than thirty." But forty bushels and more are certainly no unusual crop. It appears from Mr. Young's "Tour through the Southern Counties," that the quantity of oats sown varies from five bushels two pecks to two bushels and a half, and that the produce is as follows:

	Q. B. P.			
From 5 bushels and upwards	-	-	-	4 6 0
4 bushels	-	-	-	4 2 2
4 to 5 bushels	-	-	-	3 6 0
3 bushels and a half	-	-	-	2 2 0
2 bushels and a half	-	-	-	2 0 0

He thinks the quantity of seed should be proportioned to the poverty of the ground; for in rich land corn tillers so much as apparently to cover the field; but in poor land it does not tiller at all, consequently the grains should be so much the nearer. Mr. Young, in his "Northern Tour," gives another table of the different quantities of seed corn, with their respective average produce, as follow:

From 7 bushels sown, average produce	-	-	-	6 0 3
6 bushels	-	-	-	6 0 1
5 bushels	-	-	-	4 4 2
4 bushels and a half	-	-	-	4 5 1
4 bushels	-	-	-	4 0 0
3 bushels	-	-	-	4 1 0

Or thus:

From 6 and 7 bushels	-	-	-	6 0 2
4 bushels and a half and five	-	-	-	4 4 3
3 and 4 bushels	-	-	-	4 0 2

Hence it appears, that although some points remain doubtful, yet the superiority of six or seven bushels is so great, that there is abundant reason to think the other quantities are not equal to these in advantage, and that the modern ideas,

ideas of sowing small quantities of seed are not universally to be adopted. Mr. Young therefore recommends that experiments should be tried on all sorts of soils, and in every situation, on small pieces of land, to decide this important point.

AVENACEA, in *Conchology*, a species of ANOMIA, with a pyriform shell, protracted, and somewhat compressed near the hinges. Müll. Zool. Dan. A native of the north seas.

AVENÆ, in *Entomology*, a species of MUSCA, of a black colour and shining; eyes brownish; wings red and green and very shining. Inhabits Sweden. Gmelin, &c.

AVENAGE, formed of the Latin *avena*, *oats*, in *Law*, a certain quantity of oats paid to a landlord in lieu of some other duties, or as a rent, from the tenant.

AVENAY, in *Geography*, a town of France, in the department of the Marne, seated on the river Marne, one league and a half north-east of Epernay, and five W. N. W. of Chalons sur Marne.

AVENCHE, or AVANCHE, a town of Switzerland, in the canton of Bern, and the principal burgh of a bailliage in the Pays de Vaud. Some contend that it was the capital of Helvetia, because Tacitus (Hist. l. i. c. 68.) calls it "Aventicum gentis caput;" while others have endeavoured to prove that by this expression the historian only intended to denote the capital town of its particular district. According to some accounts, the city was built, and a Roman colony founded, by Vespasian; but with greater probability, according to others, it was only repaired and beautified by Vespasian, after it had been laid waste and almost ruined by Cæcina, one of the lieutenants of Vitellius, when many thousands were slain, and many thousands sold for slaves. It was afterwards taken and pillaged by the Burgundians; and reduced to a heap of ruins by Attila. Without doubt it was formerly a very considerable town, and subject to the dominion of the Romans, as we may conclude not only from several mile stones found in many parts of the Pays de Vaud, most of which are numbered from Aventicum, as the principal place of reference, and more particularly from the present ruins. The ancient walls appear to have inclosed a space near five miles in circumference; of which the present town occupies but a very small spot; the remainder being covered with corn fields and meadows. In an adjoining field is a Mosaic pavement, which was the floor of an ancient bath, about sixty feet long, and forty broad; consisting of three compartments, in which are represented human figures in various attitudes, but chiefly bacchanals. From a glory that surrounds the head of Bacchus in this Mosaic, it has been inferred that it was wrought during some part of the intervening age between Vespasian and Marcus Aurelius; because that mark of divinity is not usual upon monuments of Roman antiquity before that period. Besides, the head-dress of a Bacchanalian woman represented in this Mosaic, resembles the head-dress on the medals of the empresses Plotina and Sabina. The ancient amphitheatre appears from the ruins that remain, to have had an arena of about 80 yards in diameter; and under a tower is a cell from which the animals were probably let loose upon the arena. On the outside, remains of five dens are visible; and the walls are adorned with several pieces of rude sculpture dilapidated. Not far from these ruins stands a column of white marble about sixty feet high, composed of large masses neatly joined without cement; and near it lies a considerable fragment of defaced sculpture, which seems once to have formed part of the portal belonging to a magnificent temple. There are also several other relics of the ancient extent and grandeur of this place. Coxe's Travels in Switzerland, vol. ii. p. 175, &c. Avenche is situated at the south end of the

lake Morat, 16 miles south-west of Bern. N. lat. 46° 50' E. long. 7° 7'.

AVENIA FOLIA, in *Botany*, denote leaves which have no visible veins.

AVENIO, now *Avignon*, in *Ancient Geography*, a town of Gallia Narbonnensis, upon the left bank of the Rhone. See AVIGNON.

AVENNE, a town of France, in the department of Ourte, and chief place of a canton in the district of Huy. The place contains 175 and the canton 11,018 inhabitants; the territory includes 157½ kilometres, and 30 communes.

AVENOR, in *Antiquity*, an officer under the master of the horse, who by order or warrant from him, made up the accounts of the stables, and issued debentures for paying the officers and servants.

In a stat. Car. II. we find the avenor mentioned as an officer who provides oats for the stables. In the Rot. Parl. Edw. III. we also read of avenor of the queen, of the prince, &c.

AVENPACE, in *Biography*, a philosopher among the Spanish Saracens, who flourished about the middle of the twelfth century, and was a follower of Aristotle. He wrote a commentary upon Euclid, as well as philosophical and theological epistles. He was intimately conversant with the Peripatetic philosophy, and applied it to the illustration of the Islamic system of theology, and to the explanation of the Koran; and on this account he was suspected of heresy, and thrown into prison at Corduba. It is said that he was poisoned at Fez, in the year of the Hegira 533, A.D. 1138; or, according to others, 525, A.D. 1130. Pococke Spec. Hist. Arab. p. 373. Gen. Dict. Among the Arabian writers he is commonly known by the name of Ebn al Sáyegh; and was born in Spain, of Jewish ancestors.

AVENS, in *Botany*. See GEUM.

AVENS, in *Ancient Geography*, a river of Italy, in the Sabine territory, which discharged itself into the Tiber, and which is supposed to have given the name of Ager Aventinus to the neighbouring district.

AVENTIA, now *Avenna*, a river of Italy, in Etruria.

AVENTINE, JOHN, in *Biography*, a German historian, was the son of an inn-keeper at Abensberg in Bavaria, and born in 1466. Having studied at Ingoldstadt and Paris, he gave private lectures on eloquence and poetry at Vienna, in 1503, and in 1507 taught the Greek language at Cracow in Poland. After spending some time at Ratibon, upon his return to Germany, he removed to Ingoldstadt, in 1509, and explained some books of Cicero; and in 1512, he was sent to Munich to undertake the office of preceptor to prince Lewis and prince Ernest. His remaining time was principally devoted to the collection and compilation of materials for the work; intitled, "Annales Boiorum," or "Annals of the Bavarians," by which he gained great reputation. This work, which was not published till the year 1554, several years after his death, contained some severe strictures on the conduct of the Romish clergy, and portions of secret clerical history, which Zieglerus, the first editor, chose to suppress, but which were afterwards published from an un mutilated MS. by Cifner, at Basil, in 1580. In the year 1529, Aventine, for some reason now unknown, was committed to prison, but he was soon released by the duke of Bavaria; and after a celibacy of sixty-four years, he formed an imprudent matrimonial connection, which disturbed the tranquillity of his latter days. He died in the year 1534. The catholics charged him with being secretly a protestant; but though he corresponded with some of the reformers, and disapproved some of the popish doctrines, it does not appear that he ever abandoned the Romish church. On the contrary, his adherence to it may be inferred from his having

having been buried at Ratibon, in the monastery of St. Hemeran, with the usual popish ceremonies. Like Erasmus, he seems to have been well inclined to the reformation; but he contented himself with serving it within the pale of the church, by lashing the vices of the monks and clergy. Another curious work of Aventine, intitled, "Numerandi per digitos manusque, &c." was published in 1532, at Ratibon, together with heads of a plan for a large work on the antiquities of Germany. His "Annals of Bavaria" were reprinted in folio, in 1710. Gen. Dict. Nouv. Dict. Hist.

AVENTINUS Mons, in *Ancient Geography*, one of the seven hills which formed the site of ancient Rome, and the fourteenth region of the city. The origin of the name is uncertain; but some have derived it from Avenus, the river which watered the district, whose inhabitants were afterwards transplanted thither. It was also called "Murcius" from Murcia, the goddess of sloth, who had a little chapel there; and "Collis Dianæ," from the temple of Diana; and also "Remuria," from the time when Remus resolved to build the city there. But Dionysius of Halicarnassus speaks of mount Aventine and Remuria as two different places; and Stephanus says, that Remuria was a city in the neighbourhood of Rome. The Aventine mount was taken within the compass of the city by Ancus Martius, who, thinking it might serve as a place of defence against surprise, surrounded it with a wall and a ditch. To the east, it had the city walls; to the south the campus Figulinus; to the west, the Tiber; and to the north, Mons Palatinus. It had a good height, and was 18 stadia in compass. It is now called the mount of St. Sabine; and it is thought that the church of St. Sabine was built on the ruins of the temple of Diana. The street that passed from the gate of Ostia to the amphitheatre and Coliseum, divided the Aventine mount into two summits; whence it was called "Biceps."

AVENTURÆ, in our *Ancient Writers*, signify tournaments, or military exercises on horseback.

ADVENTURE, or rather **ADVENTURE**, in our *Law Books*, a mischance, causing the death of a man, without felony; as, when he is suddenly drowned, or burnt by an accident or mischance, falling into the water or fire. See **MISADVENTURE**, and **CHANCE-MEDLEY**.

ADVENTURE, in *Mineralogy*. See **QUARTZ**, and **FELSPAR**.

AVENUE, formed of *avenir*, or *advenir*, to *arrive at*, in *Fortification*, an opening or inlet into a fort, bastion, or the like place; or the passes and ways to and from it. See **FORT**, and **BASTION**.

AVENUE, in *Ornamental Gardening*, is a large and generally straight walk, bounded on each side by one, two, or more rows of forest or other trees, designed sometimes as a principal way from the common road to the mansion-house of a country seat, and often to form views, or to lead to different districts of the neighbouring country. But though avenues of the more regular kind, when formed about extensive seats, or detached in parks, or other extensive pleasure-grounds, always exhibit an air of grandeur, it is more agreeable to the present taste to have the principal front of the mansion entirely open, and unincumbered with these or any other kind of plantation, as it is certainly a great absurdity to hide a good front, and obstruct the prospect; an avenue can therefore seldom be admitted with propriety in that part of the ground. A spacious lawn of grass should, as frequently as possible, be exhibited in due extension in the most conspicuous fronts of such dwellings. See **LAWN**.

But in directions from the wings, detached at considerable distance, avenues may perhaps with propriety be occasionally introduced, and extended on the sides of spacious lawns, serving by way of boundaries, being backed up next the

lawns with shrubs and lower trees, disposed irregularly; and if they be carried in an oblique direction, the lawns will widen gradually, and the prospects be more comprehensive.

Avenues may also be admitted at some distance from either the ends or the back fronts of the dwellings, in either of which situations, one may be extended towards any common road, village, or town, serving as the common entrance to the habitation, or merely by way of ornament, &c. And in still more extensive situations, they may occupy different parts at a distance, being directed towards woods, groves, edifices, or particular districts about an estate; which, when formed of considerable width, and bounded on each side by a proper variety of trees, the noblest of the forest, and other kinds, afford a striking effect as well as an air of dignity to the site.

Avenues of this sort should always be planted with the stateliest trees; an assemblage of the different sorts of which effects the most agreeable variety.

The width of the avenue in such cases should seldom be less than sixty feet; and when it is to be extended any considerable length, an hundred feet in width is not too much; as when the trees grow up, the branches on the opposite sides continue to approach each other, which by degrees greatly contract the views; so that if a considerable width be not at first allowed, the avenues in time appear narrow and confined.

The trees in the rows on the sides should be planted at least thirty feet distant from each other, that they may have full scope to display their heads, and each sort exhibit itself conspicuously, according to its natural form and habit.

The sorts of trees most proper for this purpose are those of the deciduous tribe; as the *elm*, *beech*, *Spanish-chestnut*, *horse-chestnut*, *white poplar*, *sycamore*, *maple*, *walnut*, *wild-cherry*, &c. all of which, as being of lofty growth, when disposed in a proper manner, will have a fine effect. Sometimes evergreen trees are used among these: where this is intended, the most proper sorts are the various species of the pine, including all the different varieties of the fir, most of which attain a great height and magnitude, with beautiful spreading heads, that are extremely ornamental and pleasing.

Avenues of the more rural kind, such as common ways or roads through parks or other pleasure grounds, to habitations, may be continued either in direct lines, or carried round in a moderate sweep, or the course directed in two, three, or more, very gentle bends, or easy serpentine turns, each side being ornamented with different sorts of trees, thinly dispersed, some singly, others in clumps or groups, of two, three, or more together, exhibiting them variously, some breaking forward, others standing more backward; and, for the still greater diversity, a clump of tall flowering shrubs may here and there be introduced; having the whole so considerably detached, as to admit a full prospect of the adjacent lawns, fields, or plantations, in the whole extent. This is the most modern method of forming avenues, but it cannot be practised with full effect except where the situation is of considerable extent. In short, in walks and confined situations, the row method is mostly to be preferred, as having a better effect.

All the trees that are employed in this way, whether deciduous or evergreen, should be permitted to take their natural growth, without being much cut or pruned.

AVENZOAR, whose true name was, **AL WAZIR ABU MERWAN ABDELMELECH IBN ZOHR**, in *Biography*, was the son of a physician of considerable eminence of Seville in Spain, under whom he received the first rudiments of his education, which he afterwards improved by close application and by travel. He appears also to have had the care of an hospital, and to have acquired an uncommon share of knowledge for the age in which he lived, both in the theory and practice.

practice of medicine. He was for some time under the displeasure of Hali, the governor of Seville, by whom he was imprisoned, but seems at length to have surmounted all his difficulties, as he was made physician to king Almanzor, in which post he continued probably to the end of his life. He is said to have died at Morocco in 1166, at the great age of 135 years; though it is probable the age of his son, who succeeded to his fame and practice, is included in this term. From a manuscript in the Escorial (Bib. t. ii. p. 132), cited by Dr. Ruffel in the appendix to his "History of Aleppo," vol. ii. p. 30. it appears that Avenzoar died at Seville, and not at Morocco, about the year 1162; and if it be true, that he had lived to the age of 135 years, and began to practise very young, he must have made a figure in the 11th century, and been born eight or nine years before the death of Avicenna. He prepared his own medicines, reduced luxated bones, and performed other surgical operations, but did not cut for the stone; the Mahometan religion, which he professed, prohibiting him from inspecting or handling the naked genitals.

The work by which he is principally known, called "Al Theiser," is a compendium of the practice of medicine; in which some diseases are described, not found in other writers. It includes a number of cases, candidly, it should seem, related, as the author does not conceal those in which he was unsuccessful. Averrhoes, not ordinarily profuse in his commendation of other writers, speaks very favourably of our author, whom he esteemed as the best physician that had appeared since the time of Galen. From his active and inquisitive turn of mind, and the pains he took to learn from practice the real powers of the medicines he used, he was called the "Experimenter."

"Al Theiser," which has been several times reprinted, was first published at Venice, in folio, 1490. In 1628, J. Celle published "De cognitu difficilibus in praxi ex libro Avenzoar," 4to. Fenet. Le Clerc Histoire de Med. Haller Bib. Med. Pract.

AYER, in *Agriculture*, a general name, in some districts, for a labouring beast of any kind.

AUER, in *Geography*, a river of Lithuanian Russia, which runs into the Pregel, twelve miles west of Insterburg.

AVERA, in *Doomsday-Book*, denotes a day's work of a ploughman, or other labourer, which the king's tenants in his demesne lands were obliged to pay the sheriff, and which was valued at eight-pence.

AVERAGE, in *Agriculture*, a term used by the farmers in many parts of England, for the stubble, or remainder of straw or grafs left in corn fields after the harvest is carried away. In Kent, it is called gratten, in other places roughings, &c. In this sense it may be derived from *haver*, an English name for oats; or from *averia*, *beasts*; being as much as feeding for cattle, or pasturage. Ray.

AVERAGE, AVERAGIUM, in *Law*, that duty or service which the tenant is to pay the king, or other lord, by his beasts and carriages. The word is derived from the base Latin *averia*, *cattle* or *goods*; or the French *œuvre*, *work*.

AVERAGE, or *Averidge*, in *Navigation* and *Commerce*, is used to denote the damage which happens to ships and their cargoes, from the time of their loading and sailing, till their return and unloading. It is divided into three kinds. 1. The simple average, which consists in the extraordinary expences incurred for the ship, such as the loss of anchors, masts, and rigging, by common accidents at sea; or for the merchandize, such as the damages which they have sustained by storms, capture, shipwreck, wet, or rotting; all which must be defrayed by the thing that suffered the damage. 2. The large and common average, being expences incurred, and damage sustained, for the common

security both of the merchandize and ship, which were to be borne by the ship and cargo: such are ransom-money, goods thrown overboard, expences of unlading, or entering in a river or harbour, and the provisions and hire of the sailors, when the ship is detained by embargo. 3. The small averages, which are charges of towing and piloting the ship, one-third of which must be charged to the ship, and two-thirds to the cargo.

AVERAGE, is more particularly used for the quota or proportion which each merchant or proprietor in the ship or loading is adjudged, upon a reasonable estimation, to contribute to a common average.

Such sum shall be divided among the several claimers, by way of average, in proportion to their respective interests and demands. 10 Ann. cap. 17.

AVERAGE is also a small duty, which those merchants who send goods in another man's ship pay to the master thereof, for his care of them, over and above the freight.

Hence, in bills of lading it is expressed:—Paying so much for the said goods, with primage and average accustomed.

AVERANI, BENEDICT, in *Biography*, a learned Florentine, was born in 1652, and taught the Greek language with great reputation in the university of Pisa. He wrote excellent "Dissertations" on the "Anthologia," on Thucydides, on Euripides, and other ancient Greek classics. His acquaintance with Roman literature was accurate and profound, as appears from his "Remarks and Discourses on Livy, Cicero, and Virgil;" and his lectures and writings were well calculated to promote a correct and elegant taste in polite literature; so that he contributed much to reform the bad taste of his age, and to bring back in Italy the golden period of the 16th century. Averani died at Pisa in 1707, in the 55th year of his age. His works were collected and printed at Florence, in 3 large volumes, in 1716 and 1717. Gen. Biog.

AVERANO, in *Ornithology*, the name of the variegated chatterer (*Ampelis variegata*, Gmel.), in Buffon's History of Birds.

AUERBACH, in *Geography*, a town of Germany, in the circle of Upper Saxony, 14 miles south of Zwickau, and 60 W.S.W. of Dresden. N. lat. 50° 26'. E. long. 12° 26'.

AYER-CORN, in *Ancient Writing*, such corn as by custom is brought by the tenants' carriages, to the lord's granary.

AVERDUPOIS Pound. See POUND.

AVERDUPOIS Weight. See WEIGHT.

AUERHAHN, in *Ornithology*, a name assigned by Frisch, Bloch, and others, to the wood grouse, or mountain cock, *tetrao urogallus* of Linnæus.

AVERIA, in our *Law Books*, properly signify oxen or horses used for the plough; but, in a general sense, any cattle; and sometimes the term includes all personal estate.

When mention is made of one beast, they say, *quidam equus*, *vel quidam bos*: when of two or more, they do not say, *equi* or *boves*, but *averia*.

AVERIA, in *Commerce*, a branch of the Spanish revenue, denotes a tax paid on account of convoys to guard the ships sailing to and from America, which was first imposed when sir Francis Drake filled the New World with terror by his expedition to the South sea. It amounts to 2 per cent. on the value of goods. Robertson's Amer. vol. iii. p. 490.

AVERIA, *Replegiare de Averiis*. See REPLEGIARE.

AVERIIS *captis* in *Wüthernam*, in *Law*, a writ for the taking of cattle to his use who hath cattle unlawfully distrained by another, and driven out of the county where they

they were taken, so that they cannot be replevied by the sheriff. Reg. Orig. 82. See DISTRESS.

AVERIUM. See HERIOT.

AVER-LAND, a term employed, under the feudal system, to signify such lands as were employed by the tenants for the use of their lords.

AVERMMENT, in *Law*, usually signifies an offer of the defendant to make good or justify an exception, pleaded in abatement or bar of the plaintiff's action.

The word also sometimes signifies the act, as well as the offer, of justifying the exception; and not only the form, but the matter thereof. Co. Litt. 362. Averment is either general or particular.

AVERMMENT, *general*, is the conclusion of every plea to the writ, or in bar of replications or other pleadings (for counts, or avowries in nature of counts, need not to be averred), containing matter affirmative; and ought to be with the words, "*hoc paratus est verificare.*" See PLEADING.

AVERMMENT, *particular*, is when the life of a tenant for life, or tenant in tail, or the parson of a church, is *averred*, &c. The use of averment being to ascertain what is alleged doubtfully, deeds may sometimes be made good by averment, where a person is not certainly named; but where the deed itself is void for uncertainty, it cannot be made good by averment. 5 Rep. 155. Averment, which is merely the allegation of a party, cannot be made against a record, which imports an uncontrollable verity. Co. Litt. 246. Jenk. 232. Lil. P. R. 155. Averment does not lie against the proceedings of a court of record. 2 Hawk. P. C. c. i. § 14. Nor shall it be admitted against a will concerning lands. 5 Rep. 68. And an averment shall not be allowed where the intent of the testator cannot be collected out of the words of the will. 4 Rep. 44. Nor shall any one aver a thing contrary to the condition of an obligation, which is supposed to be made upon good deliberation, and before witnesses, and therefore not to be contradicted by a bare averment. 1 Lil. Abr. 156. If an heir is sued on the bond of his ancestor, it must be averred that the heirs of the obligor were expressly bound. 2 Saund. 136. Another consideration than that mentioned in a deed may be averred, where it is not repugnant or contrary to the deed. Dyer, 146. But a consideration may not be averred, that is against a particular express consideration; nor may averment be made against a consideration mentioned in the deed, that there was no consideration given. 1 Rep. 176. 8 Rep. 155. If one has two manors known by the name of W. and levies a fine, or grants an annuity out of his manor of W., he shall by averment ascertain which of them it was. 6 Mod. 235. Cha. Rep. 138. If a piece of ground was anciently called by one name, and of late is called by another, and it is granted to me by this new name, an averment that it is the same will make it good. Dyer, 37. 44. No averment lies against any returns of writs, that are definitive to the trial of the thing returned; as the return of a sheriff upon his writs, &c.; but it may be where such are not definitive; and against certificates upon commissions out of any court; also against the returns of bailiffs of franchises, so that the lords be not prejudiced by it. Dyer, 348. 8 Rep. 121. 2 Cro. 13. A special averment must be made upon the pleading of a general pardon, for the party to bring himself within the pardon. Hob. 67. A person may aver he is not the same person on appeal of death in favour of life. 1 Nelf. Abr. 305. Where a man is to take a benefit by an act of parliament, he must aver in pleading, that he is not a person excepted. Plow. Comm. 87, 488. Pleas merely in the negative shall not be averred, because they cannot be proved;

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nor shall what is against presumption of law or any thing apparent to the court. Co. Litt. 362. 373. By stat. 4 & 5. Ann. c. 16, no exception or advantage shall be taken upon a demurrer, for want of averment *hoc paratus est*, &c. except the same be specially set down for cause of demurrer.

AVERNI, among the *Ancient Naturalists*, certain lakes, grottoes, and other places, which infect the air with poisonous steams or vapours; called also *mephites*.

The word is formed of the privative *a*, and *opus*, *bird*, as intimating that birds could not fly over them, but dropped down dead. *Avernus*, q. d. *aornus*, *locus sine avibus*.

Averni are said to be frequent in Hungary, on account of the abundance of mines therein. The Grotto del Cani, in Italy, is a famous one. But the most celebrated Avernus was a lake near Baïæ, in Campania, by the modern Italians called Lago di Tripergola, and situate in the county of Lavora in Naples, near Puzzuoli, and said to be about 600 yards in diameter, and in some places 183 feet deep.—The fumes it emitted are represented by the ancients as being of so malignant a nature, that birds could not fly over it, but sunk down dead; which some later writers have chosen to attribute to this, that its sulphureous effluvia not being of consistence to sustain the birds, they dropped by their own weight. This circumstance, joined with the great depth of the lake, occasioned the ancients to take it for the gate or entrance of hell; and accordingly Homer brings Ulysses to Avernus, as to the mouth of the infernal regions; and in imitation of the Grecian bard, Virgil makes Æneas descend this way into the same abodes.—Vibius Sequester says, that no bottom of it has been found. (See HELL.) Next to the Baïæ (says Strabo) lies the Lærine bay, and within it the lake Avernus; which is a deep darksome lake, with a narrow entry from the outer bay: it is surrounded with steep banks, that hang threatening over it; and is only accessible by the narrow passage through which you sail in. These banks were anciently quite overgrown with a wild wood, impenetrable by a human foot. Its gloomy shade impressed an awful superstition upon the minds of the beholders; whence it was reputed the seat of the Cimmerians, who dwelt in perpetual night. Whoever sailed hither, first offered sacrifice; and endeavoured to propitiate the infernal powers, with the assistance of some priests, who attended upon the place, and directed the mystic performance. Within, a fountain of pure water broke out, just over the sea; but no creature ever tasted of it, believing it to be a vein of the river Styx: somewhat near this fountain was the oracle; and the hot waters frequent in these parts, made them think they were branches of the burning Phlegethon.

The holiness of these shades (says a modern traveller) remained unimpeached for many ages. Hannibal marched his army to offer incense at this altar; though, perhaps, he was led to this act of devotion, rather by the hopes of surprising the garrison of Puteoli, than by his piety. After a long reign of undisturbed gloom and celebrity, a sudden glare of light was let in upon Avernus; the horrors were dispelled, and with them vanished the sanctity of the lake: the axe of Agrippa brought its forest to the ground, disturbed its sleepy waters with ships, and gave room for all its malignant effluvia to escape. The virulence of these exhalations is described by ancient authors as very extraordinary; but modern writers, who know the place merely in a cleared state, charge these accounts with exaggeration; and yet it must be owned that they claim some respect, as the air is even now feverish and dangerous, which the jaundiced faces of the vine-dressers, who have succeeded the Sibyls and Cimmerians in the possession of the temple, most ruefully testify. Boecacio relates, that during his residence at the Neapolitan court, the surface of this lake was suddenly covered with dead fish,

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black

black and finged, as if killed by some subaqueous eruption of fire. At present, however, it abounds with tench, and the dusky Avernus is become clear and serene; so that it offers a most alluring surface and a charming scene for amusements similar to those which were sought for at the Lucrine lake in the time of Seneca, and which he has described. Spallanzani informs us, that he saw great numbers of seals swimming on its surface; and the peasants assured him, that the lake abounded with water-fowl in the winter. "Nor do I know," says this writer, "any cause which can at present drive them from a place where they may find plenty of food, as neither the environs, nor the lake itself, afford any indication of noxious exhalations." There can be no doubt that this lake was the crater of an ancient volcano. Like other volcanic craters, its internal sides become narrow towards the bottom; and both the bottom and the external part of Monte Nuovo, so called because it was produced by subterranean fires in 1538, consist of a friable tufa, in many places covered with plants. The sea bathes the sides of this volcano, which, if dug into as well within the water as without, are found very warm. The same warmth is likewise perceived at the bottom of the crater. From such excavations likewise arise thin warm vapours. In fact, in the internal parts of Monte Nuovo, we find all the last remains of volcanic conflagration. In the external sides of the mountain many pieces of lava were found, which were of a middle character between lava and pumice-stone, and which Spallanzani on this account denominates pumice of lava. The base of these stones is a horn-stone, mixed with a few felspar scales; they scarcely adhere to the tongue, and emit a slight argillaceous odour. In the furnace they produce a compact enamel of a dark grey colour, transparent at the angles, and which gives a few sparks with steel. Towards the internal bottom of the crater, Spallanzani found, projecting from the tufa, the same kind of lava, penetrated with felspars, but more compact and heavy, and interspersed with beautiful and shining veins of black enamel of various thickness. On the side of the bottom, within the tufa, this sagacious observer discovered a small cavity, formed either by nature or art, that abounds with saline efflorescences, which he at first imagined to be muriate of ammoniac (sal ammoniac), or sulphat of alumine (alum); but their urinous acrid taste, the green colour which they gave to syrup of violets, and other qualities that are proper to soda, left no doubt that they were formed from that salt. On the tufaceous sides of the crater, both internal and external, Spallanzani perceived, as he had done in the lake Agnano, a great number of frogs that were leaping about, nearly half an inch long, and about a quarter in breadth. They had the complete form of the frog, were of a dark yellow colour, and their fore-feet were divided into four toes, and their hinder into five; though they have not the shape of the hand, which constitutes an essential difference between these frogs, and the others of those countries. It was difficult to account for the production of these amphibious animals. "Among all the different species of European frogs," says Spallanzani, "(and under this genus, I, with Linnæus, likewise include toads), I know none, which do not begin their existence in water, and continue to live in it some time, until they throw off the mask of the tadpole, and assume the shape of frogs. But Monte Nuovo is not only entirely without moisture, but as I learned from the peasants who reside in the neighbourhood, even when heavy rains fall, the bottom of the crater, which is the only place where rain water can be collected and retained, imbibes all the water immediately, as in fact it must, since it consists of a light spongy tufa, full of cracks and fissures. The only water near is that of the lake Agnano, about

half a mile distant, from which these animals might be supposed to have derived their origin, were it not that the frogs of that lake are of a totally different species." Upon the whole this ingenious naturalist concludes, that the presence of these creatures in this place was to him an ænigma, which it required a longer stay in this volcanic country to enable him to solve.

The cave, called the Sibyl's Grotto, near Avernus, which is opposite to the temple, seems more likely, as Mr. Swinburne apprehends, to have been the mouth of a communication between Cuma and Avernus, than the abode of a prophets; especially as the Sibyl is positively said by historians to have dwelt in a cavern under the Cumæan citadel. Some have conjectured that it was part of the canal absurdly projected by Nero, from the mouth of the Tiber to the Julian port. On every hill, and in every vale of these environs, appear the ruins of extensive villas, once embellished with all the elegancies of combined art, but now traced only by half-buried mouldering walls, and some marble fragments, the remaining indications of the taste and costliness with which they were constructed. Among the ruins of this country, one, in particular, claims attention; and this is the villa in which Cicero had his academy, where he penned some of his most admirable productions, and which probably stood on a spot covered by the eruption of 1538. Swinburne's Travels, vol. iii. p. 51, &c. Spallanzani's Travels, vol. i. p. 128, &c.

AUEROCHS, in *Zoology*, a synonymous name of the wild ox, given by Gesner and Ridinger. See **BOS FERUS**.

AVERON, in *Geography*, an island in the North sea, near the coast of Norway. N. lat. 63° 6'. E. long. 7° 44'.

AVERPENNY, q. d. **AVERAGE-PENNY**, in *Antiquity*, money contributed towards the king's averages, or money given to be freed thereof. See **AVERAGE**.

AVERRHOA, in *Botany*, (so named after the famous commentator on Aristotle and Avicenna; commonly called Averrhoes, of Corduba, in Spain; his "Colliget," or the plants used in food, &c. was written about the end of the twelfth century). Lin. g. 576. Schreb. 784. Juss. 375. Class, *decandria pentagynia*. (*Pentandria*, Lour.) Nat. Order, *gruinales—terebinthaceæ*. Juss. Gen. Char. *Cal.* perianth five-leaved, erect, small; leaflets lanceolate, permanent. *Cor.* petals five, lanceolate, the lower part erect, the upper spreading. *Stam.* filaments ten, setaceous, alternately the length of the corolla, and shorter; anthers roundish. *Pist.* germ oblong, obscurely five-cornered; styles five, setaceous, erect; stigmas simple. *Per.* pome turbinate, five cornered, five-celled; seeds angular, leparated by membranes.

Eff. Gen. Char. *Cal.* five-leaved. *Pet.* five, expanding above; pome five-cornered, five-celled.

Species, 1. *A. Bilimbi*, Rumph. Amb. i. 118. t. 36. Rheed. Mal. 3. 55. t. 45, 46. Lour. Cochin. 289. "Trunk naked, fruit-bearing; pomes oblong, obtuse-angled." A tree about eight feet in height, with few reclining branches; leaves pinnate, with ten or more pairs of leaflets; flowers on racemes adhering to the trunk, of a red purple colour; calyx five-cleft; fruit an oblong pome, the thickness of a finger, smooth. A native of Goa, and of both sides of the Ganges. 2. *A. Carambola*, Rumph. l. c. t. 35. Rheed. l. c. t. 43, 44. Phil. Trans. vol. 75. Lour. l. c. "Axillæ of the leaves fruit-bearing; pomes oblong, acute-angled. This is a tree above the middle size, with spreading branches, and a very close head; leaves with about four pairs of leaflets, which are ovate, acuminate, entire, opposite, the upper ones largest; flowers lateral, on short racemes; corolla bell-shaped, variegated with purple and white; stamens always five; pome

the size of a hen's egg, with a yellow rind. Dr. Bruce gives a curious detail of the sensibility of the petioles and even branches of this tree. The fruit of both the species affords a pleafant acid juice, especially the former. The Bramins and Portuguese call this tree carambola; in Malabar it is named tamara-tonga; and in Bengal, camruc, or camruna. Both these Indian trees have been introduced into the Kew-garden.

AVERRHOES, or **AVERROES**, or *Abu al Waleed Mohammed Ebn Ahmed Ebn Rofhd*, in *Biography*, an eminent philosopher and phyfician, was born about the middle of the twelfth century, at Corduba, the chief city of the Saracens in Spain, where his grandfather and father had occupied the pofts of chief prieft and chief magiftrate. The firft care of his education was entrusted with Thophail of Seville, who inftructed him in the Iflamitic law; and after the manner of the Arabian fchools, in the Mahometan theology, connected with the Ariftotelian philofophy. Under Avenzoar he ftudied medicine; and under Ibnu-Saig, the mathematical fciences; and he connected himfelf with the Mahometan feft of the Alharites. Upon his father's demife, he was chofen to fucceed him in the chief magiftracy at Corduba. The fame of his talents and erudition having reached the caliph Jacob Al-Manfor, king of Mauritania, he was appointed by this prince fupreme magiftrate and prieft of Morocco and all Mauritania, and allowed to retain his former honours. Averroes accepted the appointment; and having provided a fubftitute at Corduba, removed to Morocco, and continued there till he had infituted, through the kingdom, judges well skilled in the Mahometan law, and fettled the whole plan of adminiftration. He then returned home, and refumed his offices. This rapid advancement excited the envy of his rivals at Corduba; and, in order to juftify an accufation of his having deferted the true Mahometan faith, they engaged a number of young perfons to request his inftruction in philofophy, that they might detect his herefy. Averroes frankly communicated his theological fentiments, of which they took minutes for the ufe of his accufers. Accordingly, a charge of herefy attested upon oath, and figned by one hundred witneffes, was conveyed to Al-Manfor. The caliph admitted the accufation, and proceeded to punifh him by an order for the confifcation of his goods, and by requiring him to refide in thofe precincts of Corduba which were inhabited by the Jews. Here he became an object of general obloquy and perfecution; and he was pelted by the boys in the ftreets, whenever he repaired to perform his devotions at the mofque of the city. His pupil Maimonides, in order to prevent the neceffity of joining in this general outcry againft him, left Corduba; and Averroes himfelf at length finding means to efcape, fled to Fez; but here he was foon difcovered, and committed by the magiftrates to prifon. The king, as foon as he heard of his flight, convened an afsembly to deliberate upon the meafures which were proper to be purfued againft this heretic. In the afsembly, a diverfity of opinions prevailed; fome recommended death, and others public penance and a recantation of his errors. Al-Manfor approved the fentiments of thofe who were moft mild and moderate in their judgment; and Averroes was conducted, at the time of public prayers, to the gate of the mofque; and being placed upon the upper ftep, every one that paffed was allowed to fpit upon his face. At the clofe of the fervice, he was interrogated by the judge, accompanied by his attendants, whether he repented of his herefies. Averroes profefled his penitence, and was releafed. During his continuance at Fez he opened a courfe of lectures on the civil law; but finding little encouragement, he obtained leave of the king to return to Corduba, where he experienced all the miferies of poverty and contempt. The people, however, difatisfied with the

regent who had fucceeded him, petitioned the king that their former governor might be reftored. Al-Manfor, unwilling to act on his own judgment, called a general afsembly, and it was determined, that the penitent heretic fhould be reftored, by the royal mandate, to all his former honours. In confequence of this fortunate change in his circumftances, Averroes removed to Morocco, taught in its fchools, and fpend there the remainder of his days. According to Leo Africanus, his death happened in the year of the Hegira 603, A. D. 1206; others fay that he died about the year 1198.

This philofopher has been highly celebrated for his perfonal virtues. Such was his temperance, that he partook only once in the day of the plaineft food. In his application he was unremitting and indefatigable; allowing himfelf no other recreation in the courfe of the day than the change of feverer literary occupations for thofe of poetry or hiftory, and fpending whole nights in ftudy. In his judicial capacity, he difcharged his duty with great wifdom and integrity; and his humanity was fuch, that he could not pafs fentence of death upon any criminal, but performed this office by his deputies. In the exercife of forbearance, meeknefs, and felf-command, he was fignally exemplary. When a fervant, employed by an enemy, intruded upon him in one of his public lectures, and whifpered fome abufive language, Averroes, with perfect felf-poffeffion, turned round to him, and faid, "Well well;" and proceeded with his bufinefs. This fervant waited upon him the next day to implore his pardon for the infult he had offered him. "God forgive thee," faid Averroes, "thou haft publicly fhewn me to be a patient man; and as for thine injury, it is not worthy of notice." He then gave him money, and difmiffed him with this admonition; "what thou haft done to me, do not to another." In the exercife of his liberality to learned men, Averroes made no difcrimination between his friends and his enemies; and for his conduct in this refpect, his apology was, that in giving to his friends and relations, he merely followed the dictates of nature; but in giving to his enemies he fulfilled the obligations of virtue; and he alfo boasted that by this method he had converted enemies into friends. Upon the occafion of burning fome amatory verfes which he had written in his youth, he remarked, that when he was young, he was difobedient to reafon; but now in his old age, he followed it; and he added this fingular wifh, that he had been born an old man: "utinam natus fuiffem fexex." However, when he was requested to exercife his magifterial authority in the fuppreffion of fome licentious poems that had been publifhed by a learned Jew, and informed that his own fon had copied fome of the verfes, and that there was not a man, woman, or child in Corduba, who had not learnt fome of the fongs of Sahal, he exclaimed, "Can a fingle hand ftop a thoufand mouths?"

In philofophy, Averroes was an enthuftic admirer of Ariftotle, and yielded a fuperftitious deference to his authority; he even indulged his admiration to fuch an excefs, that he afcribed to the writings of the Stagirite a degree of perfection "which is truly miraculous, and which proves him to have been rather a divine than a human being."—"The doctrine of Ariftotle," fays he, "is the perfection of truth, and his underftanding attained the utmoft limit of human ability; fo that it might be truly faid of him, that he was created and given to the world by divine providence, that we might fee in him how much it is poffible for man to know." This extravagance of admiration on the part of Averroes is the more furprifing, as he was unacquainted with the Greek language, and was therefore obliged to perufe the writings of his oracle in wretched Arabic tranfcriptions, taken immediately from Latin or Syriac verfions.

His commentaries, however, though they abound with error, misrepresentation, and confusion, have been held in such high estimation, ever since the revival of letters, that Averroes has been styled by way of eminence, "The Commentator." Many of his writings in this way were so much admired by the Jews, that some of them were translated into Hebrew. Averroes also wrote a paraphrase of Plato's Republic; and a treatise in defence of philosophy against Al-Gazel, intitled, "Hahapala Altahapalah," or "Destructiones Destructionum;" the design of which was to confute the metaphysical opinions maintained against those philosophers, who assert two uncreated natures.

Though it is evident from the whole tenor of his life, that Averroes could have little time for the practice of physic, whence Bayle, as well as several other writers, have supposed, that his knowledge of medicine was merely theoretical, yet we have the authority of his own words to prove, he was engaged in the practice also, though probably to no great extent. One observation (Friend says) we find made by him which does not occur in any earlier writer, is "that the same person could have the small-pox but once." His principal medical work, the "Colliget," or "Universal," written at the command of the Miramamolin of Morocco, is a compendium of physic, collected from the writings of other authors, with some not very material additions from his own stores. He wrote also a Commentary on the Cantica of Avicenna, which he calls the best introduction to the knowledge of medicine extant. This affords a complete answer to those who accuse him of having been jealous of the fame of that celebrated physician. As a proof however, that he regarded him as a rival, it is alleged that he avoids the mention of him, and in confuting a doctrine maintained by Avicenna, he treats it merely as the opinion of Galen. Besides the works above mentioned, Averroes wrote, "De Venenis," "De Febribus," "De Theriaca," and "De Simplicibus Medicinis;" all of which have been translated into Latin, and published in various forms. Averroes wrote many other treatises in theology, philosophy, jurisprudence, and medicine. In the Escriptural catalogue (t. i. p. 299.), mention is made of an index of his books, amounting in all to seventy-eight. His commentary on Aristotle was published in Latin, at Venice, in folio, in 1495. An edition of his works was published in 4to., at Lyons, in 1537; another in folio, with the famous Latin translation, by Bagolin, at Venice, in 1552; and a third by Mossa, at Venice, in 1608. Of the MSS. preserved in different libraries and particularly at Vienna, many are either Hebrew translations from the Arabic, or Arabic written in Hebrew characters.

As to the religious opinions of Averroes, he was by profession a Mahometan; but he does not seem to have entertained any great reverence for his prophet. It is related of him, that he called Christianity an impossible religion, because it taught men to eat their god; similar to the reflection of Cicero De Nat. Deor. l. iii. c. 16., when he considered, that the name of Ceres was given to bread, and that of Bacchus to wine: "Ecquem tam amentem esse putas qui illud, quo vescatur, Deum credat esse?" that Judaism, on account of its rites and ceremonies, was a religion for children; that Mahometanism, offering only sensual rewards, was the religion of swine; and that he exclaimed, "Let my soul, at death, be among the philosophers." It is also said, that he wrote against the three great law-givers, Moses, Christ, and Mahomet; and that he furnished materials for the book "De tribus Impostoribus." His doctrine concerning the soul is supposed, not to have been peculiarly his own, but to have been asserted by Aristotle, and to have been embraced by Theophrastus, Simplicius, and Themistius; which was this, that intellect does not exist individu-

ally in this or that man, but that there is one intellect belonging to the whole race of human beings, the common source of all individual thought, as the sun is the common source of light to the world. Similar to this was the doctrine of Malebranche, who ascribed the production of ideas immediately to God, and taught that the human mind perceives God, and sees all things in him. Averroes, however, proceeded farther; and he seems to have conceived, that there was no other cause of thought in individual men, than one universal intelligence, which, without multiplying itself, is actually united to all the individuals of the species, as a common soul. This notion, with its obvious consequences, as they concern the distinct existence and immortality of the human soul, obtained so much credit among philosophers for several centuries, and particularly in Italy, where their advocates were denominated "Averrhoists," that it was thought necessary to employ the papal authority for its suppression. At present, the notions of Averroes are exploded and his writings are forgotten. Dr. Friend (Hist. Physic. p. 118.), anxious to vindicate Averroes from the charge of infidelity, with regard to a future state, refers to two passages in his works; in one of which (Physic. Disput. 3.) he asserts, that the soul is not mortal; and in another, (Id. 4) that it is immortal. Leo. Afric. de Vir. Illustr. Arab. Gen. Dict. Brucker's Philos. by Enfield, vol. ii. p. 245, &c. Fabr. Bib. Græc. t. xiii. p. 95. 282, &c. Friend's Hist. of Physic, vol. ii. p. 115, &c. Haller, Bib. Med. Pract.

AVERRHOISTS, a sect of peripatetic philosophers, who appeared in Italy some time before the restoration of learning, and attacked the natural immortality of the soul; and who took their denomination from Averrhoes. The opinion of this sect was condemned by the last council of the Lateran, under Leo X.

AVERRUNCATION, from *averrunco*, I *prune*, in *Agriculture*, the act of cutting or lopping off the superfluous branches of trees. See **PRUNING**.

AVERRUNCI, from *averrunco*, I *avert*, in *Antiquity*, an order of deities among the Romans, whose peculiar office was to avert dangers and evils. The Greeks called these deities *alexikaci*, and *apopompai*. They were Hercules, Apollo, the Dioscuri, and Jupiter.

The Egyptians had also their *dii averrunci*, or *apotropai*, who were pictured in a menacing posture, and sometimes with whips in their hands.—Isis was a divinity of this kind; as is shewn by Kircher. See *Oedip. Ægypt.* tom. iii. p. 487.

AVERSA, in *Geography*, a town of Italy, in the kingdom of Naples, and territory of Lavora, the see of a bishop, who is suffragan to the archbishop of Naples. This town was built and fortified A. D. 1029, by count Rainulf, the first leader of the Normans, who came into Italy to seek their fortunes in the service of the Italian princes. The seat of this town was chosen, in a fertile district, as a central spot to which the Normans might resort, and where they might obtain a fixed settlement. Accordingly, it attracted every year new swarms of pilgrims and soldiers; some urged by necessity, and others by the hope of ease and renown. The outlaws of every province associated with the settlers in this place, and were soon assimilated in manners and language to the Gallic colony. The spot was situated near the ruins of **ATELLA**, at the junction of two highways, that formed an easy communication with every part of the country, and from its being opposed to Capua, and from his aversion to Pandulph, prince of that city, Rainulf called it Aversa. This town was burnt to the ground by king Roger; and many years after, it underwent a similar fate, by order of Charles of Anjou. Its ancient palace, on the foundation of which a convent has been since erected,

erected, was frequently the residence of the sovereign, before the murder of Andrew of Hungary, husband to Joan the first, who was assassinated by the instigation of a brutal monk, called friar Robert, in the year 1345. It is situated ten miles north of Naples. N. lat. $41^{\circ} 0'$. E. long. $14^{\circ} 20'$.

AVERSATA, in *Entomology*, a species of PHALÆNA, (*Geometra*), with pale wings; streak at the base; band in the middle and dot brown. Linn. Fn. Suec. Inhabits Europe.

AVER-SILVER, a name formerly given to a custom or rent. Cowel.

AVERSION, compounded of *a*, from, and *vertere*, to turn, denotes abhorrence, or dislike. Some oppose it to desire; others, with lord Kaimes, to affection. See ANTI-PATHY.

AVERSIONE venire, or locare, in *Writers of the Civil Law*, seems to denote the selling, or letting things in the lump, without fixing particular prices for each piece.

AVERSPERG, in *Geography*, a town of Germany, in Carniola, eleven miles north-east of Cirknitz.

AVERTI, in *Horsemanship*, is applied to a regular step or motion enjoined in the lessons. In this sense they say, *pas averti*, sometimes *pas ecouté*, and *pas d'école*, which all denote the same. The word is mere French, and signifies *advised*.

AVERTO, in *Geography*, a small island in the gulf of Venice, near the coast of Friuli. N. lat. $45^{\circ} 46'$. E. long. $13^{\circ} 32'$.

EVERY, a place where oats, or provender, are kept for the king's horses. See AVERIA.

AVES. See AVIS.

AVES, or Birds, *Island of*, in *Geography*, an island of the West Indies, nearly west from Dominica, and south from the Virgin islands; so called from the number of birds which breed here, and lay their eggs in the sand. N. lat. $15^{\circ} 26'$. W. long. $66^{\circ} 20'$.—Also, a small island, not far from the coast of Terra Firma, south-east from Bonair island. N. lat. $11^{\circ} 50'$. W. long. $67^{\circ} 25'$. On the north side it has a good harbour for careening ships, and some wells. It is about four miles long, and half a mile broad at the east end. Within three miles there is a dangerous reef of rocks, extending from east to north, and then trending to the west.—Also, an island near the eastern coast of Newfoundland. N. lat. $50^{\circ} 5'$.

AVESA, a river of Italy, which runs into the Adriatic, near Rimini.

AVESBURY, Robert of, in *Biography*, an ancient English historian, flourished in the fourteenth century. He was register of the archbishop of Canterbury's court, and wrote a history of England in his own times, intitled, "Mirabilia Gestæ Magnifici Regis Angliæ Domini Edwardi Tertii, &c." As this history reaches only to the 30th of Edward III. A.D. 1356, the author was probably prevented by death from finishing his plan. He appears to have taken great pains in procuring the most authentic information; his facts are authenticated by original papers; his dates are accurate; and the defect of his style is compensated by his candour and impartiality as an historian. This valuable work lay long concealed: till, in the year 1720, the indefatigable antiquary, Thomas Hearne, printed it at Oxford, from a MS. belonging to sir Thomas Seabright, which had been formerly in the hands of archbishop Parker, and two other MSS., one in the Harleian library, and the other in the university library at Cambridge; all which are thought to be as old as the time when the author flourished. Mr. Tyrrel, in the preface to the third volume of his General History of England, cites this historian, and says, that he was a considerable writer of that age, and very exact in his account of king Edward's actions beyond the sea, as having taken them from several original letters of persons of note. To Hearne's edition is added an appendix, containing several

curious pieces in English antiquities, unconnected with the work itself; and particularly, a transcript of the love-letters between Henry VIII. and Anne Bullen, taken from the originals kept in the Vatican at Rome, A.D. 1682. Biog. Brit.

AVESNE, in *Geography*, a town of France, in the department of the straits of Calais, and chief place of a canton in the district of St. Pol, three leagues west of Arras. The place contains 1221, and the canton 13,915 inhabitants; the territory includes 225 kilometres, and 35 communes.

AVESNES, a strong town of France, in the department of the North, and principal place of a district. It is situated in Hainault, on the small river Hefpre. Its fortifications were repaired by Vauban; and it was ceded to the French by the Spaniards in 1659. The place contains 2935, and the two cantons 18,785 inhabitants; the whole territory includes 310 kilometres; and both cantons 17 communes. It is distant ten leagues east from Cambray, seven from Valenciennes, and forty north-east from Paris. N. lat. $50^{\circ} 7'$. E. long. $3^{\circ} 48'$.

AVEYRON, a department of France, comprehending part of the province of Guyenne; bounded on the north by the department of Cantal; on the east, by those of Loyere and Gard; on the south, by those of Gard, Hérault, and Tarn; and on the west, by those of Tarn and Lot. Its superficies is about 1,767,424 square acres, or 902,064 hectares. Its population consists of about 332,090 persons; and it is divided into five communal districts. Its chief city is Rhodcz.

AVEZARAS, a river of France, in Gascogne, waters the territory of Aire, and discharges itself into the Adour, between Grenade and St. Sever.

AVEZZANO, a town of Italy, in the kingdom of Naples, and province of Abruzzo Ultra. This town was founded in 860, and contains 2700 inhabitants. It is built on an almost imperceptible declivity one mile from the lake of Celano, to which an avenue of poplar leads from the baronial castle, which is a square edifice flanked with towers, at a small distance from the town.

AUFEDO, a town of Italy, in the kingdom of Naples, and province of Abruzzo Ultra, twenty-one miles W.S.W. of Agula.

AUFENA, or AUFINA, in *Ancient Geography*, Ofena, a town of Italy, in Samnium, belonging to the Vestini; south-east of Amiternum.

AUFENTE, in *Geography*, a river of Italy, in the Campagna of Rome, has its source near Sezzu, and its mouth in the sea, near Terracina.

AUFFAY, a town of France, in the department of the Lower Seine, and chief place of a canton in the district of Dieppe, six leagues north of Rouen.

AUFIDENA, in *Ancient Geography*, *Alfidena*, a town of Italy, in Samnium, and the capital of the people called Caraceni, situate near Sagrus. The inhabitants were called Aufidenates.

AUFIDUS, a river of Italy, the most considerable in Apulia. For the justness of the description given of it by Horace, see OFANTO.

AUFINA, or AUFINUM. See AUFENA.

AUFNAY, in *Geography*, a small island of Switzerland, in the lake of Zurich, containing two churches.

AUGÆA, in *Ancient Geography*, a town of Macedonia, in the Chalcidic territory. Ptolemy.

AUGALA, a town of Africa, in Mauritania Cæsariensis, at some distance from the sea. Ptolemy.

AUGALI, a people of Asia, in Sogdiana. Ptolemy.

AUGARA, a town of Asia, in Aria. Ptolemy.

AUGARRAS, in *Geography*, a people of South America, in Brasil, in the province or government of Puerto-Seguro.

AUGE, in *Entomology*, a species of SPHINX (*Zygena* Fabr.)

Fabr.) of a black colour, with sanguineous hair on the sides of the abdomen; wings transparent, black behind; and the antennæ pectinated. Fabricius. *Obs.* This is *Papilio eugrus*, of Cramer. It is a native of America.

AUGE. This specific name Cramer has given to a variety of *Papilio bolina*. Linn.

AUGE, in *Geography*, a district of France, in the late province of Normandy, extending from Falaise and Argenton, as far as the sea, between the rivers Dives, Vic, and Tongues, formerly giving name to a viscount. Its productions are grain, flax, and apples. The pastures are rich and fatten the cattle that are brought hither from Poictou and Brittany.

AUGEÆ, in *Ancient Geography*, a town of Greece, in the Peloponnesus, written *Αυγεια*, Augeia, by Homer, and supposed by Pausanias to be the same with the small town of Ægiz, situate on the coast of Laconia, and at the distance of thirty stadia from Githium. It had a temple consecrated to Neptune.

AUGELA, AUGUELA, or AGUILA, in *Geography*, one of the Oases, or islands, in the eastern division of that ocean of sand, called the Great Desert, or Sahara, in Africa. It lies on the western part of the desert of Barca, and is separated from the kingdom of Tripoli by mount Meys. Although it is generally sandy and barren, it has some spots so well watered as to afford plenty of dates; and mount Meys has excellent pasture. In this territory, besides the town of Augila, or Augela, from which the canton takes its name, and which was one of the stations of the caravans that formerly carried on the inland trade of Africa, is another, seated at the foot of that mountain, called Siwah, Siouah, or San-Rey, which is the last on that side that belongs to the government of Tripoli. Augela lies in N. lat. 30°. and E. long. 22° 3'.

AUGENIO, HORACE, *De Monte Sancto*, in Ancona, in *Biography*, professor of medicine, born about the year 1527. He was early initiated into the knowledge of medicine by his father, Lewis Augenio, physician to pope Clement VII. Horace was first advanced to the chair of professor at Rome, which office he filled five years. He afterwards gave lectures with success at Turin; and in the year 1592, he was appointed professor at Padua; where he continued to the time of his death in 1603. Haller is diffuse in his account of his works, which however were principally controversial, and not now much noticed. In his "Epist. et Consult. Med." fol. Ven. 1580, he recommends millepedes, in calculous cases, by which, he says, he saw a boy cured, after he had been condemned to the knife; he forbids injecting the bladder in these cases, as frequently mischievous. He gave water, in which quicksilver had been boiled, for the cure of worms in the bowels; and in diabetes, he gave, he says, narcotics, with advantage.

His works were collected and published under the title of "Opera Omnia," at Venice, in 1597,—1602, and 1607, in folio. His treatises, published separately were "Epist. Medicinal." tom. 1, 2, 3, fol. "De Modo preservandi a Peste," lib. iv. 1577, 8vo. "De Medendis Calculosis" &c. 1575, 4to. "Quod Homini non fit certum nascendi Tempus," lib. ii. Ven. 1595, 8vo. Haller. Bib. Med. Pract.

AUGER, EDMUND, a French jesuit, was born of poor parents, in 1530, at Alleman near Sazanne, in the diocese of Troyes; and having received the rudiments of education under an uncle who was a clergyman, was sent by his brother, a physician at Lyons, to Rome, with a recommendation to the celebrated father Le Fevre; but with a supply of money so scanty, that he was obliged to beg alms before he arrived to the end of his journey. Le Fevre was dead before he reached Rome; and he was obliged to hire himself as a domestic servant to a jesuit. In this humble situa-

tion his talents and conduct attracted the notice of his master, who procured for him, as a novice, the means of further instruction. In the order of jesuits, to which he was admitted, he taught rhetoric and poetry, and manifested great powers of eloquence. His talents recommended him to a mission, employed by father Laynez, the general of the society of jesuits, and dispatched to France, in the year 1559, for stopping the progress of the reformation. On this occasion he distinguished himself by his zeal and success in the conversion of heretics; and he was appointed preacher and confessor to Henry III. His attachment to the king rendered him odious to the catholics who had entered into the league, and by an order of the general he returned to Rome, where he was treated as an excommunicated person, and obliged to travel on foot in the midst of winter. In the year 1591, he died in consequence of the fatigue and vexation which he endured, in the sixty-first year of his age. Such was the closing scene of a man who is said to have converted 40,000 heretics. The intolerant spirit of Auger was sufficiently displayed in his work, intitled "Le Pedagogue des Armes," designed to instruct a Christian prince, how to undertake, and happily complete a good war, victorious over all the enemies of the state and the church. *Nouv. Dict. Histor.*

AUGER, in *Geography*, a small town of Ireland, in the county of Tyrone and province of Ulster, which before the union, returned two members of parliament; but is now deprived of that privilege. It is distant seventy-five Irish miles north-west from Dublin.

AUGES, in *Astronomy*, two points in a planet's orbit, otherwise called *apsides*. See *APSES*.

One of the auges is particularly denominated the *apogee*, the other *perigee*.

AVGHANS, in *Geography*. See *AFGHANS*.

AUGHNACLOY, a post and market town of the county of Tyrone in Ireland, seated on the river Blackwater, at the distance of 70½ Irish miles from Dublin, on the high road from Londonderry. The linen manufacture is carried on briskly in its neighbourhood. N. lat. 54° 25'. W. long. 6° 53'.

AUGHRIM. See *AGHRIM*.

AUGIAN, a town of Asia, in the province of Aderbigan or AIDERBEITZAN.

AUGIAN MS. *Codex Augiensis*, in *Biblical History*, is a Greek-Latin MS. of the epistles of St. Paul, which is however defective from the beginning to Rom. iii. 8, and the epistle to the Hebrews is found only in the Latin version. This MS. is noted F in the second part of Wettstein's N.T. It is supposed to have been written in the ninth century, and has taken its title from Augia-Major, the name of a monastery at Rheinau, to which it belonged at the time of the council of Basil. It was purchased by Bentley in 1718, for 250 Dutch florins, and is at present in the library of Trinity college in Cambridge, where it was deposited in 1787, after the death of the younger Bentley, together with the other MSS. of the celebrated Dr. Richard Bentley. The Greek text is written in uncial letters and without accents; there are intervals between the words, and at the end of every word there is a dot. The Latin is written in Anglo-Saxon letters; whence it is inferred that it must have been written in the west of Europe, where that formation of the Latin letters, vulgarly called Anglo-Saxon, was in general use between the seventh and twelfth centuries. This MS. has been collated by Wettstein. Marsh's Michaelis, vol. ii. p. 210. vol. iii. p. 662.

AUGIAS, or AUGÆUS, in *Ancient History and Mythology*, a king of Elis who was one of the Argonauts. Fabulous history reports that he had a stable, which contained a great number of cattle, as some say 3000 oxen, and which had

not been cleaned for thirty years, so that the exhalations which proceeded from it infected the country; and to cleanse it was considered as a work surpassing human effort. Hercules undertook the labour, and engaged to perform it in one day, on condition that Augias should give him a tenth part of the cattle. This work Hercules is said to have accomplished by making the river Alpheus to pass through the stable. Augias withheld the promised recompence; upon which Hercules slew him, and placed his son Phileus upon the throne, because he advised his father to fulfil his promise. This fable, however, is variously related by different authors. Hence has arisen the ancient proverb of "cleaning the stable of Augias," for expressing a difficult or impracticable enterprise.

AUGIAS, in *Entomology*, a species of *PAPILIO* (*Hesperia* Fabr.) The wings are divaricate and fulvous, with an oblique band, and margin behind black. Fabricius.—Donov. Inf. India. Inhabits India.

AUGICOURT, in *Geography*, a town of France, in the department of the Upper Saone, and chief place of a canton in the district of Jussay, $4\frac{1}{2}$ leagues north-west from Vesoul.

AUGILES, or **AUGILITES**, in *Ancient Geography*, a people of Africa, who inhabited the country by which the Garamantes were separated from the Troglodites. Pomponius Mela says, they were savages, who acknowledged no other deities besides the manes of their ancestors, whom they invoked on all interesting occasions. They are said to have slept upon the tombs, in order to receive the inspiration from which they derived the rules of their conduct. It was a custom amongst their women, to grant the first favour after their marriage to any who solicited it, and who made them presents; and they valued themselves upon the number of their votaries on this occasion. In other respects, says P. Mela, they were distinguished by their wisdom and discretion.

AUGIT, **SILEX AUGITES**, in *Mineralogy*, *pyroxène* of Haüy; a var. of *basaltic hornblende* of Kirwan; *schorl volcanique* Daubenton, &c. *Volcanite* Lametherie.

The colour of this mineral is a very deep olive or pear green, which at first may be mistaken for a blackish green.

It occurs sometimes in rounded fragments; but more usually crystallized. Its varieties of figure are,

1. A six-sided prism, of which two opposite ones are broader than the rest. The two bases, which are oblique, are terminated by wedges more or less obtuse.

2. Var. 1. with the edges that separate the small sides of the prism, truncated; or an eight-sided prism.

3. Two or more crystals connected by their lateral faces, so as to form a right or oblique-angled cross.

The crystals are usually small and very small, rarely of middling size. They are also, for the most part, unbedded.

Externally, when no decomposition has taken place, the surface of the augit is smooth and shining; but when it begins to be decomposed, it becomes dull. Internally, it is shining or much shining with a greasy lustre.

Its fracture is perfectly strat lamellar. It flies when broken into rhomboidal parallelepipeds.

It is translucent on the edges, but rarely so throughout.

It is hard, scratches glass, and gives fire plentifully with the steel: it is brittle, and easily broken. Sp. gr. 3.182—3.377.

The augit is not easily fusible before the blowpipe, but in small pieces it affords a black enamel. Its analysis by Vauquelin afforded

52	Silex
13.2	Lime
3.33	Alumine
10	Magnesia

14.66 Oxyd of iron-
2 Oxyd of manganese,

95.19
Loss - 4.81

100

This mineral is found in basalt, with olivin and hornblende; it is also met with in certain amygdaloids. It abounds in Bohemia, and is found besides in Hungary, Transylvania, Tyrol, Hesse, &c.

It resists decomposition much longer than olivin; but not so long as basaltic hornblende. It is at length, however, reduced to a greenish yellow argillaceous mass, and not, as the olivin, to a ferruginous ochre. Brochant, vol. i. p. 179.

AUGMENT, in the *Greek Grammar*, an accident of certain tenses; being either the prefixing of a syllable, or an increase of the quantity of the initial vowels. There are two kinds of augments.—*Temporale*, or of a letter; when a short vowel is changed into a long one; or a diphthong into another longer one; thus called, because the time of its pronunciation is now lengthened: and *augmentum syllabicum*, or of a syllable, which is, when a letter, viz. ε, is added at the beginning of the word; so that the number of syllables is increased.

AUGMENTS, in *Mathematics*. See **FLUXIONS**, and **MOMENTS**.

AUGMENTATION, in a general sense, the act of *augmenting*; that is, of adding or joining something to another, to render it larger or more considerable.

The governors of the bounty of queen Anne, for the "augmentation of the maintenance of the poor clergy" (see **FIRST FRUITS**), by virtue of the several acts of parliament made for that purpose, are empowered to augment all livings not exceeding 50l. *per annum*; and the number of livings following were certified to be capable of augmentation.

1071 Livings not exceeding 10l. <i>per annum</i> , which may be augmented (with the bounty alone) six times each, pursuant to the present rules of the governors, which will make 6426 augmentations.	6426
1467 Livings above 10l. and not exceeding 20l. <i>per annum</i> , may be augmented four times each, which will make 5868 augmentations.	5868
1126 Livings above 20l. and not exceeding 30l. <i>per annum</i> , may be augmented three times each, which will make 3378 augmentations.	3378
1049 Livings above 30l. and not exceeding 40l. <i>per annum</i> , may be augmented twice each, which will make 2098 augmentations.	2098
884 Livings above 40l. and not exceeding 50l. <i>per annum</i> , may be each once augmented, which will make 884 augmentations.	884

5597
Total number of augmentations, which must be made (by the bounty alone) before the livings already certified will exceed 50l. *per annum*. } 18654

Computing the clear amount of the bounty to make 55 augmentations yearly, it will be 339 years, from the year 1714 (which was the first year in which any livings were augmented), before all the small livings above certified can exceed 50l. *per annum*; and if it be computed, that one half of such augmentations may be made in conjunction with other benefactors (which is very improbable), it will require 226 years before all the livings above certified will exceed 50l. *per annum*.

Dr. Warner, in the appendix to his "Ecclesiastical History,"

tory," published in 1757, observes, that it will be 500 years before every living can be raised to 60l. a year by queen Anne's bounty, supposing the same money to be distributed as there has been for some years past. In the course of between eighty and ninety years, many livings have been augmented by this bounty; nevertheless, the bounty, assisted by private benefactions, has been found inadequate to the end of making a reasonable and competent provision for the parochial clergy in a short time. In order to accelerate the beneficial effect of this bounty, it was proposed by the learned Dr. Watson, the present bishop of Landaff, in a "Letter to his grace the archbishop of Canterbury," printed in 1783, that a bill should be introduced into parliament, for appropriating, as they become vacant, one-third, or some other definite part, of the income of every deanery, prebend, or canonry, of the churches of Westminster, Windsor, Christchurch, Canterbury, Worcester, Durham, Norwich, Ely, Peterborough, Carlisle, &c. to the same purpose, *mutatis mutandis*, as the first-fruits and tenths were appropriated by the act, passed in the fifth of queen Anne. This plan, it is suggested, would produce a wonderful change for the better, in 80 or 100 years, in the condition of the inferior clergy, and it would immediately begin to operate for their benefit. "If the reduction of deans and chapters," says this excellent writer, "should be looked upon as a step towards their annihilation, and should, on that account, be disliked by those who think them of use in our ecclesiastical establishment; there is another method in which the poor clergy might be, in no great length of time, well provided for. The clergy at present pay into the exchequer about 14,000l. a year for first-fruits and tenths, according to a valuation of the church revenues, which was made above 250 years ago; the *clear* revenue, arising to the governors of queen Anne's bounty from this source, may be estimated at near 12,000l. a year. If the clergy were to pay first-fruits and tenths according to a new valuation of their benefices, and the sum thence arising was applied to the augmentation of small livings, every one must see how greatly the operation of what is called queen Anne's bounty would be accelerated. See CHURCH of ENGLAND, CLERGY, CURATE, *Ecclesiastical REVENUE* and VICAR.

AUGMENTATION is also used for the *augment*; i. e. for the additament, or the thing added. Thus it is said, such a minister petitioned the king for an augmentation of salary, wages, &c.

AUGMENTATION, *Court of*. See COURT, &c.

AUGMENTATION, in *Heraldry*, denotes additional charges to a coat armour frequently given as particular marks of honour, and generally borne, either on an escutcheon, or a canton.—Such are the arms of Ulster, borne by all the baronets of England.

AUGON, in *Geography*, a mountain of Italy, being part of the Apennines, on the confines of Liguria and Pavese.

AUGOXAS, a small island of Africa, on the coast of Mozambique.

AUGRE, or AWGRE, a carpenter's or joiner's instrument, serving to bore large round holes.

The augre consists of a wooden handle, and an iron blade, terminated at bottom with a steel bit.

AUGSBURG, or AUSBURG, i. e. *Augustus-burgh*, anciently called *Augusta Vindelicorum*, in *Geography*, an imperial city of Germany, and the capital of Swabia. It is situated in a delightful and fertile country, betwixt the rivers Lech and Wertach, near their confluence. It is not only one of the most ancient, but one of the largest cities in Germany. According to Riefbeck, (*Tour through Germany*, p. 111.) its circumference is $9\frac{1}{2}$ miles, and it contains about 30,000 people; others say that the number of inhabitants amounts

to 35,000, and some reckon them at 40,000. It is environed with ramparts, walls, and deep ditches; and besides four large and six small gates, which open and shut without any visible interference, it has a secret wicket, of curious construction for admitting both horse and foot in the night, or in time of war. The town is supplied with water from the river Lech, by means of aqueducts, and of engines and towers, which furnish a sufficient quantity for working several mills of different sorts, for cleansing the streets, and for the domestic uses of the inhabitants. Some of its streets are steep and incommodious; but others are broad and well paved. This city, since the earliest periods, had small subterraneous passages under the streets, like our sewers, and the Roman cloacæ, for conveying away filth; and the whole town was paved soon after the year 1415, when a rich merchant suggested the utility of it by causing a foot-path to be made before his own house. Many of the houses are built of wood, and others of stone, and they serve as specimens of the architecture that prevailed at the period of their construction; and, compared with other houses built in German towns, they exhibit the superior improvement and magnificence to which Augsburg had arrived. The more modern part of this town may be reckoned handsome; many of its churches are stately edifices, and adorned with curious workmanship and paintings. The town-house, completed after six years' labour, in 1620, is a magnificent edifice, and reckoned little inferior to that of Amsterdam. It is a large square building of stone, with a marble portico, at the top of the front within the pediment, is a large spread eagle, holding in its talons a sceptre and globe of gilt brass; the great portal is formed of a beautiful reddish marble, over which is a balcony of the same colour, supported by two pillars of white marble; over the gate are two large griffins of brass; and most of the rooms are wainscotted, and ciled with very fine timber. The saloon is 110 feet long, 58 broad, and 52 high; its roof is supported by eight columns of red marble; the ceiling is constructed of polished ash, and divided into compartments, enriched with gilded sculptures; it is filled with pictures and other ornaments; and supported by eight pillars with bases and chapters of brass. In the square, near the town-house, is the fountain of Augustus, or a large marble basin, surrounded with iron balustrades, with four brass statues as large as life at the four corners; in the middle is a pedestal, having on its top the statue of Augustus, and at the foot are four large sphinxes discharging water from their breasts, with four infants above them, holding in their arms four dolphins which pour water out of their mouths, and over these infants are festoons and pine-apples of brass. Near this basin is a fountain, called that of Hercules, of an hexagonal form, with several brass figures, and particularly Hercules engaging the Hydra. Besides the cathedral, which is a large, gloomy, gothic building, with two spire steeples, adorned with paintings, and opening with a brass gate, with its fourteen chapels; there are six Roman catholic parochial churches, a splendid college belonging to the Jesuits, five monasteries, three nunneries, and six Lutheran parish churches; and also a Lutheran gymnasium, which contains a good library. The Benedictine abbey is a large Gothic building, the ceiling of which is said to be the highest in Germany; it is adorned with several statues and a grand altar. The church of St. Croix surpasses the others in its architecture, sculpture, gilding, and fine spire. The Imperial Franciscan academy for arts and sciences, was instituted here in 1775. It is under the protection of the magistrates, and its principal aim is to produce good mechanics, and to preserve the manufactures of the city. The part of the city that was erected in 1519, by the noble family of the Fuggers, who are lords of the adjacent country, and in some measure endow-

ed by them, consists of 106 houses, inhabited by the poor burghers at a low rent; and some of whom are maintained by an annual pension. The burghers of this city are computed at 6000. The inhabitants are partly Lutherans, and partly Catholics. The Jews are excluded from the town; but they occupy a village at the distance of about a league, and pay a tax for the liberty of trading in the day. The aspect of the inhabitants is very different; that of the Protestants resembling the Swabians; and the Catholics being like the Bavarians. The government is aristocratical; it is vested with 45 persons, of whom 31 are patricians, 4 such as have married the daughters of patricians, 5 merchants, and 5 of the commonalty; the council is formed of an equal number of Lutherans and Roman Catholics. The police is good; and though the town has no territory, it has no debts. In former times, Augsbourg was the great mart for Indian commodities in the interior parts of that extensive country: its trade was very considerable; and we meet with many examples of such large fortunes accumulated by mercantile industry, as raised the proprietors of them to high rank and consideration in the empire. It was celebrated for its curious artists, whose manufactures, particularly in tin and silver, were much admired. Augsbourg, however, is no longer what it was in this respect. It has no longer a Fugger and a Welfer in it, to lend the emperor millions. Here are no merchants who have capitals of more than 20,000*l.*; others, with small capitals, do the business of brokers and commissioners; and next to these are the engravers, statuarys, and painters. Their productions, like the toys of Nuremberg, have a general circulation. Augsbourg supplies all Germany with little pictures for prayer-books: and in various ways, its trade is still considerable, though far from being so great as it formerly was. The bishop takes his name from this town, though he resides at Dillingen. His income is about 20,000*l.* per annum. He is a prince of the empire; and he sits and votes in the college of princes, betwixt the bishops of Constance and Hildesheim; the territory belonging to the bishoprick lies between the rivers Lech, Iler, and Danube.

In the diet of the empire, Augsbourg was originally called Vindelicia, and was the capital of the Vindelici; afterwards it had the name of Augusta Vindelicorum, and Rhætorum, when it came under the dominion of the Romans, and a colony was settled in it by Drusus. Tacitus (Germ. c. xli.) calls it the most splendid city of Rhætia. From the Romans it was transferred to the Alemanni, the Goths, and the Franks; under the last of whom it declined much; but it recovered again under Charles the Fat. The emperor Henry III. took it under his protection, but it suffered much by its contests with the bishops, and its condition became very precarious. From Frederic I. it obtained several privileges; and in 1275, king Rudolph I. confirmed and enlarged its imperial rights.

Augsbourg has acquired celebrity, not merely on account of its antiquity and pre-eminence for a long series of ages, and for the extent of its commerce in the 14th and 15th centuries, but from its having been the scene of several considerable transactions. In this place, a council held in 952, confirmed the order for the celibacy of priests. In 1518, a diet was held at this place, for concerting and promoting a general crusade against the Turks. At a diet, attended by the emperor Charles V. in 1530, the creed of the Protestants called the Augustan or Augsbourg confession, was presented and publicly read. In 1547, the emperor held a diet in this place for finally composing the controversies with regard to religion, which had long disturbed the empire: and having, at the head of his Spanish troops, taken possession of the cathedral and one of the principal churches, he re-established with great pomp the rites of the Romish worship. Before this diet, he laid

the system of doctrine, known afterwards by the name of the INTERIM; and in 1548, he made his first attack upon this city, on account of the part it took in its opposition to this system, issuing a decree, after he had taken forcible possession of the town, by which he abolished its form of government, dissolved all its corporations and fraternities of its burghesses, and nominated a small number of persons, in whom he vested the future right of administration, and each of whom was constrained to take an oath for observing the Interim. In 1550, a diet was summoned by the emperor at this place for further enforcing the observation of the Interim. The diet held here in 1555, settled the religious peace of Germany, by an act called the RECESS. In this city an alliance called the league or treaty of Augsbourg, was concluded in 1686, between the emperor, the king of Spain, the republic of Holland, the elector Palatine, Bavaria, and the duke of Savoy: the professed object of which was to restrain the ambition of the French monarch; but the real motive, says M. Anquetil in his "*Motifs des Guerres et des Traités de Paix de la France, &c.* 1798," which led William prince of Orange to effect this league was, to keep Louis busy on the continent, while he, whose sagacity foresaw to what the intemperate folly of James II. of England would lead, might with more ease ascend the English throne in his stead. The hostilities consequent on this league commenced in 1688, which was followed by a continental war, terminated by the peace of Ryswick in 1699. Although the Protestants were very powerful at Augsbourg, they were driven from thence by the Bavarians, and restored again by Gustavus Adolphus in 1632; since which time they have continued, and shared the government with the Catholics. In 1703, the elector of Bavaria besieged the city and took it, and demolished its fortifications; but the battle of Hockstedt restored its liberty, which it enjoys under its own magistrates; the bishop having no temporal dominion in the city. The chapter is composed of persons who can produce proofs of their nobility. The canons have a right of electing their bishop, who is a sovereign, like several of the other German bishops. Augsbourg is situated in N. lat. 48° 24'. E. long. 10° 58'.

AUGSBURG Confession. See AUGUSTAN.

AUGST, a village of Switzerland, near the Rhine, formerly a celebrated city called *Augusta Rauracorum*, whither Munatius Plancus conducted a Roman colony under the empire of Augustus, A. U. C. 740, B. C. 14. It is seated on the river Ergetz, two leagues from Bâle. It was ruined by Attila. Of its ancient magnificence many monuments have been discovered; such as the ruins of an amphitheatre, of towers, of subterranean vaults, and also medals, and fragments of statues and inscriptions.

AUGUR, in *Antiquity*, a minister of religion among the Romans, appointed to take auguries or presages concerning futurity from birds, beasts, and the appearances of the heavens.

The word is by some derived from *avis, bird*, and *garritus, chattering*; whence the original office of the augurs is supposed to have been to observe, and take indications from the noise, calling, singing, chirping, and chattering of birds. Agreeably to which, augur is commonly distinguished from auspex, as the latter was supposed employed in observing the flight of birds.—Pezron derives it from the Celtic *au, liver*, and *gur, man*; so that, according to him, an augur was properly a person who inspected the entrails, and divined by means of the liver. On which principle, augur would have been the same with ARUSPICES.

The augurs constituted a college or community, which at first consisted of three persons, one being appointed by Romulus for each tribe; then of four, when Servius Tullius increased the tribes to that number; then of nine, four

of them patricians, and five plebeians, added in the year of Rome 454, at the solicitation of the tribunes, and elected from among the common people; lastly, Sylla, in the year 672, increased the number to fifteen. They were at first chosen, like the other priests, by the *comitia curiata*, but their election afterwards underwent the same changes with that of the pontifices.

The eldest of these presided over the rest, and was honoured with the title of "Magister Collegii." Their office, which terminated only with their death, and of which no crime or forfeiture could deprive them, as it is comprised in the augural law mentioned by Cicero (*De Divin.* l. ii.), was to interpret dreams, oracles, prodigies, &c. and to tell whether any action should be fortunate or prejudicial to particular persons, or to the whole state. Thus they were the interpreters of the will of the gods with respect to the making of war or peace; and all were obliged to obey them in so important an article.

They bore an augural staff, or wand, called *lituus*, as the ensign of their office and authority. The other badges of their office were a kind of robe called *trabea*, and a cap of a conical shape like that of the pontifices. No affair of moment could be resolved on, without first consulting them; and their advice, be it what it would, was, by a decree of the senate, appointed to be exactly and religiously observed.

The office was important and honourable. It was aspired after by some of the principal persons of the Roman state. Cato was a member of the college of augurs; and Cicero also was dignified with this title, and perfectly understood the whole art practised by himself and his colleagues. Although he ridicules the profession (*De Divin.* l. ii.), and demonstrates by various proofs the inutility, impotence, and absolute impossibility of the art, and relates a saying of Cato concerning it, "that he could not imagine how one aruspex could look another in the face without laughing;" yet, notwithstanding his contempt of its superstitions, he blamed those generals and magistrates, who on important occasions had neglected them; and maintains, that this practice, though allowed to be subject to many abuses and frauds, ought to be regarded on account of religion and the prejudices of the people. Pliny was also raised by Trajan to the dignity of augur; and through every period of the Roman state, this office was the highest rank in the priesthood to which any senator could be raised. Of this Augustus was so well apprized, that by seizing the office of high priest on the death of Lepidus in the year of Rome 725, B.C. 29, he, and his successors in the empire, obtained a controul over all religious matters; and by thus placing themselves at the head of all the colleges of priests, augurs, and keepers of the Sibylline books and others, they became the sole arbitrators in all sacred as well as profane concerns. For an abstract of the history and office of augurs, see AUGURY.

AUGUR, in *Entomology*, a species of CIMEK, of a rufous colour, with the antennæ, under-wings, and legs black. A native of the East Indies, and the cape of Good Hope.

AUGUR, a species of PHALENA (*Noctua*), with brown wings, charactered with black. Inhabits Germany. Fabricius.

AUGUR, a species of MUSCA that inhabits New Holland. It is cinereous; abdomen blueish; sides testaceous and diaphanous. Fabricius, &c.

AUGURAL, something relating to the AUGURS.

The augural instruments are represented on several ancient medals. Evelyn on Medals, chap. ii.

AUGURAL supper, *cena auguralis*, that given by a priest on his first admission into the order, called also by Varro *adjuvialis*. *De Re Rustic.* lib. iii. cap. 6.

AUGURAL books, *libri augurales*, those wherein the dis-

cipline and rules of augury were laid down. *Cic. de Divin.* lib. i. cap. 33. Priscian (l. 708.) says, that Julius Cæsar composed augural books.

AUGURALE, the place in a camp where the general took auspices. This answered to the *auguratorium* in the city.

AUGURALE is also used, in Seneca, for the ensign or badge of an augur, as the *lituus*. *De Tranquil.* cap. xii.

AUGURATORIUM, a building on the Palatine Mount, where public auguries were taken. This is also called *auguraculum* and *arx*.

AUGURELLO, GIOVANNI AURELIO, in *Biography*, a learned Italian, was born at Rimini about 1441, studied at Padua, and became professor of polite literature at Trevigi, where he had a canonry, and where he died in 1524. He was addicted to the study of alchemy; and it is said that pope Leo X. in return for the dedication of his Latin poem, intitled "Chrysopœia," gave him a large empty purse, saying, that he knew how to fill it. From this poem, however, it appears that Augurello was no believer in the art. He published, besides the *Chrysopœia*, many Latin poems, odes, elegies, and cantos; some of which possess elegance and purity. The poems in his own language were not published till 1765. Tiraboschi. *Gen. Biog.*

AUGURY, the discipline of the augurs, or the practice of consulting the Gods, and learning their will, by divers kinds of omens.

The observation of auguries is very ancient, as having been prohibited by Moses in Leviticus.—The cup put in Benjamin's sack, in Egypt, is said to have been that used by Joseph for making auguries.

However this be, augury was undoubtedly a very ancient superstition. Hesiod informs us, that the operations of agriculture were regulated by the migration of birds; and it had probably been in use long before his time, for marking the changes of the seasons. At length the flight of birds was more particularly observed; and their different motions were thought to be of such consequence, that no concern of importance, either private or public, was undertaken without consulting them. Absurd as this superstition may now appear, and as it certainly was in the extensive application and use of it, it seems to have derived its origin from nature. The appearance and disappearance of particular birds at different seasons, would probably suggest to those who were ignorant of the places to which they migrated, and from which they occasionally returned, that they might visit the ethereal regions, and there converse with the gods, and acquire an instinct or faculty for foretelling future events. A superstitious people might argue in this manner; and as birds are found capable of imitating the human voice, some impostor might have availed himself of this circumstance, and deduced presumptions in favour of the fallacious system of augury. An ingenious writer suggests (see *Stillingfleet's Calendar of Flora*), that this might have been the case; and it is alleged, that the institution of augury seems to have been more ancient than that of aruspicy; for Homer supplies us with several instances of the former, but none of the latter. Upon the whole, it is not improbable that natural augury gave rise to religious augury; and this again, by a transition not unnatural, to aruspicy. A passage in Aristophanes furnishes a hint that led to these observations. In his comedy of the birds, he represents one of them as saying, "The greatest blessing which can happen to you, mortals, are derived from us; first, we shew you the seasons, spring, autumn, and winter; the crane points out the time for sowing, when she flies with her warning notes into Egypt; she bids the sailor hang up his rudder and take his rest, and every prudent man provide himself with winter garments; the kite appears next, announcing another

another season, when it is time to shear the sheep; after that, the swallow informs you when it is time to put on summer clothes: we are to you, adds the Chorus, Ammon, Dodona, Apollo; for after consulting us, you undertake every thing; merchandize, purchases, marriages, &c.

“Εσμεν δ' ὑμῖν Ἀμμων, Δελφοί, Δωδωνή, Φοῖβος Ἀπολλών.”

Now, it seems not improbable, that the same transition was made in the speculations of men which appear in the words of the poet; and that they were easily induced to think that the surprising foresight of birds as to the time of migration, indicated something of a divine nature in them; against which opinion, Virgil, as an Epicurean, protests, when he says,

“Haud equidem credo, quia fit divinitas illis ingenium.”

From these speculations of a conjectural kind we proceed to observe, that some have ascribed the invention of this art to Prometheus, or Melampus, the sons of Amythaon and Dorippe. Pliny (l. vii. c. 55.), says, that the Carians were the first observers of birds, and that Orpheus first directed his attention to other animals. Pausanias (Phocic.) attributes the first observation of the flight of birds to Parnassus, who gave his name to mount Parnassus. Clement of Alexandria reports, that the Phrygians were the inventors of this art. Upon the whole, it seems probable, that this species of divination was transmitted from the Chaldeans, Asiatics, and perhaps the Egyptians, to the Greeks; from them to the Hetrurians; and from the Hetrurians to the Latins and Romans.

We find five sorts of auguries mentioned by the ancients. 1. From the appearances in the heavens, as thunder, lightning, and other meteors. 2. From birds, whence they derived the name of Auspices. Some birds furnished them with observations from their chattering or singing, and others from their flying. The former were called *Oscines*, and the latter *Præpetes*. For the taking of both these sorts of auguries, the augur went up to some high place, took the augural staff, bent at one end like a crozier, and marked out with it the four templa or quarters of the heavens. Then he turned to the east, and in that situation, waited for the omen; which was of no signification, unless it was confirmed by another of the same sort. In this manner Romulus perceived Jupiter's approbation of his election to the crown: having seen lightning that came out on his left side and proceeded to his right. This ceremony, which was also observed when Numa was called to the crown, is largely described by Livy, l. i. c. 18. 3. From birds kept in a coop for that purpose. The manner of divining from them was as follows: early in the morning the augur that was to take the observation, after having commanded a general silence, ordered the coop to be opened, and then threw in a handful of crumbs or corn. If the chickens did not eat greedily, scattered the food about with their wings, let fall a great deal of it from their mouths to the ground, or, above all, refused to eat, the omen was reckoned unlucky, and some great mischief portended; but if they fed greedily, and let none of the food drop out of their mouths, they obtained all desirable assurance of happiness and success. This sort of augury was called *tripudium*, from the ancient Latin word *pavire*, to *strike*, and *terra*, the *earth*; because the birds, in eating greedily, struck the ground with their beaks. The story of P. Claudius the consul is well known (Val. Max. l. i. c. 4.), who, ready to engage at sea in the first Punic war, and hearing that the chickens would not come out of their coop, ordered them to be thrown into the sea, with this jest, “If they will not eat, let them drink.” But he was vanquished; not, it will be thought, by the contempt of this silly and childish ceremony, but in consequence of his own rashness. 4. The next sort of augury

was from beasts, viz. wolves, goats, foxes, heifers, asses, rams, hares, weasels, and mice. The general observations about them were, whether they appeared in a strange place, or crossed the way; whether they ran to the right or left, &c. 5. The last sort of divination by auguries was from what they called dire, or unusual accidents happening to any person, as tumbling, seeing apparitions, hearing strange voices, persons spilling salt on the table, meeting a wolf, fox, a hare, &c. Many curious circumstances of Roman superstition with respect to omens and other things are enumerated by Pliny, xxviii. 2.; and among the Greeks, by Pausanias, iv. 13. Cæsar, in landing at Adrumetum in Africa, with his army, happened to fall on his face, which was reckoned a bad omen; but he, with great presence of mind, turned it to his own advantage: for taking hold of the ground with his right hand, and kissing it, as if he had fallen on purpose, he exclaimed, “Teneo te, Africa,” “I take possession of thee, O Africa.” Dio. xlii. fin. Suet. Jul. 59.

AUGURY, in its more general signification, comprises all the different kinds of divination; which Varro distinguishes into four species of augury, according to the four elements.—*Pyromancy*, or augury by fire; *aëromancy*, or augury by the air; *hydromancy*, or augury by the water; and *geomancy*, or augury by the earth.

The particular branches are *alethoromancy*, *anthropomancy*, *belomancy*, *catoptromancy*, *capnomancy*, *gastromancy*, *geomancy*, *aruspicina*, *libanomancy*, *lecanomancy*, *necromancy*, &c. See each described under its proper article.

AUGUST, AUGUSTUS, in a general sense, something majestic, venerable, or sacred.

The title Augustus was first given by the Roman senate to Octavius, Jan. 13th. A. U. C. 727. B. C. 27. after his being confirmed by them in the sovereign power.—It was conceived as expressing something divine, or elevated above the pitch of mankind, being derived from the verb *augeo*, *I increase*, “*tanquam supra humanam fortem auctus*.” When some of the senators, in concurrence with his own first inclination, would have given him the name of Romulus, as a second founder of Rome; Munatius Plancus proposed his being denominated Augustus, because it denoted a person or thing consecrated by some augur, or form of religion, and nearly allied to the deity. Accordingly, Ovid gives us this reason for the appellation in his “*Fasti*,” l. i. v. 609.

“Sancta vocant Augusta patres: Augusta vocantur

Templa, Sacerdotum ritè dicata manu.

Hujus et augurium dependet origine verbi,

Et quodcumque suâ Jupiter auget ope.”

The successors of Octavius assumed the same quality; so that thenceforward *Emperor* and *Augustus* became synonymous terms.

The Greeks rendered the name Augustus by ΣΕΒΑΣΤΟΣ, and gave it to all the successors of Augustus, after the example of the Romans.

Augustus, the title expressive of the character of peace and sanctity, which Octavius uniformly affected, was a personal, and *Cæsar* a family distinction. The former, therefore, should naturally have expired with the prince on whom it was bestowed; and however the latter was diffused by adoption and female alliance. Nero was the last prince who could allege any hereditary claim to the honours of the Julian line. But, at the time of his death, the practice of a century had inseparably connected those appellations with the imperial dignity, and they have been preserved by a long succession of emperors, Romans, Greeks, Franks, and Germans, from the fall of the republic to the present time. A distinction was, however, soon introduced. The sacred title of Augustus was reserved for the monarch, whilst the name of Cæsar was more freely communicated

to his relations; and from the reign of Adrian, at least, was appropriated to the second person of the state, who was considered as the presumptive heir of the empire. Accordingly, the person, who was destined to succeed to the dignity, was first created Cæsar, which was a step necessary to arrive at that of *Augustus* or emperor.—Yet F. Pagi maintains the reverse; viz. that it was necessary to be *Augustus* previously to the being *Cæsar*; and alleges the instance of Valentinian I., who proclaimed his brother Valens *Augustus* before he was created *Cæsar*; but this single fact is not sufficient to invalidate the evidence of common practice.

The empresses also took the quality of *Augustæ*; and even some ladies of the imperial family, who had never been wives of emperors, but mothers or daughters.

On medals and coins, some of the ancient kings of France are also found with the appellation *Augusti*: particularly Childebert, Clothaire, and Clovis; add, that the wife of this last, Chrodechilda, is also called by Heric, in his book of the miracles of St. Germain, indifferently either *Augusta*, or *queen*.

AUGUST, in respect of *Chronology*, denotes the eighth month of the Julian year.

This was called in the ancient Roman calendar, *sextilis*, as being the sixth from March, from which the Romans began their computation. The emperor *Augustus* changed the name, and gave it his own; not that it was the month in which he was born, which was September, and which was first proposed for bearing his name, but because it had been fortunate to him by several victories which he had gained in it.

He preferred this month to September for the reasons mentioned in the deliberations of the senate, preserved by Macrobius. The tenor of them is as follows: "As it was in the month, hitherto called *sextilis*, that the emperor Cæsar Augustus took possession of his first consulship; that he celebrated three triumphs; that he received the oath of allegiance of the legions that occupied the janiculum; that he reduced Egypt under the power of the Roman people; that he put an end to all civil wars; it appears that this month is and has been a most happy month to this empire; the senate therefore ordains, that this month shall henceforth be called Augustus." This decree of the senate was ratified by an order of the people.

Our Saxon ancestors called it *Weod-monath*, that is *weed-month*, on account of the plenty of weeds in this season. Spelman.

This month is esteemed one of the richest in the whole year, because of the harvest of the several sorts of grain which is produced in that season. Hence is to be derived the French proverb, *a man has made his August*; which proverb is much used among merchants, to signify that a man has been successful in trade, and got an estate.

AUGUST is also used in *Middle Age Writers*, for a power or licence of going out of a city in harvest time, to reap, &c. Du-Cange.

AUGUSTA, in *Ancient Geography*, a name given singly, or in connection with some epithets, to several towns in honour of *Augustus* the Roman emperor. Thus, *Augusta* was a town of Gallia Narbonensis, founded by Augustus, with the title of a colony; situate $1\frac{1}{2}$ league from the Rhone, and having a temple of Jupiter, a circus, and an amphitheatre.—Also, a town of Cilicia, seated on mount Taurus, five or six leagues north from Adana. Pliny, l. v. c. 27. It became subject to Rome in the reign of Augustus.—Also, a town of Dacia Ripensis.—Also, a town of Rhætia.—Also, a port of Sicily, nearly north of Syracuse.—*Augusta Asturica*, *Astorga*, an ancient town of Spain, in Asturia.—*A. Aufciorum*, a town of Aquitania, originally called *Climberrum*, which name it

afterwards resumed. In the middle age it took the name of the people *Aufci*, and is now *AUCH*—*A. Bateniorum*, or *Baciennorum*, an ancient town of Italy, in Liguria; called also *A. Vagiennorum*.—*A. Bracarum*, Braga, an ancient town of Hispania Citerior. Pliny.—*A. Emerita*, a town of Lusitania, on the river Anas, the capital of the province: it was a colony of the Emeriti, or of such foldiers as had served out their legal time, were men of experience, or had received marks of favour, founded by Augustus; adorned by him with stately buildings, a long and magnificent bridge over the Gaudiana, and two aqueducts. It is now called *MÉRIDA*.—*A. Euphratensis*, a town of Asia, in Comagene, on the banks of the Euphrates.—*A. Gemella*, a town of Bœtica, in Spain, in the country of the Turduli.—*A. Magna*, a town of Asia, situate at the confluence of the Apis and Phasis. Ptolemy.—*Augustamica*, a division of Egypt, which commenced about the time of Theodore II. comprehending that part of Lower Egypt, which extends from the right arm of the Nile to the east of Delta, to the frontier of Arabia.—*A. Nova*, a town of Hispania Tarragonensis, on the river Areva, in the country of the Arevaci; called by Ptolemy *Porta Augusta*.—*A. Prætoria*, a town of Gallia Cisalpina, at the foot of the Alpes Graiæ, in Duria, so called because Augustus sent thither a colony of the prætorian foldiers: inhabited by the Salassi: now *AOUSTE*.—*A. Rauracorum*, a town of Helvetia, now called *AUGST*.—*A. Sueffonum*, a town of Gallia Belgica, on the Axona, now *SOISSONS*.—*A. Taurinorum*, a town of the Taurini, at the foot of the Alps, where the Duria Minor falls into the Po, so called because Augustus established here a Roman colony; now *TURIN*.—*A. Tiberii*, a town upon the Danube, on the confines of Rhætia and Doria; now *RATISBON*.—*A. Treba*, a town of the Æqui, near the springs of the river Anio in Italy, now *TREVI*, in Umbria.—*A. Trevirorum*, a town of Gallia Belgica, belonging to the Treviri, a people inhabiting the territory between the Rhine and the Moselle, now *TREVES* or *TRIERS*.—*A. Trinobantum*, a town of the Trinobantes, in the isle of Albion, called *Augusta* from its grandeur; now *LONDON*.—*A. Vagiennorum*, the seat of a Roman colony, among the mountains, now *Vico* near *MONDOVI*.—*A. Veromandorum*, a town of Gallia Belgica, now *St. QUINTIN*.—*A. Valeria*, a town of Hispania Tarragonensis, belonging to the Celtiberians. Ptolemy.—*A. Vindelicorum*, a town of Vindelicia, now *AUGSBURG*.

AUGUSTA, in *Geography*, a town of Sicily, eighteen miles by land, and nine by sea, distant from Syracuse, was built by the emperor Frederick II. near the ruins of the Greek city of Megara; and covered a small low peninsula, joined to Sicily on the north side by a long causeway, having on each side extensive salt-ponds. This projection forms a very fine harbour, the largest and most easy of access in Sicily, opening to a southern exposure, but sheltered by the points of the coast from both wind and swell, with nine fathoms of water in almost every part. A ruinous citadel guards the land gate; and three forts, built on little islands, defend the entrance of the port. The country along the opposite shore is beautifully diversified in its culture. The order of Malta has established at Augusta magazines of salt meat, biscuit, and flour, for the supply of their ships that are continually passing between the islands. The town is scarcely recovered from the devastation caused by the earthquake in 1693, which destroyed by the falling of the houses about one third of the inhabitants, set fire to the powder magazine in the citadel, which blew up, and threw the light-house precipitately into the sea. Since that time the town has been rebuilt on a regular plan, with low houses to prevent injury from another shock if it should occur. The number of inhabitants

habitants is reckoned at 9205 by an enumeration. Swinburne says its population amounts to 16,000 persons. Travels, vol. 4. p. 116.

AUGUSTA, a county of Virginia, in North America, lying partly on the east and partly on the west of the North Mount, a ridge of the Alleghany. The soil is fertile, and the country contains 10,886 inhabitants, including 1567 slaves. In this district there is a remarkable cascade, called "the falling spring," which is a branch of the James, where it is called Jackson's river, rising in the mountains twenty miles south-west from the "warm or hot spring," in N. lat. 38° 9'. W. long. 80° 6'. At the "falling spring" the water falls two hundred feet, being fifty feet higher than the fall of Niagara: and the sheet of water is only twelve or fifteen feet wide above, and somewhat wider below.

AUGUSTA, a town of North America, in the upper district of Georgia, situate on a fine plain in Richmond county, on the south-west bank of the Savannah river, where it is near five hundred yards broad, at a bend of the river, 127 miles north-west from Savannah, and 934 south-west from Philadelphia. At the first settlement of the colony, general Oglethorpe erected a fort here for protecting the Indian trade, and holding treaties with the natives. In 1787, it contained 200 houses. The country round it has an excellent soil, which, together with its central situation between the upper and lower countries, insures its improvement. N. lat. 33° 19'. W. long. 80° 46'.

AUGUSTA, a town of Upper Canada.

AUGUSTA, a river in the south-east part of the island of Cuba, in the West Indies, navigable for several leagues from the mouth, in which is Cumberland harbour.

AUGUSTA, *Historia*, is the history of the Roman emperors from the time of Adrian to Carinus, composed by six Latin writers, Æl. Spartianus, Julius Capitolinus, Æl. Lampridius, Vulcatius, Gallicanus, Trebellius Pollio, and Flavius Vopiscus. They all lived in the reign of Dioclesian, though some of them flourished under his successors, near the end of the third and beginning of the fourth century. They are rather biographers than historians, and take more care to inform us of the good and bad qualities of the emperors, of their birth, education, stature, mien, and even their diet, and the clothes they wear, than to describe their wars, the laws they enacted, and the great revolutions that happened during their respective reigns. Vopiscus, who was a Syracusan, and who is said, in the life of Probus, to have imitated Suetonius, according to the general opinion of the learned, far excels the rest, both as to his method and style; nevertheless he has many imperfections, and is not to be compared with any of the Latin historians. The other five betray great want of judgment in their choice, and of method in digesting their materials. Of these six writers, Capitolinus is the most confused and injudicious; whence some have suspected that the author of this collection had blended together the relations of Capitolinus, Spartian, and some others. Their style is vulgar and unpolished, their expressions uncouth, and sometimes hardly intelligible. Vopiscus observes, that Lampridius and Capitolinus attended more to truth than to elegance in their narrations. Pollio acknowledges that his style has nothing of the dignity of the ancients. Fabr. Bibl. Latin. vol. ii. p. 37, &c. Anc. Un. Hist. vol. xiv. p. 67. The histories of these writers were published together, with the notes of Casaubon, Salmassius, and Gruter, in two vols. 8vo. 1671; and re-published by I. P. Schmidt, in 1771.

AUGUSTALES, or *Sodales AUGUSTALES*, or *Flamines AUGUSTALES*, were the priests of Augustus, appointed

after the deification of that emperor by Tiberius and instituted by him, to perform the service of the new god. Three of these were Drusus, Claudius, and Germanicus; and the others, who supplied the number of twenty-one, were chosen by lot among the citizens of the first families in Rome. The same name of Augustales was also applied to other colleges of priests, instituted in honour of the successors of Augustus, and who like him were deified. The appellation is also extended to those who conducted the first ranks of the army; to the prefects of Egypt, who were established by Augustus after the defeat of Antony and Cleopatra; to all the officers of the imperial palace; and to those citizens in the colonies and municipia, who held the middle rank between the decurions and the people. The Augustales of the provinces were probably set apart for the worship of Augustus in the same manner with those of Rome.

AUGUSTALIA, in *Antiquity*, a feast instituted in honour of the emperor Augustus.

This festival was first established in the year of Rome 735, being the fourth after he had ended all his wars, and settled the affairs of Sicily, Greece, Asia, Syria, and the Parthians. The day whereon he made his entry into Rome, being the fourth of the ides of October, was appointed to be kept a feast, and was called *Augustalis*.

AUGUSTALIA was also a name given to the games celebrated in honour of the same prince, on the fourth of the ides of October.

AUGUSTALIS, or *Præfatus Augustalis*, a Roman magistrate who was appointed to govern Egypt, with a power much like that of a proconsul in other provinces.

AUGUSTAN, relating to Augustus or Augusta.

AUGUSTAN *Æra*. See *ACTIAN*.

AUGUSTAN, or *AUGSBURG Confession*, in *Ecclesiastical History*, denotes a celebrated confession of faith, drawn up by Luther and Melancthon, on behalf of themselves and other ancient reformers, and presented in 1530, to the emperor Charles V. at the diet of Augusta or Augsburg, in the name of the evangetic body. This confession contains twenty-eight chapters, of which the greatest part is employed, in representing, with perspicuity and truth, the religious opinions of the protestants, and the rest in pointing out the errors and abuses that occasioned their separation from the church of Rome. The style in which it is written is plain, elegant, grave, and perspicuous, such as becomes the nature of the subject, and does honour to the eloquent pen of Melancthon. The matter of this confession was supplied by Luther, who, during the diet, resided at Coburg, a town in the neighbourhood of Augsburg; and even the form it received from the acute judgment of his colleagues was authorised by his counsel and approbation. The Roman Catholics attempted a refutation of this confession: this refutation was read publicly in the assembly; and the emperor demanded submission on the part of the Protestant members; but the Protestants were not satisfied, and requested a copy of this reply, that they might demonstrate at large its insufficiency and weakness. The emperor resisted this request, interposed by his authority to suspend any further proceeding, and solemnly prohibited the publication of any new writings or declarations that might contribute to lengthen out these religious debates. Melancthon prepared an answer, which was presented to the emperor, but he refused to receive it. This answer was afterwards enlarged and published in 1531, with the other pieces that related to the doctrine and discipline of the Lutheran church, under the title of "A Defence of the Confession of Augsburg," or "Apologia Confessionis Augustanæ." In composing this defence,

defence, Melancthon's love of peace and concord seems to have carried him beyond what he owed to the truth; and through servile fear, excessive charity, or indecision of mind, he makes several strange concessions to the church of Rome. Mosheim's *Eccl. Hist.* vol. iv. p. 283. In some subsequent editions of the "Apologia," the obnoxious passages were omitted, and the phraseology that had given just offence materially altered. See PHILIPPISTS.

AUGUSTATICUM, in *Middle Age Writers*, denotes a largess, or donative, of an emperor to the people or soldiery.

AUGUSTENBERG, in *Geography*, a town of Germany, in the circle of Upper Saxony, and county of Schwartzburg; three miles east of Arnstadt.

AUGUSTENBERG, a town of Denmark, in the duchy of Sleswick, six miles east of Sonderborg.

AUGUSTEUM MARMOR, in the *Natural History of the Ancients*, a name given to the common green and white marble so frequent in use with us for tables, &c.; and called by our artificers, Egyptian marble.

AUGUSTIN, ANTHONY, in *Biography*, archbishop of Tarragona, was born at Saragossa, of parents of distinction, and studied in various universities both of Spain and Italy. At the age of twenty-five, he published a treatise of law, intitled, "Emendationes et Opiniones Juris Civilis." He was sent as nuncio to England by pope Julius III. in 1554; and in 1562, he distinguished himself at the council of Trent. From the year 1574 to 1586, the time of his death, he possessed the archbishopric of Tarragona. His liberality to the poor was such, that when he died, there was not found money sufficient to defray the expences of a funeral suitable to his rank. Of many writings in law, which he left, the most valuable is a treatise "De Emendatione Gratiani," first printed at Tarragona in 1587, and afterwards published in 1672, by Balzar, 8vo., and esteemed an elaborate treatise on the canon law. He wrote also "Antiquæ Collectiones Decretalium," printed at Paris in 1621, folio, with notes; "Dialogues on Medals," published at Tarragona, in 1587; and other treatises, chiefly on canon law: with skill in the law, he united purity of language. *Nouv. Dict. Hist.*

AUGUSTIN, and by contraction AUSTIN, ST. usually styled "the Apostle of the English," was the first archbishop of Canterbury, and flourished about the close of the sixth century. He was originally a monk in the convent of St. Andrew at Rome, educated under St. Gregory, afterwards pope Gregory I.; and about the year 596, deputed by him on a mission to Britain, for the conversion of the English Saxons. Whilst Augustin, and forty monks, who were his associates in this mission, were pursuing their journey, they were discouraged by an apprehension of the dangers which they were likely to encounter; and Augustin was sent back from France to Rome, with a petition to be recalled from this hazardous undertaking. Gregory, however, was determined not to abandon his project; he therefore encouraged them to proceed, furnished them with commendatory letters to the king and queen of France, and to the bishop of Arles, and instructed them to take with them some interpreters from the Franks, whose language still resembled that of the Anglo-Saxons. In the year 597, the missionaries landed in the isle of Thanet; and having informed Ethelbert, king of Kent, whose queen Bertha was a Christian, and who was disposed to give them a favourable reception, of their arrival, and of the design of their mission, they were introduced into the royal presence. The king, however, chose to receive them in the open air, from a superstitious notion that he would be thus

more secure from the delusive influence of their magical arts, than within the walls of a house. Augustin, by means of his interpreters, opened his commission: and after stating to Ethelbert the leading doctrines of Christianity, he allured him to embrace the religion of Christ by the assurance of an eternal kingdom in heaven. The king, after a candid hearing, hesitated in abandoning the religion of his ancestors; but with a liberality which reflects honour upon his memory, and under a due sense of the kind intention with which the missionaries had undertaken so long a journey, he allowed them to remain in the country, and to use their efforts for the conversion of his subjects. Accordingly he assigned for their residence that part of the ancient Durovernum, or the modern Canterbury, which is now called "Stable-gate," and which had been formerly a kind of oratory or chapel for the royal family, where they worshipped and offered sacrifice to their gods. The missionaries entered the city in procession, singing an hymn. Their ministerial labours were at first confined to the precincts of the city, where the accession of new converts was inconsiderable; but as soon as the king himself was proselyted and baptized, they obtained liberty to extend their commission to every part of his dominions; and their success was so great that Augustin is said to have baptized 10,000 persons of both sexes in one day, in the river Swale, at the mouth of the Medway. In the commencement of his mission, he thought it expedient to refrain from coercive measures; and, as Bede informs us (*Eccl. Hist.* l. i. c. 26.), he instructed Ethelbert, that the service of Christ must be voluntary, and that no compulsion ought to be used in propagating the gospel; nor does it appear that any violence was used in the first establishment of Christianity in England, besides that of demolishing idols, and converting Pagan temples into Christian churches.

Augustin, who seems to have been consecrated archbishop of Canterbury before his arrival in England, was actuated by his rapid success with the ambition of possessing, under the sanction of the pope, the supreme authority in the English churches. For the purpose of soliciting this honour, or that of primate of England, and also of obtaining instructions with regard to other subjects, which may now be deemed of very questionable or trivial importance, he deputed messengers to the pope, who speedily returned with a full answer to the archbishop's inquiries. They also brought with them a pall (See PALL), as a badge of archiepiscopal dignity, and various other ecclesiastical vestments and utensils. The pope also gave Augustin directions for erecting twelve sees within his province, and particularly for appointing one at York, which, if the country should become Christian, he was to form into a province with twelve suffragans. Among the counsels communicated by the pontiff to Augustus on this occasion, was an admonition not to be elated with pride on account of the miracles which he had been enabled to perform in confirmation of his ministry, but to consider that this power was given him, not for his own sake, but for the sake of those whose salvation he was appointed to procure. Augustin, having fixed his see at Canterbury, dedicated an ancient church, formerly built by some Roman Christians, to the honour of Christ; and king Ethelbert founded the abbey of St. Peter and St. Paul, afterwards called St. Augustin's, and since converted into the archbishop's palace. Such was the attachment of St. Augustin to the see of Rome, that he attempted to bring the British bishops in Wales under the authority of the Roman see. From the time when the ancient Britons, or Welsh, were first instructed in the Christian faith by Faganus and Damianus, who had been sent at the request

request of Lucius, in the second century, as missionaries by Eleutherius bishop of Rome, these churches had followed the rules of their first masters, without regarding the subsequent alterations prescribed by the church of Rome. But pope Gregory, by appointing Augustin metropolitan of the whole island, had claimed jurisdiction over the churches of Wales; and Augustin was well inclined to support the claim. Two conferences were held on this business; both of which were unsuccessful. At the second conference, seven British bishops attended, and many monks from the monastery of Bangor, under the direction of their abbot Dinloth. Disposed as they were to pay all due respect to the archiepiscopal dignity of Augustin, they took measures, previously to their meeting, for preventing a termination of their contests which would be unfavourable to their interest. Accordingly they consulted a hermit of acknowledged understanding, and requested his opinion, whether they should surrender their independence, and their ancient customs and privileges, to the pretensions of Augustin. The hermit, probably apprized of the disposition and character of the metropolitan, gave them the following instructions: "If this man follows the example of his master, who was meek and lowly of heart, he is a servant of God, and you ought to obey him; if not, his claim is not to be regarded: let Augustin and his brethren be first seated in the place of meeting; if upon your entrance, he rise up to salute you, honour him as a messenger from God; if he neglect to shew you this civility, reject his offers, for he has not taken upon him the yoke of Christ." When the British bishops and monks entered the hall, Augustin, who had taken the chair, received them sitting. Upon which, conformably to the advice of the hermit, they declined complying with the proposals of the haughty prelate, and disclaimed all subjection to the see of Canterbury, and virtually to that of Rome. Augustin, incensed by their conduct, took leave of the assembly, and denounced upon the British clergy this menacing sentence: "if you will not accept of peace with your brethren, receive war from your enemies; if ye will not preach the way of life to the English, suffer death from their hands." The event corresponded with the menace: Ethelfrid, king of Northumberland, soon afterwards marched with a large army to Caerleon, and made a great slaughter, in which near 1200 of the monks of Bangor were put to the sword. The memory of Augustin has been loaded with the infamy of having, to satiate his revenge, fulfilled his own prophecy. Bishop Godwin (*De Præsul. Angl.* p. 43. ed. 1616.) exclaims, "Excellent prophet! who could predict what he knew so well how to accomplish:" and he asserts, upon the authority of an anonymous manuscript, and of an old French annalist, that Augustin, resenting the rejection of his proposal by the Welsh bishops, stimulated Ethelbert to fall upon them, as a wolf upon a flock of sheep, with a large army, borrowed in part from Ethelfrid; and that the bishop himself joined the army of Ethelfrid at Chester, and assisted him to gain a complete victory. In opposition to this testimony, however, it is urged by the learned Wharton (*Angl. Sacr. t. i. p. 89.*), on the credit of an ancient book cited by William Thorn, that Augustin and pope Gregory both died in the same year, that is, in the year 604, when it is certain Gregory died; whereas the slaughter of the monks happened, according to Godwin (*ubi supra*), in 605. Bede, who mentions this battle (*l. ii. c. 2.*) adds, that it was fought after the death of Augustin; and though this passage has been suspected of interpolation, the suspicion has been founded merely on the omission of it in Alfred's Saxon version, though it is found in all the most ancient manuscripts; and

on Augustin's having signed a charter with Ethelbert, in 605; whereas the custom of signing written instruments is not older than the year 700. It is not easy to decide with any degree of certainty, whether Augustin assisted in the war against Wales; but however this be, he cannot be exculpated from the charge of having entertained sentiments of revenge against the Welsh bishops, and he may be justly suspected of having at least advised the hostility, which, in the issue, proved so fatal to the monks. (See *Cave Hist. Lit. t. i. p. 549.*) Augustin, after having appointed Laurence for his successor in the see of Canterbury, died, as some say, and particularly Wharton, who urges good reasons for his opinion, in the year 604, and according to others, in 608 or 614. The remains of this prelate were deposited first in the monastery, and afterwards in the cathedral of Canterbury. In 1091, some of them were secured by an abbot in a small urn, guarded by iron and lead, and hid in a wall, lest the precious treasure should fall into the sacrilegious hands of the Danes and Normans. After the lapse of another century, what yet remained of the holy skull was by another abbot ornamented with gold and precious stones, and repositied by itself; and in the year 1300, a third abbot laid what he could find of the holy relics in a marble tomb adorned with beautiful carved work, and bearing an inscription of the following jingling couplet:

"Ad tumulum laudis patris almi ductus amore,
Abbas hunc tumulum Thomas dictavit honore."

As to the miracles ascribed to St. Austin, they are authenticated merely by lying legends, to which no credit is due. Besides restoring a blind man to sight, for the purpose of establishing his authority and vindicating his claims in the first conference with the British bishops, he is said to have left the print of his foot on the stone which received his first step on his landing in the isle of Thanet; to have caused a fountain of water to spring up for baptizing; and to have called up first the corpse of an excommunicated man to make confession of having refused the payment of tithes, and then that of the priest who had excommunicated him, to give him absolution, in the presence of the people; after which both of them returned to their graves!

"As the apostle of the English, Augustin may deserve to be remembered with honour, as the immediate agent in the dispersion of Pagan superstition, and the introduction of a purer system of religion; but other superstitions, it must be confessed, were introduced in the room of those which were removed, and the people, under the dominion of Christian priests and monks, still remained in a state of mental vassalage. The personal merit of this missionary will bear no comparison with that of the first Christian apostles. While Paul and his brethren, in their journeys for the propagation of the gospel, exposed themselves to innumerable perils, without any prospect of temporal advantage, this apostle travelled under the protection of princes, enjoyed the support and assistance of the civil power, and found his spiritual labours the direct path to worldly honour and emolument. A pope was his master: a king was first his patron, and then his disciple; and the sole government of his new church, with all the advantages of supremacy in a well-arranged hierarchy, was his recompence. That which decisively fixes the reproach of inordinate ambition upon his character is, that he not only eagerly seized the metropolitan dignity in the English church before it was well formed, but endeavoured to bring the ancient and independent British churches under his yoke; and that, meeting with more resistance than he expected from the free spirit of the ancient Britons, his haughty temper could not brook the

the opposition, and he at least *meditated* revenge. We can only judge of the character of this apostle by his actions, imperfectly recorded; for none of his writings remain." *Biog. Brit. Gen. Biog.*

AUGUSTINE, SAINT, a celebrated Christian divine of the catholic church, the son of Patritius, a citizen of mean rank, and Monica, celebrated for her piety, was born at Tagaste, a small town of Africa, in the year 354. His mother, anxious for his imbibing the principles of the Christian religion, placed him among the catechumens; and during a dangerous illness, he expressed a desire of being baptized; but upon his recovery, he postponed the ceremony, from a superstitious notion that sins committed after baptism were more heinous than those committed before. By his father he was sent for classical learning, much against his own inclination, first to a school in the place of his nativity, and afterwards to Madaura. But he was idle and dissipated; and guilty of deceiving his masters, and of pilfering from his parents. To the study of Greek he was at this time particularly averse; nor does he seem in mature life to have made any great proficiency in it, as he confesses that he read the Platonists in a Latin version. At the age of sixteen, and in the year 371, he was removed to the schools of Carthage; but, in the mean while, notwithstanding the counsel and remonstrances of his mother, he acquired habits of incontinence, which were not soon abandoned, and which he ingenuously acknowledges and laments, in a book of "Confessions," written by him at a subsequent period, when he became sensible of his folly. At Carthage he devoted himself to the study of rhetoric and polite literature; and still possessing sentiments not wholly depraved, he found great pleasure in perusing the philosophical writings of Cicero, particularly his Hortensius, or "An exhortation to the study of Philosophy," not now extant. Having been betimes instructed in religion, he occasionally read the scriptures; but not finding in them that kind of eloquence which he met with in Pagan writers, he disliked their simplicity, and threw them aside. However, during his continuance at Carthage, he attached himself to the Manichees, and from the nineteenth to the twenty-eighth or twenty-ninth year of his age, he was a disciple and advocate of this sect. When he was about eighteen, his mother, who was then become a widow, visited him at Carthage, and made every effort in her power for reclaiming him from debauchery and heresy; and she persuaded him to return to Tagaste, where he opened a school of grammar and rhetoric. Notwithstanding the reputation he acquired, his mother had still reason to bewail his conduct; and Augustine himself, in his "Confessions," (l. iii.) expresses, with great tenderness, his sense of the prayers which she presented, and the tears which she shed, on his account. About the close of the year 379, Augustine removed to Carthage, and taught rhetoric in that city. He was also at this time a strenuous advocate for the Manichean system. But his love of pleasure, whatever were his other engagements, continued to be his predominant passion; and he formed a connection with a mistress, by whom he had a child, and to whom he remained constant. Regardless of decorum, he named this child "Adeodatus," the gift of God; and he speaks of him, at the age of fifteen, as a young person of extraordinary talents. Provoked by the insolence of his scholars at Carthage, Augustin removed with his mistress and child to Rome, and taught grammar and rhetoric in that city; but having reason to be dissatisfied with his situation, he sought a new settlement; and, by the recommendation of Symmachus, prefect of Rome, he was appointed, in the year 383, professor of rhetoric at Milan. Here he had an opportunity of attend-

ing the sermons of Ambrose, bishop of this city, which led him to waver between Manicheism and the Catholic faith. In this state of hesitation his mother came to Milan, and renewed her intreaties that he would forsake the Manichees, and quit his irregular course of life. The intreaties of his mother were enforced by the conversation of two worthy men, Simplician and Patilian; and he was thus prepared for the change which soon followed, both in his sentiments and conduct. Whilst he was in a state of deliberation and suspense, praying to God for illumination, he heard, as he says, or imagined that he heard, a voice like that of a singing-boy, addressing him in these words, "Tolle, lege; tolle, lege;" or, "Take, read; take, read;" and opening the New Testament, he turned to this passage; "Not in rioting and drunkenness, not in chambering and wantonness, &c." Accordingly, he immediately resolved to become a member of the Catholic church, and entered himself among the catechumens; and further to testify the sincerity of his conversion, he yielded to the persuasion of his mother, and determined to marry. But before he had an opportunity of executing this purpose, his character was reproached by another connection of an illicit nature, (Confess. l. vi. c. 15.) At the close of the year 387, Augustine relinquished his profession, devoted himself to the study of theology, and employed the interval previous to his baptism, in explaining the scriptures, and vindicating the Catholic faith. In compliance with the advice of father Ambrose, he dedicated himself to the ministry; and having dismissed his new mistress, and abandoned his intended wife, and having received baptism with his illegitimate son, and his friend Alypius, on Easter-eve, in the year 387, he consecrated the remainder of his life to religion. In the year 388, his mother died at Ostia; and Augustin returned to Africa. Having spent three years in his native city, where he exhibited an example of abstinence and piety, and of diligent application to the study of the scriptures, he visited Hippo; and by the recommendation of Valerius, the bishop, he was elected and ordained presbyter in the year 391. Here he founded a religious society, composed of persons who were required to throw their property into a common stock, and to devote themselves to the exercise of piety. In 395, he was appointed coadjutor, or joint bishop with Valerius, to the church at Hippo. After his advancement to the episcopal office, he distinguished himself, on various occasions, by the ardour of his zeal against heretics of every denomination; and against the Manichees, Donatists, and Pelagians, he waged a perpetual controversy. From the time of his conversion to that of his death, his manners were, in general, pure and austere; although from one of his confessions (l. x. c. 31.) there is reason to infer, that he was addicted to hard drinking. His encomiasts have indeed extolled his moderation and urbanity; and the following inscription on his table deserves being recorded:

"Quisquis amet dictis absentem rodere vitam,
Hanc mensam indignam noverit esse sibi."

"Far from this table be the worthless guest,
Who wounds another's fame, though but in jest."

After a life of varied fortune and mixed character, Augustine died in the year 430, at the age of 76 years; having been harassed, at the close of his days, by seeing his country invaded by the Vandals, and the city of which he was bishop besieged. The Vandals, however, who took Hippo, and burnt it, saved his library, which contained his voluminous writings, consisting of 232 separate treatises on theological subjects, besides a complete exposition of the psalter and the gospel, and a copious magazine of epistles and homilies. They are collected together in the *Benedicte* edition, printed

printed at Paris in 1679, and reprinted at Antwerp in 1700; and fill eleven volumes in folio. This faint is said to have written a treatise on music, in six books, which are printed in the folio edition of his works at Lyons, in 1586. There is a MS. treatise of his writing in the Bodleian library at Oxford, entitled, "De Musica;" but it is merely a homily in praise of sacred music; nor do his six books contain any other rules than those of metre and rhythm. His remains were carried by the Catholic bishops of Africa into Sardinia, the place of their exile; and from thence, after an interval of 200 years, they were conveyed by Luitprand, king of the Lombards, to Pavia, his capital.

In estimating the talents and learning, the disposition and character, and the value of the writings of Augustine, some have exalted him far above, and others have degraded him as much below his just rank. Mosheim observes, that his fame filled the whole Christian world; and "not without reason, as a variety of great and striking qualities were united in the character of that illustrious man. A sublime genius, an uninterrupted and zealous pursuit of truth, an indefatigable application, an invincible patience, a sincere piety, and a subtle and lively wit, conspired to establish his fame upon the most lasting foundations. It is, however, certain, that the accuracy and solidity of his judgment were by no means proportionable to the eminent talents now mentioned; and that, upon many occasions, he was more guided by the violent impulse of a warm imagination, than by the cool dictates of reason and prudence. Hence that ambiguity which appears in his writings, and which has sometimes rendered the most attentive readers uncertain with respect to his real sentiments; and hence also the just complaints which many have made of the contradictions that are so frequent in his work, and of the levity and precipitation with which he set himself to write upon a variety of subjects, before he had examined them with a sufficient degree of attention and diligence." That he possessed a strong, capacious, argumentative mind, is generally allowed; but his style, though sometimes animated by the eloquence of passion, is usually clouded by false and affected rhetoric. "It has (says one of his biographers) more argument than oratory, more fluency than elegance, and more wit than learning; he has a certain subtlety and intricate involution of ideas through long periods, which require in the reader acute penetration, close attention, and quick recollection. In fine, he is, as Erasmus has observed, a writer of obscure subtlety, and unpleasant prolixity." And, as many of his speculations are in themselves uninteresting, it is no wonder that his voluminous writings are now very much, and perhaps unduly, neglected. At the same time it is much to be lamented, that the doctrines of this father in the church, should have led men to adopt a gloomy system of religion, and to support it with all the rigour of persecution. Such particularly are those charged upon him by Le Clerc (Letter prefixed to Supplement to Hammond's Paraphrase), which take away goodness and justice both from God and man; the one representing God as consigning men to eternal torments, for sins which they could not avoid: the other, stirring up magistrates to persecute those who differ from them in religion. It has also been regretted, that no writings, those of Aristotle excepted, have contributed more than Augustine's, to encourage that spirit of subtle disputation which distinguished the scholastic age. The learning of Augustine, and particularly his knowledge of the Greek language, have been disputed: and hence the importance of his scripture criticisms has been depreciated. But although it be allowed that his commentaries chiefly consist of popular reflections, spiritual and moral, or allegorical and mystical perversions of the literal meaning; yet the works of this father are not wholly destitute of remarks and critical inter-

pretations, that are pertinent and judicious. To such, after a detail of extracts from the writings of Augustine, the impartial and candid Dr. Lardner has referred. With regard to his knowledge of the Greek language, this excellent writer is of opinion, that he understood Greek better than some have supposed; and he has cited several passages, from which it may be argued, that Augustine frequently compared his copies of the Latin version with those of the Greek original. M. Le Clerc himself allows, that Augustine does sometimes very happily explain Greek words; but on such occasions he suspects, without sufficient reason, that he had the assistance of another.

As to the character of Augustine, it must be acknowledged that his "Confessions," whatever claim they may have to the praise of ingenuity and honesty, must remain a perpetual memorial of disgrace. Besides, although this father of the church entertained, in the earlier period of his ministry, sentiments of mildness and charity towards heretics, he appears at a later period, and under the influence of passions inflamed by polemical disputes, the advocate of intolerance and persecution. In a letter to Vincentius (Epist. 93.), a Donatist bishop, written about the year 408, he assigns several reasons for the coercive exercise of secular authority against schismatics; and urges the good effects which the terror of the imperial laws had produced in the conversion of several whole cities. Having once thought, as he confesses, that no man ought to be forced, he at last yielded to experience. In another letter of the same date, he intreats the proconsul of Africa to refrain the Donatists, but not to punish them with death; and yet in this letter, written professedly for urging the magistrate to persecution, Augustine, with an inconsistency, the reproach of which he too often incurs, thus liberally concludes (Ep. 100.); "it is a more troublesome than profitable labour to compel men to forsake a great evil by force, rather than by instruction." Upon this inconsistency Voltaire pleasantly remarks (Treatise on Toleration); "I would say to the bishop of Hippo, as your Reverence has two opinions, you will have the goodness to permit me to abide by the first, since I really think it the best." Although his conduct in procuring the first law to compel Christians to baptize their infants, in a council at Mela in Numidia, in the year 416, is altogether indefensible; and the writer of this article, abhorring every species of religious constraint and persecution, cannot attempt its vindication; yet he cannot adopt the severe strictures of the sprightly writer that refers to this fact, in their whole extent and unqualified acrimony. "The name of Augustine (says he) had sunk, before this time, below contempt in every free country. He was a crafty irritable man, often disappointed, and foiled by able opponents; passion for power was his ruling disposition, after his sensual appetites had spent their force in debauchery. Too insignificant to obtain distinction in the state, he reconnoitred the church, and felt himself excellently qualified to cant out of Solomon's song to unsuspecting Christians, especially single sisters and monks. A superannuated bishop, to whom he made himself convenient, lifted him into preferment. From that day he became a merciless tyrant, and truckled to the bishop of Rome only for the sake of playing Jupiter in Africa. When he obtained the support of the emperor, and got his dreams tacked to imperial decrees, he became the scourge of all good men within his reach, whose confiscations, banishments, and death, with the ruin of their families, lay at his door. He considered himself as an oracle of God, emperors only as officers whom heaven had appointed to execute his decrees." Robinson's History of Baptism, p. 217. Gen. Dict. Mosheim's Eccl. Hist. vol. i. p. 362. Dupin's Eccl. Hist. v. century, vol. ii. p. 125. Lardner's works, vol. v. c. 117. p. 81—123. Gibbon's Hist. vol. vi. p. 22. Gen. Biog.

AUGUSTINE, ST. in *Geography*, a town of America,
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the capital of East Florida, is situated on the sea-coast, about 80 leagues from the mouth of the gulf of Florida, 180 miles east from St. Mark's, and 316 south-west from Charlestown, in South Carolina. Its figure is oblong, and it is intersected by four streets at right angles. It is well fortified, and has a church and monastery of the order of its name. N. lat. 30°. W. long. 81° 30'.

AUGUSTINE, *Cape St.*, lies on the coast of Brazil, in the Atlantic ocean, 300 miles north-east from the bay of All-Souls. S. lat. 8° 30'. W. long. 35° 40'.—Also, a cape of the Mindanaos islands in the Eastern ocean. N. lat. 6° 40'. E. long. 126° 20'.

AUGUSTINE'S, *St.*, a port and river on the coast of Labrador, near the straits of Bellisle, and opposite to St. John's bay in Newfoundland. In the harbour are two small islands, and about two miles south-west, a chain of little islands, called "St. Augustine's chain." It is about 25 miles from Great Mecatina island. N. lat. 51° 10'. W. long. 58° 50'.

AUGUSTINE'S *Square, St.*, a number of small islands on the coast of Labrador, in the gulf of St. Lawrence, near its mouth.

AUGUSTINE'S, *Bay, St.*, is a commodious bay that lies on the west side of Madagascar island, near the south entrance of the Mosambique channel, between the east coast of Africa and the west coast of the island. It abounds with fish, and furnishes a plentiful supply of beef, mutton, goats, and fowls. S. lat. 23° 35' 29". E. long. 43° 8'.

AUGUSTINS, or AUGUSTINIANS, in *Ecclesiastical History*, an order of religious; thus called from St. Augustin, whose rule they observe. The Augustins, properly also called *Auslin Friers*, were originally hermits, whom pope Alexander IV. first congregated into one body, under their general Lanfranc, in 1256. Soon after this institution, this order was brought into England, where they had about 32 houses at the time of their suppression. The Augustins are clothed in black, and make one of the four orders of mendicants. From these arose a reform, under the denomination of *Bare-foot Augustins*, or *Minorites*, or *Friers Minor*.

There are also canons regular of St. Augustin, who are clothed in white, excepting their cope, which is black.

At Paris they are known under the denomination of *Religious of GENEVIEVE*; that abbey being the chief of the order.

There are also nuns and canoneses, who observe the rules of St. Augustin.

AUGUSTINIANS are also those divines who maintain, on the authority of St. Augustin, that grace is effectual from its nature, absolutely and morally, and not relatively and gradually. They are divided into rigid, and relaxed.

AUGUSTOBONA, or AUGUSTOMANA, in *Ancient Geography*, a city of Gaul, belonging to the Senones, called also *Civitas Tricassium*; now TROYES.

AUGUSTOBRIGA, or AUGUSTOBURICA, a city of Hispania Tarragonensis, in the country of the people denominated "Pelendones;" east of Numantia, and north-west of Bilbilis.

AUGUSTODUNUM, a famous city of Gaul, the capital of the Ædui; now AUTUN.

AUGUSTOMAGUS, an ancient town of Belgic Gaul, placed, in the Itinerary of Antonine, between Cæsaromagus and Sueslone; now SENLIS.

AUGUSTONOMETUM, a city of Gaul, the capital of the Averni; now CLERMONT *en Auvergne*.

AUGUSTOPOLIS, an episcopal town of Arabia.—Also, a town of Phrygia Salutaris.

AGUSTORITUM, a town of Gallia Aquitanica, and capital of the Lemovices; now LIMOGES.

AUGUSTOW, in *Geography*, a town of Poland, in the palatinate of Bielsk, fifty-six miles N.N.W. of Bielsk.

AUGUSTULUS, or ROMULUS AUGUSTUS, in *Dio-*

graphy, the last of the Roman emperors in the west, was the son of Orestes, who, having deposed Julius Nepos by means of the troops in Gaul, of which he was general, and declining the imperial rank, advanced him to the throne, in the year 476. Orestes, however, retained the administration on account of the youth of his son; but in a year after he had attained the object of his ambition, his tranquillity was interrupted by Odoacer, a bold barbarian, who put himself at the head of those mercenaries that formed a part of the armies of Italy. These barbarians had made a peremptory demand, that a third part of the lands of Italy should be immediately divided among them; and Odoacer assured his fellow foldiers, that if they dared to associate under his command, they might soon extort the justice which had been denied to their dutiful petitions. Orestes was soon compelled by this confederate band to retire to the strong city of Pavia, which was besieged, taken, and pillaged. Odoacer, having put Orestes to death, proceeded to Ravenna, and seizing the young emperor, Augustulus, he stripped him of his imperial ensigns, and obliged him to signify his resignation to the Roman senate. The life of this inoffensive youth was spared by the generous clemency of Odoacer; who dismissed him, with his whole family, from the imperial palace, fixed his annual allowance at six thousand pieces of gold, and assigned the castle of Lucullus, in Campania, for the place of his exile or retirement. Thus, in the person of a youth, who united the names of the first king and first emperor of Rome, was the Roman empire finally extinguished, A.D. 476, or A.D. 479; about 507 years after the battle of Actium, when the Roman emperors properly begin; 523 years after the battle of Pharsalia, when the kingdom of Italy begins; and 1229 years from the foundation of Rome. Gibbon's Hist. vol. vi. p. 222.

AUGUSTUM, in *Ancient Geography*, a town of Africa Propria. Ptolemy.—Also, a place of Gallia Narbonnensis, fourteen miles from Labisco, and sixteen miles east from Bergusia, upon the Rhone; now AOSTE.

AUGUSTURSHUNN, in *Geography*, a town of Germany, in the circle of Upper Saxony, and Marquisate of Meissen, near Radeberg.

AUGUSTUS, in *Biography*, a name given first and by way of eminence to Octavius Cæsar, and afterwards appropriated to his successors. (See AUGUST.) *Caius Julius Cæsar Octavianus*, originally called *Caius Octavius*, was the son of a senator of the same name, who had been prætor of Macedonia, and of Accia, daughter to Julia, the sister of Julius Cæsar. He was born during the consulate of Cicero and Caius Antonius, in the year of Rome 691. B.C. 63; at the age of four years he lost his father; and his mother Accia contracted a second marriage with Lucius Marcus Philippus. The charge of his education was entrusted by his mother and father-in-law with the best masters in Rome; and such was his proficiency, that when he was nine years old, he harangued the people with extraordinary confidence, and before he had quite attained the age of twelve, he pronounced the funeral oration of his grandmother Julia. His talents and accomplishments recommended him to Julius Cæsar, his great uncle; who at an early period formed the design of adopting him, if he died without children. Whilst Octavius was at Apollonia, improving his powers of eloquence under the famous rhetorician, Apollodorus of Pergamus, he received the news of his uncle's tragical death, and of his own adoption. Although he was dissuaded by his father and mother, and other timid friends, from declaring either his pretensions or his resentment, he determined to pass over into Italy without delay, and to judge for himself what measures it would be proper for him to adopt. Accordingly he landed at Lupia, now La Rocca, a small port between Brundisium and Hydruntum.

tum. Upon his arrival, the garrison of Brundisium, which was very numerous, and which consisted of veteran soldiers, went out to meet him, and introduced him by a kind of triumph into the city. Octavius thanked them for their attachment and respect; and having offered a solemn sacrifice to the gods, declared himself Cæsar's heir, and assumed the titles of Caius Julius Cæsar Octavianus; avowing himself by the latter of these appellations to be of the Octavian family. Having supplied himself with money, arms, and provisions, he pursued his route through Campania, and after paying a visit to Cicero in the neighbourhood of Cumæ, arrived at Rome, where the party of Antony and Lepidus, which, under a pretence of avenging Cæsar's death, aimed at establishing its own power, had obtained an universal sway. As Octavianus approached the capital, he was met by most of the magistrates, the officers of the army, and the people; but Antony declined shewing him any token of respect. As soon as his adoption was publicly ratified in the forum, and duly registered, he waited upon Antony; and requested to have delivered to him, as Cæsar's chief heir, the money which he had conveyed from Cæsar's house to his own, that he might be enabled to discharge his legacies. Antony's behaviour, at this interview, was haughty and imperious; his reply with regard to the money which he demanded, and of which part had been appropriated to the purposes of avarice and ambition, was unsatisfactory; and his address closed with reminding Octavianus, in a style of authority and menace, that the favourites of the people are, generally speaking, short-lived, and that popular affection is more inconstant than the waves of the ocean. Octavianus retired, disgusted and offended; and apprised, that the consul withheld his father's money and estate from him in order to disabuse him from purchasing the favour of the people, he sold his own patrimony, and the estates of his mother and father-in-law, and with the produce of these sales, he paid part of Cæsar's legacies; and by this act of generosity he so charmed the populace, that they unanimously espoused his interest, and broke out into bitter invectives against Antony, for withholding his father's estate. An attempt, however, was made towards reconciling these two competitors for the public favour; and it was attended with a partial and temporary success. But new occasions of variance occurred; and at length Octavianus was charged with a design of assassinating his rival. This furnished Antony with a pretence for drawing into Italy a considerable army. Octavianus, alarmed by this hostile preparation, hastened into Campania, and having collected 10,000 brave veterans who had served under Cæsar, marched immediately towards Rome. But as he had no military title, nor any magistracy which gave him a right to command the forces of the republic, especially against a consul, he thought it advisable to halt at the temple of Mars, within two miles of the city, till he obtained the consent of the people for his entry, which was soon granted him. Antony was at this time at Brundisium, and as he was hourly expected with a considerable force, it was justly apprehended that the flames of a civil war would be instantly kindled within the walls of the city. Parties were formed for one and the other of these formidable rivals; and whilst many of the senators were deliberating which side to take, Cicero, probably, as it has been said, more with a view of procuring for himself a bountiful master, than for rescuing his country from tyranny, declared for Octavianus. At his motion, Antony, who had actually invaded the province of Cisalpine Gaul, and laid siege to Mutina, was declared an enemy to his country. Two new consuls, viz. Pansa and Hirtius, who had both served under Cæsar, and who were the inti-

mate friends of Cicero, were ordered to raise troops, and to march to the relief of Decimus Brutus, who was closely besieged in Mutina. In two battles that were fought by the contending armies in the neighbourhood of this town, both the consuls fell; and Octavianus became commander in chief of the whole army. Pansa, when he was dying of the wounds which he had received, earnestly advised Octavianus to compromise his difference with Antony, as the only means of saving his life and advancing his fortune; and the consul's dying words made a deep impression on the mind of Octavianus. The senate, conceiving Antony to be utterly ruined, began to slight Octavianus, of whose services, as they thought, they should have no further occasion; and refused his demand of a triumph, which they granted to Decimus Brutus; heaping upon him various honours, and appointing him commander of all the forces in Cisalpine Gaul; charging him at the same time, without even mentioning Octavianus, to pursue Antony, and treat him as a public enemy. Whilst Antony, after experiencing some vicissitudes, and after having fled before Brutus and abandoned Italy, was ready to re-enter it with the command of twenty-three legions and above 10,000 horse, Octavianus was at Bononia, where he had been endeavouring, by the interest of Cicero, to obtain the consulate. But being disappointed with regard to this object of his ambition, he resolved no longer to defer his reconciliation with Antony. Accordingly, this business being settled, and a treaty having been concluded between them and Lepidus, of which the senate was wholly ignorant; Octavianus being placed at the head of an army, for the purpose of conducting the war, in conjunction with Decimus Brutus, against Antony and Lepidus, marched towards Rome in order to demand the consulate. It was now too late to concert or to carry into effect any measures of resistance. Octavianus was received in the capital with the loudest acclamations of the people; he was immediately joined by the legions stationed in the city; and he was unanimously elected first consul, though he had not yet completed his twentieth year, A.U.C. 711. B.C. 43. Immediately after his promotion to the consulship, he procured the confirmation of his adoption in a general assembly of the people; he caused the decree against Antony and Lepidus to be revoked; and he invited them into Italy. As they advanced, he went out to meet them; and their meeting took place at a small island formed by the river Rhenus, now Reno, which falls into the Po, after having watered the territory of Bononia, or Bologna. Here was planned the famous system of power called the TRIUMVIRATE; which see. Having cemented and disgraced their new connection by the detestable PROSCRIPTION, which was to cut off all their enemies public and private, and to fill their treasury by confiscations, and by the mutual sacrifice of some of their nearest friends and relations, among whom was CICERO; they proceeded to Rome, and filled the city with blood and rapine. In fulfilment of one article of the treaty, settled on this occasion, Octavianus and Antony prepared for an expedition against Marcus Brutus and Cassius, who had made themselves masters of most of the provinces in the East. Accordingly they passed over into Macedon; and met the republican leaders on the plains of Philippi, where the contest was decided by two battles, the second of which terminated with the death of Brutus. (See BRUTUS.) On this occasion, Octavianus, who was actuated by an implacable spirit of revenge against the authors of Cæsar's death, is chargeable with a degree of cruelty which fixed an indelible stain upon his reputation. Before his return to Rome, he found a difficulty, and incurred considerable danger, in the distribution of the for-

feited lands among the soldiers. He was also involved in a civil war by the violence of Fulvia, and of Lucius the brother of Antony, which was terminated by the surrender and capitulation of Perusia. On this occasion, Octavianus exercised the most inhuman barbarity. See PERUSIA. After the conclusion of this war, a partition was made of the Roman empire between Antony (see ANTONY) and Octavianus: Rome and the west being assigned to the latter. The next and most important event that engaged the attention of the triumvirs, was the war with Sextus Pompey. Whilst Octavianus was preparing for this war, he was captivated by the personal and mental charms of Livia, then the wife of Claudius Tiberius Nero. In order to obtain possession of her, he divorced his own wife Seribonia, and caused Livia to be divorced from her husband, though she was at the time far advanced in her pregnancy, and was, within three months after he married her, delivered of a son, who was named Tiberius, and who was afterwards emperor. The war with Pompey, though at first disastrous, was soon concluded by a general engagement, in which Pompey was entirely defeated.

Upon the deposition of Lepidus from his authority as one of the triumvirs, the Roman state was governed by a duumvirate; which was not likely to be of long duration. Antony, advancing to old age, and yet addicted to youthful follies, gave Octavianus advantages, which he had discernment to perceive, and of which he availed himself by his political wisdom. Whilst he ingratiated himself with the people by several popular acts, and was invested with the dignity of perpetual tribune of the people, which rendered his person sacred and inviolable, he contributed by various charges to degrade Antony in the public estimation. The commencement and termination of the civil war, in which Antony and Octavianus were engaged, have been already related under the article ANTONY. It will be sufficient here to say, that it was the success gained by Octavianus, for which he was chiefly indebted to the conduct of his admiral Agrippa, at the famous battle of Actium, fought in the year B. C. 31, which made him master of the Roman world. Having followed his rival into Egypt, and there terminated the war, he remained in the east two years, and settled all the affairs of Egypt, Greece, Syria, Asia Minor, and the islands.

Upon his return to Rome, he triumphed for three successive days with great splendor. Having attained the summit of his ambition, it now remained with him to determine under what title, and in what mode, he should exercise the supreme authority which he had acquired. That he ever seriously intended to surrender the power which he possessed, and to which he had made such sacrifices, is not at all probable; and yet it is by no means unlikely that he should have conferred with his confidential friends, Mæcenas and Agrippa, in the manner which historians have recorded. Agrippa, a man no less famous for his probity than his valour, recommended a general resignation; represented the inevitable dangers which attend monarchy, insupportable to a free people and to men educated in a commonwealth; portrayed the examples of Sylla and Cæsar; and closed his speech with exhorting Octavianus to convince the world, by restoring liberty to his country, that the only motive for his taking up arms was to revenge his father's death. Mæcenas, a man of great penetration, and generally esteemed the most refined politician of his age, urged that he had gone too far to recede; that he could be safe only on the throne; and that it was absolutely necessary for the welfare and tranquillity of the republic, that the sovereign power should be lodged in one person,

and not divided among many individuals, whose ambitious views would still occasion a perpetual succession of miseries to the public. Octavianus thanked them both for their friendly advice, but avowed his purpose, a purpose without doubt previously formed, of adhering to the opinion of Mæcenas; upon which this sage counsellor recommended his governing others as he would wish to be governed himself, if he had been born to obey and not to command; that he might then secure success in all his undertakings; happiness during his life, and reputation after his death; adding, that if he dreaded the name of king, so odious in a commonwealth, he might content himself with the title of "Cæsar" or "Imperator," and under that appellation, which was familiar to the Romans, enjoy all the authority of a sovereign. Dio. Cassius, l. iii. p. 464.

Octavianus, having formed his purpose, began to amuse and gratify the people, to adorn the city by public buildings, to new-model the senate by introducing his own partisans, by annulling many unjust and severe laws that had been enacted during the triumvirate, and by reforming a variety of abuses. At length, in his 7th consulate, B. C. 27, in the 36th year of his age, he went to the senate-house, and in a studied oration, which displayed his patriotism and disguised his ambition, he proposed to abdicate his authority. Those who were in the secret applauded; others were greatly embarrassed. But amidst this confusion of sentiments, the answer of the senate was unanimous and decisive. They refused to accept his resignation, and conjured him not to desert the republic which he had saved. After a decent resistance, the crafty tyrant submitted to the orders of the senate; and consented to receive the government of the provinces, and the general command of the Roman armies, under the well-known names of "Proconsul" and "Imperator." But he would receive it only for ten years. At the motion of Munatius Plancus, he also assumed the title of *Augustus*. The powers which he united in himself, of which some, indeed, were not conferred immediately, werethose of 1. "Imperator," or "Emperor," extended to signify commander-in-chief of all the forces of the state, arbiter of peace and war, and uncontrolled head of the executive power, as well over the citizens as soldiers: 2. Of "Proconsul," giving him the legal supremacy in every province which he might visit: 3. Of "Tribune," rendering his person sacred, and conferring upon him the right of *veto* on all public proceedings: 4. Of "Censor," or superintendent of manners: 5. Of "Supreme Pontiff," or the head of religion: 6. Of "Dispensation" from observing the laws, when he should think fit to exercise it. To the preceding privileges of an absolute prince was added the venerable and respectable character of "Father of his Country," implying a kind of paternal relation to his people.

Augustus, besides the limitation of ten years which he annexed to the possession of his authority, flattered the senate by sharing with it the government of the provinces, reserving to himself those which were most liable to tumults and seditions, that he might thus have at his command all the forces of the empire. He also contrived to retain ancient names, forms, and institutions; and to commit a portion of real authority to the senate, the people, and officers of state; so that his government was rather a monarchy than a despotism.

The first and chief care of Augustus, after he had obtained the dignity of absolute master of the empire, was to satisfy his soldiers, and attach them more firmly to his interest. With this view he dispersed them all over Italy in 32 colonies, and thus they might easily be re-assembled

in case of any sudden commotion. His land forces consisted of 25 legions, of which eight were on the Rhine, four on the Danube, three in Spain, and two in Dalmatia. The other eight were sent into Asia and Africa, four being quartered in the neighbourhood of the Euphrates and in Syria, two in Egypt, and two in the province of Africa, consisting of the ancient dominions of Carthage. The whole number of these, constantly maintained by Augustus, and for some ages by his successors, amounted to 170,650 men. In the vicinity of Rome were always quartered 12 cohorts, about 10,000 men, of which nine were called prætorian cohorts, and the other three city cohorts. They were established to guard the emperor's person, and to maintain the peace of the city. That the former might be faithful, and vigilant in their duty for the safety of the emperor's person, the senate ordered their pay to be doubled. Besides these numerous and well-disciplined land forces, Augustus kept constantly at sea two powerful fleets; one riding at anchor near Ravenna, in the Upper or Adriatic sea, the other at Misenum, in the Lower or Mediterranean sea.

Augustus, having settled all affairs in the capital, passed into Gaul, towards the close of the year B.C. 27, with a design of proceeding to the reduction of the British islands; but on his arrival at Narbonne, he received information that the Salassians at the foot of the Alps, and the Cantabrians and Austrians in Spain, had shaken off the Roman yoke: he therefore discontinued his progress, and marched in person into Spain, for the purpose of subduing those nations that had revolted. The conquest of the Salassians he committed to his generals. In the year B.C. 23, Augustus married his daughter Julia to his nephew Marcellus; and in the course of the year he was seized with a dangerous disorder, which threatened his life, of which he was cured by his physician Antonius Musa, who deviated from the common practice in administering cooling potions, and recommending the use of the cold bath. His health was not only restored, but his constitution was rendered more firm and vigorous than it had ever been before. When his life was thought to be in danger, he delivered his ring to Agrippa, thus intimating that he deemed him to be a proper successor. Marcellus, who was generally regarded as his intended successor, was disgusted by this preference; but the death of this prince, who was greatly regretted by the Roman people, made way for the introduction of Agrippa to court, and from this time he continued the most confidential friend of Augustus. At this time the administration of the empire was conducted with great equity and moderation; and many instances are recorded, in which Augustus exercised lenity and self-denial, and recommended himself by the respect which he manifested to the senate and to the courts of justice. In the year B.C. 22, he declined the office of dictator and of censor, which were offered him by the senate, and in his general conduct he affected to appear no otherwise than as a private citizen. To him, it is said, the title of "lord" and "master" was always an object of detestation, because its counterpart was that of a "slave;" and to those who behaved to him with disrespect, and who libelled him in their speeches or writings, he was singularly meek and forgiving. Nevertheless, mild and equitable as was the government of Augustus, several conspiracies were formed against him, during the course of his reign; that of Fannius Cæpio and Licinius Murena, which was detected, so that the principals were punished, gave occasion to two new laws in the administration of criminal justice; one of which was, that accused persons might be sued and condemned, though they did not appear, as if they were present; and the other,

that judges in criminal cases should give their opinions verbally, and not by ballot.

Rome being now at peace, Augustus determined to visit the eastern part of the empire; but as it was necessary to invest some person with authority for keeping the city in order during his absence, he appointed Agrippa for this purpose; and in order to annex additional dignity to his character in the discharge of the trust that was committed to him, he gave him in marriage his daughter Julia, the widow of Marcellus. Such was the respect with which Agrippa was treated, and so mild and yet so firm was his administration, that Rome hardly perceived that it was bereaved of the authority of Augustus. In his progress through the eastern provinces, during the years B.C. 21 and 20, the emperor recovered from Phraates, king of Parthia, the Roman standards and captives that had been taken from Crassus; he placed Tigranes on the throne of Armenia; and at Samos, to the inhabitants of which he granted the liberty and use of their own laws, he received ambassadors from the remotest part of India. A philosopher, who accompanied these ambassadors, attended the emperor to Athens, and committed himself to the flames in his presence. Augustus, after his return, directed his attention to various abuses which needed reform, and to the enactment of regulations that contributed to the perfection of government. He reduced the number of senators from one thousand to six hundred, and fixed at a higher rate the fortune that was requisite for qualifying a person to be elected of that body; and that no persons, who were eminently fit for the office, might be excluded, he made up their deficiencies of fortune by his own liberality. He also introduced some other regulations for restraining the licentiousness and depravity of morals that too generally prevailed; and particularly such as concerned the nuptial state, though rigour in this latter respect did not well become the emperor, who was known to have intrigues with the wives of several men of rank, and who had taken great licence in the privilege of divorce. Augustus increased the tax on celibacy, and granted privileges and rewards to married persons who had several children. See PAPIAN-PORREAN-LAW. Sumptuary laws and regulations respecting the public spectacles, and the suppression of riots and disorders among the spectators, also occupied his attention. In the year of Rome 737, B.C. 17, he celebrated the secular games with extraordinary splendor. About this time he also adopted his two grandsons Caius and Lucius; the children of Agrippa and Julia. Having received from Gaul many complaints against the attendants whom he had appointed to levy the tributes and imposts and particularly against Licinius, he visited that country; but the principal aggressor, Licinius, contrived to soothe his displeasure by giving him a great part of the treasures which he had amassed. Upon his return from Gaul, B.C. 13, the death of Lepidus afforded him an opportunity of assuming the office of supreme pontiff; and in the first exercise of this authority, he collected all books of divination and pretended oracles, of which more than 2000 were committed to the flames. The books of the Sibyls, however, were entrusted to the custody of the priests. The death of Agrippa was, at this time, a very distressing event to Augustus (see AGRIPPA); but it served to advance Tiberius in the family of the emperor, who by an unwarrantable act of tyranny caused him to be divorced from a wife to whom he was affectionately attached, and to marry the widowed Julia, of whose irregularities he was well apprised.

In the prosecution of the German war, Drusus distinguished himself by his successes, and extended his arms as far

far as the Elbe; but as he was returning to the banks of the Rhine, illness or accident occasioned his death, B. C. 9. His brother Tiberius also reduced the Pannonians and Dacians, and completed the work which Drusus had begun. These events terminated in a general peace through the whole Roman empire, and the temple of Janus was shut, for the third time, in this reign, and remained in this state about 12 years. Before this time Augustus had lost his beloved sister Octavia, who never recovered the death of her son Marcellus; and this afflictive event was succeeded by the decease of his favourite minister Mæcenas, between whom and Augustus a coolness had subsisted, which is said to have been owing to the emperor's intrigues with his wife, Terentia. During this period, however, Augustus received many unequivocal testimonies of the attachment and affection of the people (Suet. Aug. 57—60.); and after enjoying the imperial authority for 20 years, he was unanimously requested to accept it for 10 years more. The year 8 B.C. was rendered memorable by the reformation introduced by Augustus into the calendar. (See BISSEXTILE, and CALENDAR.) About the year B.C. 6, the ambition of the young Cæsars, Caius and Lucius, the adopted sons of Augustus, began to give him uneasiness; and the jealousy which subsisted between them and Tiberius induced the latter to request the liberty of retiring to Rhodes, which was reluctantly granted, and whence he was not allowed to return for seven years. On occasion of Caius Cæsar's assuming the toga virilis in the year 5 B.C.; Augustus accepted the consulate for the twelfth time; and this year (four years before the vulgar æra), was rendered singularly illustrious by the birth of JESUS CHRIST. When Lucius Cæsar took the toga virilis in the year 2 B.C.; Augustus became consul for the thirteenth and last time. But this year was embittered to him by the discovery of the very licentious and shameful conduct of his daughter Julia, which had been for some time known to every one but himself. After deliberating whether her punishment should be death or exile, he determined to divorce her from Tiberius, and to banish her to the island of Pandataria on the coast of Campania, where she was allowed merely necessaries, and whence she was never recalled. Of those with whom she had criminal intercourse, some were exiled, and others put to death.

Augustus, having lost his two adopted sons; Caius having died A.D. 3, of a wound which he received in Armenia, and Lucius at Marseille, A.D. 2; had no hopes of perpetuating any of his own family on the imperial throne. He therefore recalled Tiberius from Rhodes, and adopted him some months after the death of Caius Cæsar. He also adopted the last of his grandchildren Agrippa Posthumus; but his untractable disposition and gross manners induced him afterwards to annul his adoption, and to banish him to the isle of Planasia or Pianosa, on the south of the isle of the Elbe. The emperor likewise obliged Tiberius to adopt Germanicus, the son of Drusus.

In the year 4, Augustus, who was a fifth time continued as commander in chief of the armies, and in the government of the provinces in his department, prosecuted his labours for settling the civil administration of the republic. He again reviewed the senate, numbered the inhabitants of Italy, and established some other regulations for the benefit of the state. But of all the occurrences of this year, the most glorious for Augustus was the pardon of Cinna, Pompey's grandson; who was accused of a conspiracy against his life. Having admitted the criminal into his closet, he reminded him of the favours which had been conferred upon him, and charged him with the ingratitude of his design; and then closed an address of two hours with these

words: "Again, Cinna, I give you your life; I spared you, though you were my enemy; I now forgive you, though to that name you have added those of traitor and parricide. Let us from this day begin to be sincere friends; let us vie with each other; I, to support the good I have done; you, to make a suitable return: let us try to make it a doubt whether I am most generous, or you most grateful." The emperor named him consul for the next year; and from this time, Cinna, overcome by the emperor's goodness, became his faithful and zealous friend; and when he died, made Augustus his sole heir. The clemency of Augustus on this occasion interested the people so much in his favour, that no conspiracy was ever more attempted against him.

The conduct of Julia, the grand-daughter of Augustus, who copied after her mother's example, offended and grieved him; and he banished her A.D. 9, to the isle of Trime-tum, now Tremiti, on the gulf of Venice. The poet Ovid, who is supposed to have participated her guilt, was banished at the same time, to Tomi in Scythia, on the borders of the Euxine sea. The two Julias, and Agrippa Posthumus, sadly interrupted the domestic felicity of Augustus, so that he used to call them his three *cankers*, his three *abscesses*; he never heard their names without a sigh, and often applied to them a verse of Homer, Il. iii. 40.

"Αἰδ' ὅφελός τ' ἄνθρωπος τ' ἔμεναι, ἄγαμος τ' ἀπολεσδαί."
i. e. "Would to heaven I had never married, but had died without posterity."

In the following year, A.D. 10, the destruction of Varus with three entire legions in Germany, in consequence of a confederacy formed by Arminius, the loss of the standards of the legions, and two of their eagles, and the insolence and cruelty with which the captives were treated by the conqueror, were the occasion of great distress and terror at Rome. Augustus, accustomed to glory and prosperity, lamented this humiliating and disastrous event with the excess of sorrow. He not only put on mourning, and suffered his beard and hair to grow, but often exclaimed in an agony, "Return me my legions, Varus." As long as he lived, the day of Varus's defeat was observed by him as a day of annual regret and sorrow. Tiberius, however, by his military skill restrained the ravages of the Germans, re-established the reputation of the Roman arms, and relieved Rome amidst its anxiety and fears. Augustus was highly gratified by his success, expressed his approbation in very strong and affectionate terms, and raised him to an equal share of the imperial authority. Upon his return to Rome A.D. 12, he obtained a magnificent triumph. Towards the close of his life Augustus enacted several regulations, which under succeeding emperors became the means of extending and vindicating tyranny and despotism. As he was unable to go frequently to the senate, he caused his privy council to be invested with the authority of the whole body; he also weakened the power of the people, which his successor actually annihilated, by nominating magistrates, whom they had been accustomed to elect, and by authoritatively recommending to the people such as he chose to have employed. He likewise revived and extended an old law, which was levelled against actions detrimental to the state, by enacting, that all authors of defamatory libels should be guilty of high treason, and punished accordingly. As his health and strength declined, he devolved the principal cares of empire upon Tiberius. The access of the complaint that terminated in his death has been, without sufficient reason, attributed to poison, administered by his wife Livia, who was alarmed, on account of her own son, by his returning affection to his grandson, Agrippa Posthumus. But the truth is, that his disorder

was owing to a weakness of the stomach and bowels; and he was seized with it, as he was conducting Tiberius towards Illyrium. On his return towards Rome, his complaint increased and obliged him to stop at Nola, where he took to his bed, and patiently waited the approach of death. On the last day of his life, he called for a mirror; he had his head dressed, and something to be done which might prevent his cheeks from appearing sunk; and then calling his friends to his bed-side, asked them, whether they did not think he had acted his part pretty well in the comedy of human life? and then addressed them in a Greek verse, with which they generally closed their plays:

“ Δότε κροῖν, καὶ πᾶσι; υμῖς μέλα χάρις κλυτὰ τεύχεα : ”
i. e. “ Clap your hands, and let all applaud with joy.”

After this kind of comic adieu, he ordered every body to retire, and died in Livia's arms; saying, “ Livia, conjugii nostri memor, vive et vale; ” i. e. Livia, farewell, forget not a husband who has loved you tenderly.” His death happened on the 10th of August, A. D. 14, A. U. C. 767, and in the seventy-sixth year of his age. The duration of his power, if we reckon from the time of the triumvirate, of which he took possession the 27th of November, in the year of Rome 711, B. C. 43, was about 56 years. If we reckon from the battle of Actium, fought the 2d of September, in the year of Rome 721, B. C. 31, when his sole possession of the Roman empire properly commences, Augustus will then appear to have enjoyed the sovereign power about forty-four years. Crevier states the true time of his becoming emperor to have been the 7th of January, in the year of his seventh consulship, which, according to his reckoning, was the 725th of Rome, and referring his death to the 765th of Rome, he governed as prince and emperor forty years, seven months, and thirteen days. “ All the rest (he says) was manifest usurpation and tyranny.” Josephus (Ant. l. xviii. c. 2. § 2. De Bell. l. ii. c. 9. § 1.), and others after him, compute the beginning of the reign of Augustus from the year in which Cæsar was killed, A. U. C. 710. B. C. 44, and make its duration fifty-seven years, six months, and some odd days. Ptolemy, in his canon, and St. Clement of Alexandria (Strom. l. i. t. i. p. 405. ed Potter.), date the commencement of his reign in the year after the battle of Actium, A. U. C. 724, and compute its duration to be forty-three years.

Before the funeral of Augustus, his will was presented to the senate-house by the vestal virgins, in whose custody it had been deposited, and read aloud by Polybius, one of his freedmen. By this will, made sixteen months before his death, Tiberius and Livia were appointed his first heirs, his grand-children and their children his second, and the great men of Rome his third heirs. Livia was adopted into the Julian family, and honoured with the title of Augusta. He bequeathed, as a legacy, forty millions of sesterces (about 5,000,000 livres) to the Roman people; three millions five hundred thousand (437,500 livres) to the tribes, that is an hundred thousand (12,500 livres) to each; to each of his guards a thousand sesterces (125 livres); to each of the soldiers appointed to guard the city 500 sesterces (62 livres); and to each legionary soldier 300 sesterces (37 livres). Augustus left also four memorials, written by his own hand, which were produced to the senate by Drusus. The first of these contained regulations relating to his obsequies; the second was a journal of the most memorable actions of his life, which he ordered to be engraved on the pillars of brass which supported the frontispiece of his stately mausoleum; part of which has been preserved in an ancient marble, found about 200 years ago in the city of Ancyra; the third contained a summary of the strength and income of the empire;

and the fourth was a summary of instructions for the use of Tiberius, and the other governors and magistrates of the republic.

The funeral of Augustus was performed with very extraordinary magnificence. After a short eulogium by Drusus, and a funeral oration by Tiberius, fire was set to the pile in the Campus Martius, on which his body was laid, and at this moment an eagle was let loose from the top of it, to carry his soul to heaven. His ashes were collected by Livia, and inclosed in an urn of gold, which she deposited in the mausoleum erected by Augustus in a grove between the Tiber and the Flaminian way. After the funeral, divine worship was decreed to him, with a temple and priests; the house in which he was born, that in which he died, and most of the houses in which he had lived, were converted into sanctuaries. Livia assumed the office of chief priestess to the new deity; and made a present of a million of sesterces to an old prætor, named Numerius Atticus, who swore that he saw the soul of Augustus in its flight to heaven.

The character of Augustus appears under very different aspects in the various periods of his life and reign. In the outset of his career of ambition, he was crafty and dissembling (Gen. Biog.), violent and sanguinary; but as he advanced in years, and after he had attained the object of his views, he was, in his general conduct, mild, affable, and conciliating. In the exercise of that sovereign and absolute power, which he acquired by means which none can attempt to justify, and which he contrived most effectually to secure by apparent moderation and self-denial, he seems to have been solicitous for making the people contented and happy; and in many respects he was entitled to the character of a wife and equitable governor. “ As a compensation for liberty,” says one of his biographers, “ he gave his subjects security, ease, prosperity, and all the advantages of high civilization, with as little as possible of the severity of restraint and coercion. He filled Rome and all Italy with improvements of every kind; made highways, constructed harbours, raised edifices for use and convenience, and could boast that he received a capital built of brick, and left one of marble. He so encouraged letters, that one of the great ages of excellent human productions takes its name from him.” (See AGE.) Those whom he encouraged by his liberality, repaid him with an adulation, which was not honourable to themselves, and which made no addition to his reputation. The love of flattery, however, is not charged upon him as one of his predominant foibles. In private life he had many estimable qualities. Affectionate to his family and friends, condescending and indulgent to his domestics and dependents, frugal and sober with regard to every indulgence, one excepted, which regarded himself; he commanded affection and respect. But his disposition to gallantry and licentiousness in his conduct towards the female sex, exposed him to just censure and reproach: nor did the counsel of his friends (see ATHENODORUS), nor the wisdom of experience, avail to the due restraint of his criminal passions. Sometimes indeed, it has been said, his intrigues were the result of that policy which directed his general conduct, as they served to discover secrets of state, and to obtain information concerning any plot or sedition that might have been formed by the husbands of those wives with whom he was connected. In other respects he paid a high regard to external decorum; and whatever might have been his sentiments with regard to religion in early life, he appears in maturer and more advanced age to have been much inclined to superstition. He took great pains to establish order in every branch of the administration whilst he lived; and recommended it to his successors not to extend the limits of an empire that was already

ready too large. "Upon the whole," says the biographer above cited, "if not entitled to rank among the greatest and best of mankind, he will be ever respected as one of those sovereigns whose personal qualities had a great influence in promoting the happiness of the people he governed."

A popular historian (see Gibbon's Hist. vol. i. p. 114.) has given the following sketch of the character and history of Augustus. "The tender respect of Augustus for a free constitution which he had destroyed, can only be explained by an attentive consideration of the character of that subtle tyrant. A cool head, an unfeeling heart, and a cowardly disposition, prompted him, at the age of nineteen, to assume the mask of hypocrisy, which he never afterwards laid aside. With the same hand, and probably with the same temper, he signed the proscription of Cicero, and the pardon of Cinna. His virtues, and even his vices, were artificial, and according to the various dictates of his interest, he was at first the enemy, and at last the father of the Roman world. When he framed the artful system of the imperial authority, his moderation was inspired by his fears. He wished to deceive the people by an image of civil liberty, and the armies by an image of civil government." Among the ancients, the principal writers who have portrayed the character and reign of Augustus, are Suetonius, Dio Cassius, Velleius Paterculus, and Tacitus. Julian (Cæsars, p. 309.) says of him, that as Octavianus advanced to the banquet of the Cæsars, his colour changed like that of the camelion; pale at first, then red, afterwards black, he at last assumed the mild livery of Venus and the graces. Horace, in the introduction to the first epistle of the second book, gives the following sober and judicious summary of the emperor's characteristic merits:

"Cum tot sustineas, et tanta negotia, solus:
Res Italas armis tueris, moribus ornes,
Legibus emendes; in publica comoda peccem,
Si longo sermone morer tua tempora, Cæsar."

See also Odes v. and xv. Anc. Un. Hist. vol. xii. p. 1—115. Crevier's Hist. Emperors, vol. i. passim. vol. ii. p. 1—14.

AUGUSTUS, Fort, in *Geography*, a small fortress seated on a plain at the head of Loch Neis, in Scotland, between the rivers Tarff and Oich, just where they discharge themselves into the lake. The fortress consists of four small bastions; and now exhibits tokens of decay, though a governor constantly resides in it, and all the regulations of a garrison are observed in it. It was taken by the rebels in 1746, who, after doing it all the injury in their power, deserted it. Its distance from the sea prevents its being of any further service, in a tranquil state of the country, than that of affording a retreat for a few invalid officers and soldiers. A small village lies behind the fort, and it serves as a kind of resting place in the way to the isle of Sky, distant from it about 52 miles.

AUGUSTUSBURG, a town of Germany, in Upper Saxony, and circle of Erzgebirg, seven miles east of Chemnitz.

AU-GUY-L'AN-NEUF, or AUGILLANNEUF. See MISLETO.

AUHAF, in Geography, a town of Germany, in the archduchy of Austria, six miles south-south-west of Ips.

AVIA, in Ancient Geography, a town of Hispania Tarraconensis, in the country of the Vaccæans.—Also, a town of Italy, in the territory of the Vestini. Ptolemy.

AVIANO, in Geography, a town of Italy, belonging to the state of Venice, in the province of Friuli, twenty-eight miles west of Udina, and fifteen E. S. E. of Belluno.

AVIARY, formed of *avis, bird*, a house or apartment kept for the keeping, feeding, and propagating of birds.

AVICENNA, or ABU ALY HASSEIN BEN ABDULLAH, or EBU SINA, in Biography, the son of Hali of Bochara, in Chorasán, a celebrated philosopher and physician, born about the year of the Hegira 370, A. D. 980, became early distinguished for his proficiency in literature. He had a ready genius, and extraordinary memory, so that at the age of ten he could repeat the whole Koran by heart. Serfamus, or Giuzgiani, his disciple, says, he was master of Euclid at the age of sixteen. Having completed his studies under Abdallah, a private tutor, who taught him logic and philosophy, and in the school of Bagdat, he was made doctor in medicine, and began to practise at the age of eighteen. He is said to have discovered, by the pulse, the distemper which Cabous, nephew to the emperor, laboured under. The story, as related by the Arabic writers, is so like, Friend observes, what is told by Appian of the sagacity of Erisistratus, in discovering the disease of Antiochus, son of Seleucus, that it seems to have been borrowed thence, to raise the character of this physician. However this may be, Avicenna was in high repute, and attained to great wealth and honour in the court of the caliph. During the latter part of his life, after having spent several years in travelling, he resided at Ispahan, where by his irregularities he so impaired his constitution, that it was observed of him, that he had totally lost his labour, his philosophy neither enabling him to govern his passions, nor his knowledge of medicine to preserve him from disease. He died of a dysentery, owing in some measure to his intemperance, at Hamadan, in the year 1036 of the Hegira, A. D. 428, in the 58th year of his age. The works of Avicenna were numerous, but whatever may have been said of his genius and learning, they have contributed little to the improvement of philosophy, being for the most part imperfect and obscure representations of the doctrines of Aristotle; they consist of "Twenty Books on the Utility of the Sciences;" "The Heads of Logic;" and treatises on metaphysics and morals. The principal of them, the Canon, or "Canon Medicinæ," though almost entirely borrowed from Galen, Dioscorides, and other Greek writers, acquired such reputation, that it was taught at all the European colleges, and retained its popularity until near the middle of the 17th century. Haller fills several pages of his Bib. Med. Pract. and of its Bib. Botan. with the titles of his books, their different editions, and of the commentators upon them. The earliest edition was published at Padua, in folio, 1473.

"One would naturally expect, Friend says (Hist. of Physic, vol. ii. p. 73.), to find in this author something answerable to the fame he acquired, but though I have very often looked into his writings upon several occasions, I could meet with little or nothing there, but what is taken from Galen, or what at least, occurs, with a very small variation, in Rhazes, or Haly Abbas;" and Haller says (Bib. Med. Pract. vol. i. p. 384.) "Mihi, supra omnem patientiam, loquax, et diffusus videtur;" and adds, though you should spend whole months in poring over his works, you would scarce meet a single original observation. He had, however, before (Bib. Botan. vol. i. p. 187.) bestowed some commendations on his industry in investigating the properties of plants, and acknowledged he had enriched that part of medicine, by the introduction of several vegetables unknown to Dioscorides. The works of this physician and philosopher were printed in the original Arabic, at Rome, in 1503. A Latin translation of them by Gerard of Cremona and others, was published in folio at Venice, in 1595, and 1658; and Vopiseus Fortunatus published a new translation, with notes by various authors, in folio,

folio, at Louvain, in 1658. The Arabic MSS. of Avicenna, says Dr. Ruffell (Hist. Aleppo, vol. ii. append. p. 19), are common enough at Aleppo, and are found in several of the European libraries. Friend's History of Physic. Hall. Bib. Med. Pract. et Bib. Botan. Brucker's Hist. Phil. by Enf. vol. ii. p. 241. Fabr. Bibl. Græc. l. xiii. c. 9.

AVICENNIA, in *Botany* (called after the famous oriental physician Avicenna). Lin. g. 1237. Schreb. 1063. Jacq. Amer. 178. t. 112. Juss. 108. Clafs, *didynamia angiospermia*. Nat. Ord. *Personatæ*. *Vitices*, Juss. Gen. Char. *Cal.* perianth five-parted, permanent, leaflets subovate, obtuse, concave, erect; increased by three scales. *Cor.* monopetalous; tube bell-shaped, short; border bilabiate; upper lip square, emarginate, flat; lower trifid, divisions ovate, equal, flat. *Stam.* filaments four, subulate, erect, the two front ones rather shorter, bent back to the upper lip; anthers roundish, twin. *Pist.* germ ovate; style subulate, erect, the length of the stamens. *Stigma* bifid, acute; the lower division bent down. *Per.* capsule coriaceous, rhomboidal, compressed, one-celled, two-valved; seed one, large, the form of the capsule, constructed of four fleshy folds, germinating.

Ess. Gen. Char. *Cal.* five-parted. *Cor.* two-lipped; upper lip square. *Caps.* coriaceous, rhomboidal, one-fseeded.

Species, 1. *A. tomentosa*, Jacqu. l. c. *Bontia* germinans, Brown Jam. 263. Mangle, Sloane Jam. 2. 66. Oepata, Rheed. Mal. 4. t. 45. "Leaves cordate, ovate, tomentose underneath." This tree is like the mangrove, rising about sixteen feet high. Its trunk is covered with smooth, whitish green bark, and the twigs from the stem propagate the tree like those of the mangrove. The leaves appear at the joints of the branches, on very small petioles, opposite, smooth, soft, having a large dark-green rib; flowers many, at the top of the branches, white, four-petalled. A native of the East and West Indies. 2. *A. nitida*, Jacqu. Amer. 177. t. 112. f. 1. Picot. t. 169. "Leaves lanceolate, shining on both sides." Height forty feet; leaves sharp, entire, opposite, on short petioles; peduncles racemed, a little branched, terminal; flowers sessile, white, with a brown mark on the middle segment of the under lip. A native of Martinico. 3. *A. resinifera*, Forst. "Leaves ovate-lanceolate, tomentose underneath." The leaves of this tree are opposite, petioled, coriaceous, entire, sharp, shining above, and having a yellowish nap beneath; peduncles terminating, subtrifid, loaded with a head of flowers. A native of New Zealand. The much esteemed green-coloured gum used by the natives of New Zealand, is supposed to be the produce of this tree.

AVICULA, in *Conchology*, a name assigned by Rumpfius, to that species of *Mytilus* since called *MYTILUS HIRUNDO*. Linn. and Gmel.

AVICULARIA, in *Entomology*, a species of *ARANEA* or spider that inhabits South America. The thorax is orbiculated and convex, with a transverse excavation in the centre. This is the largest species of its genus known; and is such a formidable creature that it not only attacks insects, but even small birds, dropping from the branches of trees into their nests and sucking their blood. The fangs are as large as the talons of a hawk; body brown; abdomen oblong; legs with brown rings.

AVICULARIA, a species of *HIPPOSCA*, with obtuse wings and thorax of one colour, or immaculate. Infests the body of birds, and particularly swallows. Degeer. Donov. Brit. Inf. &c.

AVIDA, a species of *PHALÆNA* (*Noctua*), that inhabits India. The wings are shining brown; stigmata spot, and band behind ferruginous; posterior wings white. Fabricius. This is of the middle size, and blackish.

AVIENUS, *RUFUS FESTUS*, in *Biography*, a Latin

poet, lived towards the close of the fourth century, under the emperors Gratian and Theodosius. His works are translations in Latin verse of the "Phænomena of Aratus;" and the "Periegesis of Dionysius;" a description in Iambic verse "Of the maritime coasts;" "Æsop's Fables," in elegiac verse; "The Allegory of the Sirens;" "The History of Livy," in Iambics; and the "Fables of Virgil," in the same kind of verse; and a few other pieces. Some of the former performances are now extant. The best edition is that of Cannegetier, 8vo. 1731. Gen. Biog.

AUJEST, in *Geography*, a town of Bohemia, in the circle of Chrudim, five miles north of Politza.

AUJESTIZ, a town of Bohemia, in the circle of Chrudim, five miles west of Leutmischl.

AVIGLIANO, a town of Italy, in the kingdom of Naples, and province of Otranto, seven miles east of Otranto.

AVIGLIANO, a town of Italy, in the principality of Piedmont, and marquise of Sufa, situated on a hill near the Cottian Alps, in an open and exposed situation; the air is salubrious, and the land about it fertile. The town is fortified and defended by a castle. It contains three parish churches, and several religious houses; eleven miles west of Turin, and twelve E.S.E. of Sufa. N. lat. 44° 40'. E. long. 7° 5'.

AVIGNON, a city of France, the capital of one of its re-united departments, viz. VAUCLUSE, with the Bouches du Rhone, formerly the capital of the county of Venaissin in Provence, situate on the east side of the Rhone. Before the revolution, it belonged to the pope, whose legate resided here, and it was the see of an archbishop, erected in 1475. In the year 1309, the papal see was transferred to Avignon by pope Clement V.; and this city flourished about seventy years, the seat of the Roman pontiff, and the metropolis of Christendom. By land, by sea, and by the Rhone, the position of Avignon was on all sides accessible; the southern provinces of France are not inferior even to Italy; new palaces arose for the accommodation of the pope and cardinals; and the arts of luxury were soon attracted by the treasures of the church. They were already possessed of the adjacent territory, the Venaissin country, a populous and fertile spot, which had been ceded to the popes, in 1273, by Philip III. king of France; and the sovereignty of Avignon was afterwards purchased from the youth and distress of Jane, the first queen of Naples, and countess of Provence, for the inadequate price of 80,000 florins. Under the shadow of the French monarchy, amidst an obedient people, the popes enjoyed an honourable and tranquil state, to which they had long been strangers: but Italy deplored their absence; and Rome, in solitude and poverty, might repent of the ungovernable freedom which had driven from the Vatican the successor of St. Peter. As the old members of the sacred college died, it was filled with French cardinals, who beheld Rome and Italy with abhorrence and contempt, and perpetuated a series of national, and even provincial popes, attached by indissoluble ties to their native country. At length the celebrated Petrarch warmly interested himself in restoring the Roman bishop to his ancient and peculiar diocese; and he addressed his exhortations to five successive popes, with an eloquence that was inspired by the enthusiasm of sentiment, and the freedom of language. Avignon, which had become the sink of vice and corruption, was the object of his abhorrence and contempt; and whilst he allowed that the successor of St. Peter was the bishop of the universal church, he was of opinion, that it was not on the banks of the Rhone, but of the Tiber, that the apostle had fixed his everlasting throne. Since the removal of the holy see, the sacred buildings of the Lateran and the Vatican,

their altars and their saints, were left in a state of poverty and decay; and Rome was often painted under the image of a disconsolate matron. But it was alleged, that the cloud which hung over the seven hills, would be dispelled by the presence of their lawful sovereign; eternal fame, the prosperity of Rome, and the peace of Italy, would be the recompence of the pope who should dare to embrace this generous resolution. Of the five popes to whom Petrarch addressed his exhortations, the three first, John XXII., Benedict XII., and Clement VI., were importuned or amused by the boldness of the orator; but the memorable change, which had been attempted by Urban V., between the years 1367 and 1370, was finally accomplished by Gregory XI. A.D. 1377, who did not surmise his return to the Vatican above fourteen months. His decease was followed by the "Great western schism," which began after the decease of Gregory XI., A.D. 1378, by the election of Clement VII. in opposition to Urban VI., and continued for about forty years, till the council of Constance, A.D. 1414—1418, when the elevation of Martin V. was the era of the restoration and establishment of the popes in the Vatican. During this interval, there were two popes, one residing at Rome or in Italy, and the other at Avignon. See SCHISM.

This city is about three miles and two furlongs in circumference, and is in general irregular and badly built; but it is surrounded by walls and turrets with battlements, not unlike those of Rome, and its public edifices are large and grand, according to the taste of the fourteenth century. The church of Notre Dame is ancient, and is one of the best adorned in the city; the archiepiscopal palace overlooks the Rhone, the city, and the fields. These buildings, together with the mint, adorn a large square, which is the common walk of the inhabitants. The church of the Celestines is very magnificent, and is full of fine monuments. The university has four colleges; the place in which the Jews have been accustomed to live is a distinct quarter; and those who pay tribute are forbidden to leave it without yellow hats, and the women also wear something yellow about their heads; and they are thus distinguished from the Christians. Their number is considerable, though the district of their residence is very confined. Near the Rhone is a large rock, within the circuit of the walls, upon which is a platform, whence the whole city and the places about it may be seen. The bridge, about a quarter of a mile in length, that crossed the Rhone, was demolished by an inundation in 1699. The fountain of Vaucluse, which is the source of the river Sorgues that waters the city, and whither Petrarch often retired to indulge his grief and hopeless love, is situated in a winding valley, forming the figure of a horse-shoe, about five miles from Avignon. The fountain is a basin of water, several hundred feet in circumference, very deep, and clear as crystal, but overshadowed by an incumbent rock. The water discharged from this fountain, by a narrow passage, forms a cascade, which is precipitated along a rocky channel. The rocks, which invest this romantic spot, are worn by time and the inclemency of the weather, into a thousand fantastic forms. And on one of the pointed extremities, in a situation almost inaccessible, are seen the remains of an ancient castle, projecting over the water, called by the peasants "Il Castello di Petrarca;" and they add, that Laura lived upon the opposite side of the river, under the bed of which was a subterraneous passage, by which the two lovers visited each other. The residence of the poet was much lower down, and nearer to the banks of the Sorgues, as appears from his account of it, and from his relation of his contests with the naiads of the stream, who during winter encroached on his small adjoining territory: but no remains of it are now to be discovered. Below the bridge is an

island, where the Sorgues joins the Rhone, in which are several houses of pleasure. The inhabitants of Avignon were estimated before the revolution at 30,000, 1000 of these being ecclesiastics, and some hundreds Jews. In 1803, their number was estimated at 20,171; the north canton containing 10,208, and the south 9,963; the territory of the former includes $32\frac{1}{2}$, and that of the latter $42\frac{1}{2}$ kilometres, and they both comprehend one commune. N. lat. $43^{\circ} 56' 58''$. E. long. $4^{\circ} 48' 10''$.

AVIGNON-Berry, called also *French Berry*, in *Botany*, is the fruit of a shrub, by some authors called lycium; growing plentifully near Avignon, and other parts of France. See LYCIUM.

AVIGNONET, in *Geography*, a town of France, in the department of the Upper Garonne, and chief place of a canton in the district of Villefranche, twenty miles south-east of Toulouse, and four miles south-east of Villefranche.

AVILA, GILLES GONZALES, in *Biography*, a Spanish ecclesiastic and historian of the seventeenth century, was a native of Avila, and acquired at Rome, where he studied, a great knowledge of sacred and civil history. On his return to Spain, he had an ecclesiastical benefice at Salamanca; and in 1612, he removed to Madrid, and was appointed historiographer to the king. He died in 1658, at the age of 80 years. His principal works, published in Spanish, were "The History of the Antiquities of Salamanca," and "The theatre of the Churches of the Indies, &c." *Nouv. Dict. Hist.*

AVILA, in *Geography*, a city of Spain, in Old Castile, seated on the river Adaja, on a large plain surrounded with mountains and plantations of fruit-trees and vineyards, and having a manufacture of cloths, that are said to be equal to those of Segovia. It is fortified by nature and art, having a wall 9075 feet in circuit, with twenty-six lofty towers, and ten handsome gates. It has seventeen principal streets, containing several good and stately houses; nine squares, 2000 houses, nine parishes, and as many monasteries, seven nunneries, two colleges, nine hospitals, eighteen chapels, and an annual allowance of 10,000 ducats for the maintenance of orphans and other poor people. The university was founded in 1445, confirmed by pope Gregory XIII. in 1538, and afterwards enlarged; and its cathedral has eight dignitaries, twenty canons, and the same number of minor canons. N. lat. $40^{\circ} 35'$ W. long. $4^{\circ} 13'$.

This city has been rendered famous by the deposition of Henry IV. A.D. 1465. The indignation of the Castilian nobility against the weak and flagitious administration of this prince, led them to combine against him, and to exercise the right, which they arrogated as one of the privileges of their order, of trying and of passing sentence on their sovereign. For this purpose they erected a spacious theatre in a place without the walls of the town, and having prepared an image, clad in royal robes, representing the king, they placed it on a throne, with a crown on its head, a sceptre in its hand, and the sword of justice by its side. The accusation against the king was then read, and the sentence of deposition was pronounced in presence of a numerous assembly; and whilst the several charges were delivered, they proceeded to tear the crown from the head of the image, to snatch the sword of justice from its side, to wrest the sceptre from its hand, and, at the close of the whole, to tumble it headlong from the throne. When this ceremony was finished, Don Alfonso, Henry's brother, was proclaimed king of Castile and Leon in his stead. *Robertson's Hist. Ch. V. vol. i. p. 179.*

AVILA, or *Aviles*, a town of Spain, in Asturia, near the bay of Biscay, nine leagues from Oviedo.

AVILA, a city of South America, in the province of Quito, and government of Quixos, situate in S. lat. $0^{\circ} 44'$, and about $2^{\circ} 20'$ E. of Quito. It is less than Archidona, a small city lying in S. lat. one degree and a few minutes, and about one degree fifty minutes E. of Quito. Like this latter place, its houses are of wood covered with straw; and as the whole number of inhabitants in Archidona is reckoned at 650 or 700, and consists of Spaniards, Indians, Mestizos, and Mulattoes, those of Avila scarcely amount to 300 of both sexes. Like the other it has one priest; and his ecclesiastical jurisdiction comprehends six towns; viz. La Concepcion, Lorco, San Salvador, Motte, Cota Pini, and Santa Rosa.

AVILA Fuente, a town of Spain, in old Castile, six leagues from Segovia.

AVILER, AUGUSTIN-CHARLES D', in *Biography*, an eminent French architect, was born at Paris in 1653, and from his youth devoted himself to the study of architecture. In his way to Rome, whither he was sent for improvement by the royal academy, at the age of twenty, he was carried into slavery by an Algerine corsair, and in this situation he manifested his talents by making a design for a grand mosque at Tunis. After sixteen months he was liberated, and pursued his studies at Rome for five years. On his return he was placed under Mansart, first architect to the king, and had a principal concern in the conduct of all public works. His "Course of Architecture" was founded on the work of Vignola; but by the enlargement of that writer's plan, was rendered a complete treatise of the art. It has been much esteemed: the first edition was that of 1691, 2 vols. 4to.; and it has since passed through several other editions. Being invited to Montpellier, he superintended the construction of a grand triumphal arch to Louis XIV., was afterwards appointed architect to the province of Languedoc, and besides other buildings in which he was employed, he erected the archi-episcopal palace at Toulouse. He died at Montpellier in 1700. Moreri. Gen. Biog.

AVINO, in *Geography*, a town of North America, in the province of New Galicia, where the Spaniards have a silver mine; between Durango and Ellereña.

AVINO, *La Panea*, a town of North America, in the western part of the kingdom of Leon, between two of the head-branches of the Nallas river.

AVIORA, a town of Asiatic Turkey, in Caramania, sixty miles north-east of Tocat.

AVIOTH, a town of France, in the department of the Meuse, and chief place of a canton in the district of Stenay, three miles north of Montmedy.

AVIRA, in *Ancient Geography*, a town of Asia, in the Palmyrene. Ptolemy.

AVIS INDICUS, in *Astronomy*. See **APUS**.

AVIS, or **AVIZ**, in *Geography*, a town of Portugal, in the province of Alentejo, giving name to an order of knights; three leagues west of Estremos. The land surrounding it is covered with cistus, which is usually cut down once in eight years and burnt, and the ground sown with corn. N. lat. $38^{\circ} 40'$. W. long. 7° .

Avis, in *Heraldry*, a military order of knighthood, instituted by Alphonso Henriques king of Portugal, in 1142, in testimony of the great services done for him at the siege of Lisbon, by the nobility led to his assistance by Don Ferdinand Rodrigues de Monteyro, whom he appointed to be their grand master. For some years after they were called Nouvelle Milice, or the new military; which appellation continued until the year 1166, when they having taken Evora by surprise, the king conferred on them the government of that town, and commanded that they should thenceforth be called Knights of Evora: lastly, the same king

having in the year 1181, taken from the Moors a place very advantageously situated, and called **Avis**, granted the same to the before-mentioned knights, on condition that they should build a fort in that place, and reside therein. The knights accordingly transplanted themselves thither, and from that time took the denomination of *Freres d'Avis*. In the year 1204, pope Innocent III. confirmed this order. The badge of the order is a *cross flory, enamelled vert, between each angle a fleur-de-lis or*; which they wear pendant to a green ribbon round the neck; and the same badge is embroidered on the left shoulder of the robe of state, which is of white fatten.

Avis, *Bird*. *Aves*, Birds, among *Naturalists*, the second class of animals; a race of creatures sufficiently distinguished from the others in having the body covered with feathers, two feet and two wings, formed for flight. Birds have the mandible protracted and naked, and are destitute of external ears, lips, teeth, scrotum, womb, urinary vessel or bladder, epiglottis, corpus callosum, or its fornix (covering of the two lateral ventricles of the brain, or its arch) and diaphragm.—In the Linnæan system, birds are divided into six orders; viz. accipitres, picæ, auferes, grallæ, gallinæ, and passeræ. See **ORNITHOLOGY**.

Avis, *Longa*, in *Ornithology*, a name given by Nieremberg to the hoitlattotl of the Americans, a bird remarkable for its swiftness in running. The hoitlattotl appears to be the *phasianus mexicanus* of Gmelin, and *courier pheasant* of Latham.

Avis Nivea, a name under which Nieremberg has described an American bird of the size of a thrush; of a brown and black colour on the back, and yellow under the belly; it imitates the human voice, and is called by the natives *cecan*.

Avis Pennipulebra, the name of an American bird described by Nieremberg, and called by the Indians *quetzaltotl*. It is the size of a pigeon, and is said to be all over the body of the more beautiful colours of the peacock. The species alluded to is not accurately known; and Ray has arranged it with some others, as doubtful kinds.

Avis Scica, or *Hoaëli*. See **ARDEA HOACTLI**; Gmelin; and *Hoëli*, Buffon.

Avis Tropicorum, and *avis rabos forcados*, the name of a bird, among old authors, called in English the *tropic bird*; and by Gmelin **PHAETON AETHEREUS**.

Avis Venti, "the bird of the wind," or *heathtotl*; *ecatotl*, f. *avis venti altera*, Ray, &c. obsolete names of the **MERGUS ENCULLATUS**, or *hooded merganser*, of America.

Avis Paradisi, bird of Paradise. See **PARADISEA**.

Avis Mexicana grandis rubra, Seba. See **LOXIA MEXICANA**.

Avis Ignota piperini, Gesner. See **EMBERIZA NIVALIS**.

Avis Americana cristata rubetra, Seba. See **PIFRA RUBETRA**.

Avis Mexicana altera, Seba. See **PIRA ERYTHROCEPHALA**, &c. &c.

AVISE, in *Geography*, a town of Piedmont, in the duchy of Aosta, in the grand Doria, eight miles west of Aosta.

AVISO, a town of Italy, in the kingdom of Naples, and country of Lavora, six miles east of Sora.

Aviso, Italian, *adviso*, chiefly used in matters of *Commerce*, denotes advice, piece of intelligence, or advertisement, to notify some event or matter worthy of knowledge.

AVISON, CHARLES, in *Biography*, organist of Newcastle, was an ingenious and polished man, esteemed and respected by all who knew him; and an elegant writer upon his art. He had visited Italy early in his youth, and at his return, having received instructions from Geminiani, a bias

in his Compositions for Violins, and in his Essay on Musical Expression, towards that master, is manifest. Rameau was likewise his model in harpsichord music; and Marcello's psalms were much over-rated by him, in order to depreciate Handel; whom he censured more by implication than open hostility. We find in his book, which is elegantly written, and in the prefaces to his musical compositions, many prejudices, particularly against German symphonies; ascribing to them the corruption and decay of music! His compositions for the harpsichord, when played by the late lady Milbanke, and accompanied by Giardini, had a pleasing effect. They were formed on the plan of Rameau's concertos, as those for violins were on the concertos of Geminiani; and there was the same difference between them in point of excellence, as is always discoverable between an original production, and an imitation.

His violin concertos were revived, after they became of age, at the concert of ancient music; where 20 years are the period which renders musical compositions venerable. Here they are still played in turn with those of Corelli, Geminiani, Handel, and San Martini; with those productions, however, they but ill support a parallel: they want force, correctness, and originality, sufficient to be ranked very high among the works of masters of the first class.

AVITUS, SEXTUS ALCIMUS ECDICIUS, a Christian divine, bishop of Vienne in France, was nephew to Marcus Macilius Avitus, emperor of the West, and flourished at the beginning of the sixth century. He succeeded his father Isychius in the see of Vienne, in the year 490. He was the friend of Clovis, the first Christian king of France, and contributed to his conversion. As a zealous opponent of the Arians, he reclaimed Gondebaud, king of the Burgundians, from his connection with this sect, to the Catholic faith; he presided in the council of Epaon in 517, and in that of Lyons in 523, in which year he died. He wrote 87 letters on subjects that formed the disputes of the age in which he lived, sermons, and poems on the Mosiac history, and in praise of virginity. His style is said to have been harsh, obscure, and intricate. His works were published by Sirmond in 8vo. with notes, in 1643. His poems have been printed separately at Frankfort, in 1507, at Paris in 1509, and at Lyons in 1536. Cave Hist. Lit. vol. i. p. 461. Nouv. Dict. Hist.

AVIUS, in *Entomology*, a species of PAPILIO (*Hesperia*, Fabr.), with entire wings, above and beneath brown, with two blue streaks near the tip. This insect inhabits India.

AVISE, in *Geography*, a town of France, in the department of the Marne, and chief place of a canton in the district of Epernay, six leagues south of Rheims. The place contains 1290, and the canton 7671 inhabitants: the territory includes 190 kilometres and 19 communes.

AUK, or AWK, in *Ornithology*. See ALCA.

AUKEB, the Arabic name of the great eagle.

AUKLAND, or BISHOP AUKLAND, in *Geography*. See AUCKLAND.

AUL. See AWL.

AULA, in our *Ancient Law Books*, signifies a court baron.—*Aula ibidem tenta quarto die Augusti*, &c.

Aula ecclesiæ is sometimes used for what we now call *navis ecclesiæ*. See NAVE.

AULA regia, or regis, a court established by William the Conqueror in his own hall, composed of the king's great officers of state, who resided in his palace, and were usually attendant on his person. These were the lord high constable and lord marshal, who chiefly presided in matters of honour and of arms, determining according to the law military and the law of nations; the lord high steward, and lord great chamberlain; the steward of the household; the lord chancellor, whose peculiar office it was to keep

the king's seal, and examine all such writs, grants, and letters, as were to pass under that authority; and the lord high treasurer, who was the principal adviser in all matters relating to the revenue. These high officers were assisted by certain persons learned in the laws, who were called the king's justiciars or justices: and by the greater barons of parliament, all of whom had a seat in the "Aula Regia," and formed a kind of court of appeal, or rather of advice, in matters of great moment and difficulty. All these, in their several departments, transacted all secular business both criminal and civil, and likewise the matters of the revenue; and over all presided one special magistrate, called the chief justiciar, or "capitalis justiciarius totius Angliæ;" who was also the principal minister of state, the second man in the kingdom, and by virtue of his office guardian of the realm in the king's absence. This great officer principally determined the vast variety of causes that arose in his extensive jurisdiction; and from the plenitude of his power, he became obnoxious to the people, and dangerous to the government which employed him. This formidable tribunal, which received appeals from all the courts of the barons, and decided in the last resort on the estates, honour, and lives of the barons themselves; and which, being wholly composed of the great officers of the crown, removeable at the king's pleasure, and having the king himself for president, kept the first nobleman in the kingdom under the same control as the meanest subject.

This great universal court being bound to follow the king's household in all his progresses and expeditions, the trial of common causes was found very burthensome to the subject; and, therefore, king John, who also dreaded the power of the justiciar, very readily consented to that article, which now forms the 11th chapter of Magna Charta, and enacts, "that *communia placita non sequantur curiam regis, sed teneantur in aliquo certo loco*." This certain place was established in Westminster-Hall, the place where the "aula regis" originally sat, when the king resided in that city; and there it hath ever since continued. The court being thus rendered fixed and stationary, the judges became so too, and a chief, with other justices of the Common Pleas, was thereupon appointed; with jurisdiction to hear and determine all pleas of land, and injuries merely civil between one subject and another. The "aula regia" being thus stripped of so considerable a branch of its jurisdiction, and the power of the chief justiciar being also considerably curbed by many articles in the Great Charter, the authority of both began to decline apace under the long and troublesome reign of king Henry III. In pursuance of this example, the other several offices of the chief justiciar were, under Edward I. (who new modelled the whole frame of our judicial polity), subdivided and broken into distinct courts of judicature. Blackst. Com. vol. i. p. 38—40. De Lolme on the Constitution of England, p. 14, &c. See the articles COURT of Common Pleas, of Exchequer, and of King's Bench, &c. &c.

AULA, in *Geography*. See AVOLA.

AULA, in *Ancient Geography*, a place of Peloponnesus, in Arcadia, where was a temple dedicated to the god Pan.

AULADIS, a town of Asia, in Mesopotamia. Ptolemy.

AULÆ, a part of Asia, in Cilicia, between Tarsus and Anchiale. Suidas.

AULÆI MÆNIA, the walls of Aulæus, a maritime place of Thrace, upon the Euxine sea, not far from Apollonia, and at some distance north from Salmysessus.

AULANA, a town of Palestine, 30 stadia distant from Jerusalem. Hegeippus.

AULAS, in *Geography*, a town of France, in the department of the Gard, and chief place of a canton in the district of Le Vigan, near Le Vigan.

AULAX,

AULAX, in *Botany*. See **PROTEA**.

AULCESTER. See **ALCESTER**.

AULENDORF, in *Geography*, a town of Germany, in the circle of Swabia, and barony belonging to the family of Königsegg, seated on a hill near the Schus, eight miles north of Ravensburg. N. lat. $57^{\circ} 46'$. E. long. $9^{\circ} 30'$.

AULEON SINUS, in *Ancient Geography*, a gulf of Thrace, near Byzantium.

AULERCI BRANNOVICES, a people subject to the *Ædii*, who are supposed to have inhabited that part of Gaul, where is now the canton called Briennois, near the Loire, in the diocese of Macon.—**A. Cenomani**, a people who inhabited that part of Gaul which now forms the diocese of Mans.—**A. Eburovices**, a people who occupied the country which is now the diocese of Évreux: their capital was Mediolanum.

AULETES, *αυλητης*, in *Antiquity*, denotes a flute-player. One of the Ptolemies, kings of Egypt, father of Cleopatra, bore the surname or denomination of *Auletes*.

AULETTA, in *Geography*, a town of Italy, in the kingdom of Naples, and province of Principato Citra, four miles W.S.W. from Cangiano.

AULI, in *Ancient Geography*, a people of Europe, in Macedonia, who occupied a town to which they gave their name.

AULIC, **AULICA**, an act which a young divine maintains in some foreign universities, upon the admission of a new doctor of divinity. It is so called from the Latin *aula*, a ball; it being in the hall of the university that this act is usually held.

The person who presides at the disputation, is the same that is to take the doctor's cap.

AULIC, *Aulicus*, is also an appellation given to certain officers of the emperor, who compose a superior court of council, which has an universal jurisdiction, and without appeal, over all the subjects of the empire, in all processes entered therein.

All causes relating to points of feudal right or jurisdiction, together with such as respect the territories which held of the empire in Italy, belong properly to the jurisdiction of the aulic council. This tribunal was formed upon the model of the ancient court of the palace instituted by the emperors of Germany. It depended not upon the states of the empire, but upon the emperor; who has the right of appointing, at pleasure, all the judges of whom it is composed. Maximilian, in order to procure some compensation for the diminution of his authority, by the powers vested in the imperial chamber, prevailed on the diet A. D. 1512, to give its consent to the establishment of the aulic council. Since that time it has been a great object of policy in the court of Vienna, to extend the jurisdiction, and support the authority of the aulic council, and to circumscribe and weaken those of the imperial chamber; for which the tedious forms and dilatory proceeding of this chamber have furnished the emperor with pretexts. "Lites Spiræ," according to the witticism of a German lawyer, "spirant, sed nunquam expirant;" such delays are unavoidable in a court composed of members named by states, jealous of each other. Whereas the judges of the aulic council, depending on one master, and being responsible to him alone, are more vigorous and decisive. Puffendorf, de Statu Imper. Germ. c. v. § 20.

The aulic council is established by the emperor, who nominates the officers; but the elector of Mentz has a right of visiting it.—It is composed of a president, who is a catholic; a vice-chancellor presented by the elector of Mentz; and of eighteen assessors, or counsellors, nine whereof are Protestants, and nine Romanists. They are divided into

two benches, one of which is occupied by the nobles, and the other by the lawyers.—They hold their assemblies in the presence of the emperor; and for that reason are called "justitium imperatoris," the "emperor's justice;" and "aulic council," because theirs follows the emperor's court, *aula*, and has its residence in the place where he is.—This court clashes a little with the imperial chamber of Spire; as they are preventive of each other; it not being allowed to move any cause from the one to the other. Nor can the emperor himself hinder or suspend the decisions of either court; much less call any cause before himself, which has been once before them, without the consent of states of the empire. Yet, in some cases, the same council forbears making any peremptory conclusion, without the emperor's participation; and only decrees thus, "Fiat votum ad Cæsarem;" that is, make a report hereof to the emperor in his privy-council.

AULICA, in *Entomology*, a species of *PHALÆNA* (*Bombyx*) that inhabits Europe and Siberia. The anterior wings are greyish dotted with yellow; posterior ones fulvous, spotted with black. Lin. Fn. Suec.

AULICK, in *Geography*, a town of Germany, in the circle of Upper Saxony and bishopric of Naumberg; six miles north of Zeitz.

AULICUS, in *Conchology*, a species of *CONUS*, marked with brown reticulated veins, and interrupted bands of the same colour. It is a native of Asia, and may be only a variety of the *conus textile*, being extremely variable in its colours and marks. Gmelin mentions seven different kinds, with references to different figures in the works of Martini, Knorr, and Seba; the most remarkable is the fourth variety, the shell of which is yellowish-brown instead of white, and marked reticularly with heart-shaped spots, disposed in a perpendicular direction.

AULICUS, in *Entomology*, a species of *CERAMBYX* (*Calidulum* Fab.) Thorax smooth and shining; body opaque, black; wing-cases smooth; antennæ short. Inhabits Europe.

AULICUS, a species of *CIMEX*, that inhabits South America; the colour is red and black, varied with a black band on the upper wings; lower wings black with a white line at the base. This is *cimex irroratus* of Thunberg, Nov. Inf. or at least a variety of it.

AULICUS, a species of *CRYPTOCEPHALUS* (*Cistela*) found in Africa, especially at the Cape of Good Hope. It is black, with a rufous thorax, and azure-blue wing-cases. Fabricius.

AULICUS, in *Zoology*, a species of *COLUBER*, having 184 abdominal plates, and sixty sub-caudal scales. It is of a greyish colour with numerous linear white bands which bifurcate on the sides; on each side behind the head is a triangular white spot, and these almost unite at the nape. The length of this kind is about six inches, and its diameter one third of an inch. It inhabits America, and is deemed a poisonous snake.

AULIS, in *Ancient Geography*, a sea-port town of Bœotia, situate at the bottom of a small gulf, opposite to Chalcis of Eubœa; and famous for being the place where the Grecian chiefs resolved upon the destruction of Troy. The district belonging to it, and called "Aulide," lay toward Euripus, in that part which separated Bœotia from Eubœa. Diana had a temple in this territory, with a statue of white marble holding a flambeau in the hand.

AULLENE, in *Geography*, a town of the island of Corsica, four miles north of Tallano.

AULNAGER, in *Commerce*. See **ALNAGER**.

AULNAY, or **AUNAY**, in *Geography*, a town of France, in the department of the Calvados, and chief place of a canton in the district of Vire, $4\frac{1}{2}$ leagues south-west of Caen. The place contains 1620 and the canton 12,938 inhabitants:

the territory includes 182½ kilometres and 19 communes. See AUNAY.

AULO, a Grecian long measure. See MEASURE.

AULOCRENE, in *Ancient Geography*, a mountain of Phrygia, towards the north-east of Apamea-Cibotos.

AULON, a valley of Palestine, extending along the banks of Jordan, from Libanus to the desert of Pharan. Scythopolis, Jericho, and Tiberias were situated in this valley.—Also, a town of Messenia, upon a river of the same name, north of Eleetra.—Also, a town and port of the Macedonian sea, in the country of the Taulantians. Ptolemy.—Also, a town of Peloponnesus, in Laconia.—Also, another in Arcadia.—Another ancient town in the isle of Crete.—Also, a hill of Italy, near Tarentum, which was fertile in vines, and said by Horace not to be inferior to those of Falernum.

AULOS, in *Conchology*, a name by which several of the ancient writers call the *solen*, or as it is rather improperly named the *razor-fish*.

AULPS, or AUPS, in *Geography*, a town of France, in the department of the Var, and chief place of a canton in the district of Draguignan; 8½ leagues W.N.W. of Frejus. The place contains 2949, and the canton 5585 inhabitants; the territory includes 252½ kilometres and seven communes.

AULT, a town of France, in the department of the Somme, and chief place of a canton in the district of Abbeville, five leagues west of Abbeville. The place contains 1132, and the canton 10,011 inhabitants; the territory includes 130 kilometres and 19 communes.

AULUS GELLIUS, or AGELLUS, in *Biography*, a Roman grammarian and critic, flourished at Rome, where he was born in the second century, under the emperors Adrian and Antonius Pius; and died in the beginning of the reign of Marcus Aurelius Antoninus. He studied grammar and rhetoric at Rome, and philosophy at Athens, where he enjoyed the society of Calvus Taurus, Peregrinus Proteus, Herodes Atticus, and other learned persons. Having travelled through Greece, he returned to Rome, devoted himself to the study and practice of the law, and was appointed a judge. From the frequent citations of his works by writers on Roman law, it may be inferred, that he attained to considerable reputation in his profession. His “*Noctes Atticæ*,” or “*Attic Nights*,” the only work extant, and the greatest part of which was written at Athens, furnishing an amusing occupation for many long winter evenings, is a collection of incidents, and anecdotes, historical and biographical, with critical observations and reflections on various authors and topics, originally compiled for the instruction and entertainment of his children, and rendered valuable by many fragments of ancient authors, that are not elsewhere to be found. It was edited in folio, at Rome, in 1469, by Swinheim and Panertz; a second edition was published in 1472, by Jenson at Venice; in the sixteenth century are found the editions of Aldus, 8vo. at Venice, in 1515; of Paris, in folio, 1519, 1524, 1536; of Basil, 8vo. in 1526; of Paris, 8vo. in 1585, with the critical notes of H. Stephens. Editions of a later date are those, in usum Delphini, 8vo., 168; of the Elzevirs at Amsterdam, 1651, 18mo.; at Leyden, cum notis variorum, 1660; by Gronovius 4to. in 1706; and at Leipzig, in 2 vols. 8vo. by Conradus, in 1762. An elegant translation of this amusing, but frequently obscure and difficult author, with valuable notes was given in English, in 3 vols. 8vo. by Mr. Beloe, in 1795. Pref. to Beloe’s translation. Fabr. Bib. Lat. l. i. c. i. t. ii. p. 1, &c.

AUMA, in *Geography*, a town of Germany, in Upper Saxony, and circle of Neustadt, forty-four miles S.S.W. of Leipzig, and six E.S.E. of Neustadt.

AUMA WENINGEN, a town of Germany, in Upper Saxony, two miles S.E. of Auma.

AUMALE, a town of France, in the department of the Lower Seine, and chief place of a canton in the district of Neufchatel, nine leagues S.E. of Dieppe, and eleven N.E. of Rouen. The place contains 1715, and the canton 7270 inhabitants; the territory includes 160 kilometres, and 19 communes. N. lat. 49° 46′. E. long. 1° 38′.

AUMONE, or ALMS. See ALMS.

AUMONT, in *Geography*, a town of France, in the department of Lozère, and chief place of a canton in the district of Marvails; five leagues north-west of Mende. The place contains 926, and the canton 5890 inhabitants; the territory includes 200 kilometres and seven communes.

AUN, a town of Persia, in the province of Segestan, forty-four leagues S.S.E. of Zareng.

AUNALASCHKENSIS, in *Ornithology*, a species of ORIOLE that inhabits the island of Oonalaschka. The length of this bird is eight inches; it is of a brown colour, with a spot under the eyes, and chin white; throat and breast ferruginous brown. Gmelin. The beak and legs are brown.

AUNAY, in *Geography*, a town of France, in the department of the Nièvre, and chief place of a canton in the district of Chateau-Chinon; nine miles north of Moulins.—Also, a town of France, in the department of the Lower Charente, and chief place of a canton in the district of St. Jean d’Angely; eight miles north-east of St. Jean d’Angely. The place contains 1250, and the canton 11,810 inhabitants; the territory includes 317½ kilometres, and 26 communes. See AULNAY.

AUNSEL-WEIGHT, quasi *Handsale-Weight*, an ancient mode of weighing by a kind of balance, consisting of scales hanging on hooks fastened at each end of a beam or staff, which a man lifts up by his hand or fore-finger, and so discovers the equality or difference between the weight and the thing weighed. There being great deccits practised in these weights, they were prohibited by several statutes; and the even balance alone commanded. The word is still used in some parts of England, to signify meat sold by poising in the hand, without putting it into the scales. See STILL-YARD.

AUNCESTOR, *Assise of Mort d’*. See ASSIZE.

AUNCESTREL HOMAGE. See HOMAGE.

AUNE, in *Commerce*, a long measure used in France and other countries, of different lengths in different places. See ELI.

AUNE, in *Geography*, a river of England, which runs into the sea near Plymouth.

AUNEAU, a town of France, in the department of the Eure and Loire, and chief place of a canton in the district of Chartres; four leagues east of Chartres.

AUNEUIL, a town of France, in the department of the Oise, and chief place of a canton in the district of Beauvais; five miles S.S.W. of Beauvais. The place contains 1077, and the canton 9037 inhabitants; the territory includes 192½ kilometres and 18 communes.

AUNGERVYLE, RICHARD, or *Richard of Bury*, in *Biography*, an English bishop, was born at St. Edmundsbury, in Suffolk, in 1281, studied at Oxford, and became a Benedictine monk at Durham. He was tutor to prince Edward, afterwards Edward III.; and upon his accession to the throne, he was loaded with honours and preferments. In 1333, he was consecrated bishop of Durham; in 1334, he was appointed high chancellor; and in 1336, treasurer of England. He was himself eminently learned, and a great patron and encourager of learning. Petrarch, with whom he corresponded, calls him “*virum ardentis ingenii*.” He was a great collector of books, and possessed, it is said,

more

more books than all the bishops of England together. Notwithstanding the expence which he incurred in this way, by employing persons to collect books for him abroad, and also binders, illuminators, and writers in his several palaces, he was distinguished by his charity and beneficence. He does not seem to have contented himself merely with the possession of a large library; for he was a diligent student; and it was his custom for some of his attendants to read to him at his meals, and afterwards to discourse with his chaplains on the subjects that occurred. His "*Philobiblos*" was a curious treatise, finished at Auckland in 1345, when he was sixty-three years of age, and containing a declaration in praise of books, with directions concerning the preservation and use of them. It was printed at Spire in 1483; at Paris, in 1500; at Oxford, in 1599, 4to.; and at Leipzig, in 1674, at the close of "*Philologicarum Epistolarum Centuria una*." This work is distributed into twenty chapters; in which, among other particulars, he asserts, that books are to be preferred to riches and pleasures; that they are misused only by ignorant people; that the ancients surpassed the moderns in hard study; that learning arrives at perfection by degrees, and that he had provided for students Greek and Hebrew grammars in his libraries; that the law and law books are not properly learning; that grammar is peculiarly useful and necessary; that poetry also is useful; but he makes an apology for admitting poets into his collection, observing, "we have not neglected the fables of the poets." Aungervyle founded a noble library at Oxford for the use of students, and appointed five keepers, to whom he granted yearly salaries. This learned and worthy prelate died at Auckland, in his diocese of Durham, April 24, 1345. Biog. Brit. Wharton's Hist. Poet. vol. i. 2d Prel. Diff. p. 120, 121.

AUNIS, in *Geography*, a district of France, which, before the revolution, was reckoned a part of Saintonge, but is now with Saintonge included in the department of the Lower Charente; is bounded on the east and south by Saintonge, on the west by the ocean, and on the north by Poitou, and comprehends the isles of Ré and Oleron. It is watered by the rivers Sevre and Charente, and has several good harbours along the coast. The soil is fertile, and produces great quantities of corn and wine; the swampy parts afford good pasturage, and the salt-marshes yield an excellent salt, which is a considerable article of commerce.

AUNOT. See ANNOT.

AUNOY, MARY CATHERINE JUELLE DE BERNEVILLE, *Countess of*, in *Biography*, a distinguished writer of fiction and romance towards the close of the seventeenth century, was niece of the celebrated Madame Desloges, and wife of the count D'Aunoy. She wrote with fluency of style and facility of invention: and her "*Contes des Fées*" or merry tales, and "*Aventures d'Hippolyte Comte de Douglas*," or adventures of Hippolytus earl Douglas, are read with pleasure by those who merely seek amusement. Some of her other pieces, uniting history with fable, such as "*Historical Memoirs of the most remarkable Events in Europe from 1672 to 1679*," "*Memoirs of the Court of Spain*," "*History of John of Bourbon, prince de Carency*," are less valued. She died in 1705. Nouv. Dict. Hist.

AUNUS, in *Entomology*, a species of PAPILIO, of a blue colour with a black border and three small tails; black beneath and striped with white. Cramer, Gmelin, &c.

AVOCADO, or AVOCATO, *Pear*, in *Botany*, a species of laurus. See LAURUS.

AVOCATORIA, a mandate of the emperor of Germany, directed to some prince or subject of the empire, to

stop his unlawful proceedings in any cause brought by way of appeal before him.

AVOCETTA, in *Ornithology*, a species of RECURVIROSTRA that is distinguished from two other birds of the same genus, in being variegated only with black and white. Linn. Gmel. &c.

The length of this bird is from eighteen to twenty inches; it has a small body, and legs remarkably long; irides hazel; crown black; front of the neck, breast, back, belly, and outer part of the wings white; legs blueish-black; beak black; about three inches and a half in length, and like the rest of the genus, slender, flexible, turning upwards towards the end, and terminating in a point.

"This bird is common in winter on the eastern coasts of England, particularly those of Suffolk and Norfolk; and sometimes on the lakes of Shropshire. They are found in great plenty in the breeding season, in the fens about Fossdyke Wash in Lincolnshire, and in the fens of Cambridgeshire. They feed on worms and insects, which they scoop out of the mud and sand; and are sometimes observed to wade or swim, but always close to the shore.

"They lay two eggs, which are about the size of those of a pigeon. Pennant says they are white, tinged with green, and marked with large black spots. In the description of them given by Latham it is observed, they are of a cinereous grey, whimsically marked with deep brownish-black patches of irregular sizes and shapes, besides some under markings of a dusky hue.

The avocet is far more frequent in some other parts of Europe than in this country. Albin says, in Rome and Venice they are common; and, according to Salerne, they are so plentiful on the coasts of Bas Poictou, that the peasants take their eggs by thousands. They are also found in Russia and Siberia, Denmark, Sweden, and other northern countries." Donov. Brit. Birds, &c.

This bird is called *avocetta f. recurvirostra*, by Gesner; *avocette*, by Buffon; *krummschnabl*, by Cramer; *skerflucka*, Alsit. Linn. Fn. Suec. *the scooper*, by Charlt.; *crooked bill*, by Dale; and *avocet*, or *avest*, by English writers.

AVOGLI, in *Geography*, a town of Persia, in the province of Ardirbeitzan, eighteen leagues south-east of Tauris.

AVOIDANCE, in *Law*, is applied generally to a benefice which becomes void of an incumbent, and is opposed to plenarty. Avoidances are either in *fact*, as by the death of the incumbent; or in *law*; and may be by cession, deprivation, resignation, &c. See USURPATION.

AVOIRDUPOIS, or AVERDUPOIS *Weight*, a kind of weight used in England; the pound whereof contains sixteen ounces. See WEIGHT.

The proportion of a pound avoirdupois to a pound troy is as 17 to 14; or the avoirdupois pound contains 7000 grains, and the troy pound 5760.

All the larger and coarser commodities are weighed by avoirdupois weight; as groceries, cheese, wool, lead, hops, &c.

AVOISE, in *Geography*, a town of France, in the department of the Sarthe, four leagues from La Fleche.

AVOLA, or AULA, a town of Sicily, in the valley of Noto, six miles from Noto, and sixteen from Syracuse. This city, which formerly stood on a hill, boasted of being the "*Hybla Minor*," so celebrated for its honey; but the justice of its claim, in common with many other cities, cannot be easily decided. After its destruction by the earthquake of 1693, the inhabitants rebuilt it more commodiously in the plain, in a fertile territory, luxuriant in corn and fruits, and principally in almonds, a considerable article of

of commerce. The houses still prove, by being extremely low, the dread entertained of earthquakes. The streets are wide and regular.

AVOLTOJO, in *Ornithology*, a name given by Cetti to some birds of the VULTUR genus; as for example, *vultur fuscus* is called by that writer *avolojo Grifone*; and *vultur niger*, *avoltojo nero*.

AVON, or AVON, in the *British Language*, signifies a river generally; but in its present application designates only a few of the streams in Great Britain. The principal are the *Warwickshire Avon*, and the *Wiltshire Avon*. The former is sometimes called "The *Upper Avon*." It brings a great influx of waters from the north-east, rising on the borders of Leicestershire, and adds great beauty to the delightful territory of Warwick castle, as it flows beneath the cliff on which those lofty towers are situated. It then glides through a charming country, to the celebrated spot of Stratford-on-Avon, the birth-place of our immortal Shakespeare, and the repository of his bones. Hence it traverses the great level of Worcestershire, by Evesham, having received the lesser *Stour* at Stratford, and turning to the south at Perthore, meets the Severn at the flourishing town of Tewkesbury. Ireland's picturesque Views on the Avon.

The Wiltshire or *Lower Avon* derives its source from various springs in the north of Wilts, and becomes a considerable river at the ancient town of Malmesbury. In this part of the country, we are informed by Ethelward, that it formed a boundary line between the West Saxon and Mercian kingdoms, and was often stained with the blood of murdered soldiers during the direful warfare between those two powers. Leaving Malmesbury, it meanders through a level tract of fine pasture land to Great Somerford, Dantsey, and Chippenham, where its stream becomes expanded by many contributory rivulets. Quitting Chippenham, its windings are numerous, from the hilly nature of the country through which it flows. Having passed the clothing towns of Melksham and Bradford, it moves slowly through the gay city of Bath, thence passes on to Bristol, and soon afterwards unites its waters with the Severn. It is navigable for small vessels up to Bristol, and some considerable barges come up as high as Bath.

The *Upper Avon*, another Wiltshire river, rises among the hills near the centre of that county, and flows southward through a number of small villages to Amesbury and Salisbury, where it receives the united streams of the Willey and the Nadder; and, running through Downton, crosses the county of Hants, and discharges itself into the British channel at Christ-church.

Another *Avon* rises in the north part of Glamorganshire, and running south, falls into the Severn at Aber-Avon, south-west of Neath.

Avon, or *Avon Vane*, a river in Merionethshire, rises among the high mountains of that county, and after passing by the small town of Dolgelly, soon discharges itself into the Irish sea at the town of Barmouth.—*Avon* gives name to two rivers in Scotland. Britton's Beauties of Wiltshire, vol. i., and Skirnes General Account of Rivers.

Avon is also the name of a river of Nova Scotia, which discharges itself into the Atlantic ocean, east of Halifax. It is navigable as far as fort Edward for vessels of 400 tons; and for vessels of 60 tons, two miles higher.

AVORTON, Fr. in *Midwifery*, an abortive child.

AVOSTOLA, in *Geography*, a river of Piedmont, which runs into the Cervo; $2\frac{1}{2}$ miles west of Baronza, in the Vercellois.

AVOWEE, ADVOCATUS, in *Law*. Avowee is the person to whom the right of advowson of any church belongs, to which he may present to it in his own name; thus called by way of distinction from those who sometimes present in another man's name, as a guardian, who presents in the name of his ward; as also from those who only have the lands to which an advowson belongs for term of life or years, by intrusion or disseisin. See ADVOWEE, and ADVOCATE.

AVOWRY, is where one takes a distress for rent, or other thing, and the other sues replevin. In which case the taker shall justify, in his plea, for what cause he took it; and if he took it in his own right, he is to shew it, and so avow the taking; which is called his avowry. If he took it in the right of another, when he has shewed the cause, he is to make cognizance of the taking, as being a bailiff or servant to him in whose right he did it. See REPLEVIN.

AVOYER, in *Ecclesiastical Antiquity*, was originally the advocate of a monastery; and in times of confusion the avoyers became captains and protectors of convents, to whom the said convents gave lands in consideration of their protection; but when these monasteries erected themselves into principalities, the avoyers became noblemen; and the title was connected with great dignity. Thus we find, that when Otho was elected to the empire, A. D. 1209, and his election was approved by pope Innocent III., who invited him to Italy to be crowned, he appointed Rodolphus, count of Hapsburg, prefect, vicar of the empire, and principal avoyer of all Upper Germany, with power to maintain the imperial rights, inspect the finances, levy subsidies, tributes, tolls, and taxes, and, in a word, to represent the person of the emperor in his absence.

AUPILLARTOK, in *Geography*, an island of Greenland, near Bear island, about eight or ten leagues long, and very high. These two islands, which are about the same form and extent, divide the channel, in which they are situated, into two bays.

AU-PIS-ALLER, a French phrase, sometimes used among English writers, signifying, *at the worst*.

AUPS, in *Geography*. See AULPS.

AURA, in *Chemistry*, a certain fine and pure spirit, supposed to be found in every animal and vegetable body, but so subtle as only to be perceptible by smell and taste.

This term was much employed by the ancient alchemists, and even some of the most eminent chemists, but is now disused. It is nearly equivalent to *spiritus rector*, concerning which see the article AROMA.

AURA, in *Ornithology*, a species of VULTUR, of a brownish grey colour, with black wings, and white bill. This bird is described by authors under several different names. In Hernand. Mex. it is called tzopilotl f. aura; by Willughby, urubu, tzopilotl, or aura; by Ulloa, gallinazo; vultur Brasiliensis by Ray; vautour du Bresil by Buffon; Turkey buzzard by Catesby; carrion-crow by Sloane; and carrion vulture by Pennant and Latham. Inhabits Brasil.

AURA, among *Physiologists*, an airy exhalation or vapour.

The word is derived from the Greek *αὔρα*, gale.

AURACH, in *Geography*, a town of Germany, in the circle of Swabia, and county of Waldburg; nine miles E.N.E. of Warzach.—Also, a river of Germany, in Franconia, which runs into the Rednitz; three miles south of Erlang.

AURÆ, in *Mythology*, a name given by the Romans to the nymphs of the air. They are mostly to be found in the ancient paintings of ceilings; where they are represented as light and airy; generally with long robes, and flying veils,

veils, of some lively colour or other, and fluttering about in the rare and pleasing element assigned to them. They are sportive and happy in themselves, and well-wishers to mankind.

AURAGO, in *Entomology*, a species of *PHALÆNA* (*Noctua*) that inhabits Austria. The wings are brownish; splash at the base, and broad band in the middle, yellow. Hybner, Gmel. &c.

AVRAINVILLE, in *Geography*, a town of France, in the department of the Meurthe, and chief place of a canton in the district of Toul; two leagues north of Toul.

AURAN, a town of Arabia, sixty miles south of Damascus.

AURANA, in *Entomology*, a species of *PHALÆNA* (*Tortrix*), with brown wings, and two golden-yellow spots in each. Fabricius. Donoy. Brit. Inf.

AURANA, *Laurana*, or *Brana*, in *Geography*, one of the most delightful places of Dalmatia, in the county of Zara, on a lake of the same name. It had formerly a rich convent of Benedictines, whose revenues were, about the year 1217, alienated in favour of the knights templars, by Andrew II. king of Hungary, who instituted a commanderie in this place. About this time the place was fortified. The suburbs are large. It continued for some time in the hands of the Turks; but, in 1684, they were dispossessed of it.

AVRANCHES, *ABRICANTÆ*, or *Abrica*, or *Abricanturum oppidum*, a city of France, and principal town of a district in the department of the Channel, seated on an eminence near the river Sec. Before the revolution, it was the see of a bishop, suffragan of Rouen. Besides the cathedral, which stands on a hill, terminating abruptly, it had three parish churches, a convent, a college, a public school, and an hospital. This is a very ancient town, and, before the county of Bretagne was united to the crown of France, it was called the "Boulevard of France;" but when the Bretons made themselves masters of it, they destroyed its fortifications, in 1203. These were rebuilt in the reign of St. Louis. Here, it is said, Henry II. of England received absolution from the pope's nuncio for the murder of St. Thomas à Becket, in 1172; and the stone on which he kneeled during the ceremony is still shewn to strangers; and on it is engraved a chalice, in commemoration of the event. The ruins of the castle are extensive, and near it is an extent of fertile country, abounding in grain and orchards, which produce the best cider in this part of France. The place contains 5413, and the canton 14,146 inhabitants; the territory includes 125 kilometres, and 16 communes. N. lat. 48° 41' 18". W. long. 1° 22' 38".

AURANTIA, in *Conchology*, a species of *VOLUTA*, of a tapering shape, and orange colour; the first four whorls are fasciated with white; lip denticulated, and four plaits on the pillar. Gmelin.

AURANTIA, a species of *PATELLA*, the shell of which is ovate, solid, citron colour, with brown waves; elevated, crowded, wrinkled striæ, and white bottom. Native country unknown. Schret. n. Litt.

AURANTIA, a species of *OSTREA*. The shell is subrotund, plaited, and finely striated longitudinally, with a semicircular white band near the hinge. Native country unknown. Regenf. Conch.

AURANTIA, a species of *VENUS*, with an orbicular orange-coloured shell. This shell is two inches long, and two inches and a quarter in breadth. Its native country is unknown.

AURANTIA, in *Ornithology*, a species of *LOxia*, of an orange colour; crown black; wing and tail-feathers black, edged with orange. Gmelin.

The length of this bird is four inches and a half; bill

dusky; some of the inner quill-feathers edged with white; legs pale-red. In the female, the whole of the head and fore-part of the body are white; the rest dull orange. Inhabits the isle of Bourbon.

AURANTIA, a species of *MUSCICAPA*, called by Latham orange-breasted fly-catcher, and gobe-mouche roux à poitrine orangée de Cayenne by Buffon. The colour is rufous, tinged in parts with green; beneath white; breast orange; head and nape greenish brown; quill-feathers black, edged with rufous. Gmelin. Length of this kind four inches and three quarters; bill flat and broad; tail rufous; legs pale. Dr. Latham informs us, in his Gen. Orn., that it frequents the skirts of woods and the savannahs; and is perhaps a scarce species, only a single specimen of it having been brought to Europe.

AURANTIA, a species of *MOTACILLA* that inhabits the cape of Good Hope. It is brown above, beneath orange; chin whitish, varied below with black; larger wing and tail-coverts white; tail feathers brown, lateral ones tipped with white. This is the *orange-breasted warbler* of Latham. Length six inches.

AURANTIA, a species of *CERTHIA*, called by Latham the *orange-breasted creeper*. It is green; beneath yellowish, breast orange; wings and tail black. Length four inches; bill black; legs dusky. Inhabits Surinam, and was first discovered by Mr. Smeathman.

AURANTIA, in *Zoology*, a species of *RANA*, described by Dr. Shaw, as being of an orange-colour, with very slender body and limbs. This is a native of South America, and is of a smaller size than the European tree-frog; it inhabits trees.

AURENTII CORTEX, in *Pharmacy*, orange-peel. The aurantium Hispanense, or Seville orange, is the only one of this species which is employed in pharmacy.

The outer yellow rind of the fruit is a grateful aromatic bitter, highly esteemed as a stomachic. It is kept in the shops, dried with a gentle heat. It contains a large portion of aromatic essential oil, which admirably increases the stomachic power, and renders it highly grateful to the taste. The virtue of the orange-peel is readily extracted by proof spirit; and accordingly this is the form in which it is usually employed. The London college have ordered a simple tincture of this substance (*tinctura aurantii cortices*), in the proportion of three ounces to a quart of proof spirit. It is also employed in several of the compound Tinctures, such as Huxham's tincture of bark, to give an agreeable flavour, and to add to the stomachic virtue. A syrup of a very grateful flavour is also prepared, by dissolving the requisite proportion of sugar in a strong infusion of the peel. See *CITRUS Aurantium*.

AURANTIUM, in *Botany*. See *CITRUS*

AURANTIUM, in *Natural History*, a species of *ASCIDIA*, of a somewhat globose shape, with a scarlet pouch, and covered with rough hardish dots; papillæ terminal, cylindrical, and rugose. This kind is described by Pallas; it inhabits the sea about the Kurile islands, adhering by its base to shells and stones; and is about the size of an orange.

AURANTIUM, the specific name assigned by Pallas to that species of *ALCONIUM*, called by Gmelin *lycurium*.

AURANTIUS, in *Entomology*, a species of *CIMEX* found in China and Java. It is of an orange colour; head, anterior margin of the thorax, spots on the margin of the abdomen, and the legs, black. Stoll. Fabr. Donov. Inf. China, &c.

AURANTIUS Piscis, in *Ichthyology*, a name given by Nieremberg to a fish of the *coryphæna* genus, called the *dorado*, and supposed to be of the species *equisetis*. Gmelin; or perhaps *hippurus*.

AURANTIUS, in *Ornithology*, a species of **FALCO** that inhabits Surinam, the bill and legs of which are lead colour; body above dusky brown, with decussating narrow whitish lines; chin with long narrow whitish feathers; throat and breast orange; belly and tail brown, with interrupted streaks. Gmelin. This bird is about fifteen inches in length; bill three quarters of an inch long, and whitish at the base; on the throat a round white spot; lower coverts of the tail ferruginous; tail near the base lined with white; legs long, slender, with black claws.

AURANTIUS, a species of **PICUS** or wood-pecker, about ten inches in length. It inhabits the cape of Good Hope; is of an orange colour above, with the nape, rump, and tail black. Gmelin. Brisson calls bird *picus capitis Bonæ Spei*; and Latham the *orange wood-pecker*.

AURANTIUS, a species of **TROCHILUS**, called by Latham the orange-throated humming-bird. It is of a brown colour, with the head orange; chin and breast yellow; wings purple; tail ferruginous. Gmelin. Native place unknown.

AURANTIUS, a species of **TURDUS**, of a blackish brown colour, with the chin and abdomen whitish; beak and legs orange. Gmelin. This is the white-chinned thrush of Latham; merula Jamaicensis of Brisson; and merle brun de la Jamaïque of Buffon. This kind lives in the woods in Jamaica. Of this species Gmelin mentions three varieties; namely, (.) merula gula fusca (with the chin brown) that has been discovered in New Caledonia; (γ) merula nigra (with the body black), a native of Surinam; and merula Americana of Briss. and which, as its name implies, is an inhabitant of America.

AURARIA *fundio*, *pensio*, or *prestatio*, in *Antiquity*, a tax or tribute to be paid in gold. The collector of it was denominated *susceptor aurarius*, or *chrysopodectis*.

AURAS, in *Geography*, a town of Silesia, in the principality of Breslaw, situate near the Oder; twelve miles north-west of Breslaw.

AURASIUS MONS, in *Ancient Geography*. See **AUDUS**.

AURATA, in *Entomology*, a species of **BUPESTRIS**, of a large size, that is found in America. This kind is golden; wing-cases ferrated; thorax brassy. Fabricius, Olivier, &c. *Obs.* The head is grooved; eyes testaceous; teeth of the antennæ black; thorax smooth.

AURATA, a species of **CHRYSIS** that inhabits Europe. It is glabrous and shining, with a green thorax, and golden abdomen, with two teeth at the vent. Linn. Fabr. &c.

AURATA, a species of **MUTILLA** that inhabits New Holland. It is blueish, with a large golden spot on the abdomen. Fabricius.

AURATA, a species of **MUSCA** found in Europe. This insect is shining; thorax brassy; abdomen obtuse and golden. Fabricius, &c.

AURATA, a species of **PHALÆNA** (*Geometra*), described by Linnæus as a native of Europe. The wings are yellow, and without spots.

AURATA, a species of **PHALÆNA** (*Geometra*) that inhabits Surinam; and is figured by Cramer under the name of *phalæna aura*. The wings are fulvous, with a dot and posterior streak golden. Fabricius, &c.

AURATA, a species of **VESPA**, of a small size, that is found in Sierra Leona. The colour is black; abdomen golden and polished. Fabr. &c.

AURATA, in *Ichthyology*, a species of **SPARUS**, called in England the lunated gilt-head, and distinguished by having a lunated golden mark between the eyes. Linnæus Mus. Ad. Fr. It inhabits the Mediterranean and American seas.

AURATA *Babamensis*, Catesby's name of the fish called *sparus chryseus* by Gmelin.

AURATA, in *Zoology*, a species of **LACERTA** found in the island of Jersey. When living, it is said to be of a fine golden colour, but after death its splendid colour disappears. It has a round and rather longish tail; scales rounded and glabrous; sides brownish. Gmelin. The body is round, and apparently corpulent, and the ears are concave. This kind is *lacerta barbara* of Mus. Ad. Fr.

AURATUS, in *Entomology*, a species of **SCARABÆUS** (*Cetonia* Fabr.) that inhabits Europe. This insect is golden, with a single tooth on each side of the first segment; wing-cases spotted with white. Fabricius. The colours in this species are variable. From the vent, it emits a fetid liquor when handled. Degeer calls it *scarabæus smaragdus*.

AURATUS, a species of **CARABUS**, of the apterous kind; wing-cases golden and furrowed; antennæ and legs rufous. Fabricius. Found in woods in Europe.

AURATUS, a species of **CERAMBYX** that inhabits America. It is green, bronzed, with a lateral depressed tooth on the thorax; antennæ black, and posterior thighs blue. Gmelin.

AURATUS, a species of **CURCURIUS**, of a green-gold colour; antennæ and dilated tip of the beak black. A native of Italy. Scopoli.

AURATUS, a species of **ELATER** that inhabits China. The colour is green-gold; legs black. Fabricius.

AURATUS, in *Ichthyology*, a species of **SPARUS**, that inhabits the Mediterranean and European seas, and is called in England the *lunated gilt-head*. It is distinguished by having a semi-lunar golden spot between the eyes. Linn. Mus. Ad. Fr. This kind feeds chiefly on worms and shell-fish, the latter of which it grinds with its teeth before it swallows them. The back is greenish, sides rather pale and glossed with gold; on the upper part of the gills is a black spot, and beneath that another of purple; inside of the mouth fine red; dorsal fin extending nearly the whole length of the back; tail much forked.

AURATUS a species of **CYPRINUS**, well known in England by the name of gold-fish. Authors are by no means agreed on the precise characters by which this fish ought to be distinguished; some think the trifurcated tail is a striking character of the species; but this is rather accidental, for it is sometimes found with a bifurcated tail; and the teleostean carp *cyprinus baphthalmus* of Dr. Shaw, has a trifurcated tail likewise; the anal fin is sometimes single, and sometimes double; so that the Linnæan definition in the Faun. Suec. is equally liable to objection. The specific character assigned by Bloch is taken exclusively from the brilliant, or golden red colour, by which, as he observes, this fish is distinguished from all the other species of the **CARP** or **CYPRINUS** genus.

This fish is, without dispute, the most superb creature of the finny tribes at this time known. It was originally confined to a certain lake, on or near the mountain Tienking, at a small distance from the village of Tchanghou in the province of The-Kiang in China, from whence it was transported to other parts of the empire, and Japan; and afterwards brought to Europe. The Chinese have completely domesticated this fish, and they are now generally kept in ponds, basins, or vessels of porcelain, as ornaments in the gardens of the rich; and afford one of the few amusements the ladies are allowed to enjoy in that country by their jealous husbands. One writer has observed that the fish is no larger than a pilchard; but in this he is mistaken, for we know instances of its increasing to the size of a herring. The male is said to be of a bright red colour, from the top of the head to the middle of the body; the rest of a bright gold

gold colour, superior to the richest gilding with that metal; the female white, with the tail and half the body emulating the finest silver. Du Haide observes that the red and white colours are not always the distinguishing marks of the male and female; but that the female is known by several white spots which are seen round the orifices that serve them as organs of hearing, and the male by having these spots much brighter. Grohier, in his description of China, says, great care is necessary to preserve them; for they are extremely delicate, and sensible of the least injuries of the air; a loud noise, such as that of thunder or cannons; a strong smell; a violent shaking of the vessel; or even a single touch, will oftentimes destroy them. These fish live with little nourishment; those small worms which are engendered in the water, or the earthy particles that are mixed with it, are sufficient for their food. The Chinese, however, take great care from time to time to throw into the basons and reservoirs where they are kept, small balls of paste, which they are very fond of, when dissolved; they give them also lean pork dried in the sun, and reduced to a fine and delicate powder, and sometimes snails; the slime which these insects leave at the bottom of the vessel is a great delicacy for them, and they eagerly feed on it. In winter they are removed from the grounds or open air to a warm chamber, where they are kept generally in vessels of porcelain. During this season, they receive no nourishment; but however in the spring, when they are carried back to their former basons or reservoirs, they sport and play with the same strength and liveliness as they did in the preceding year. In warm countries these fish multiply fast, provided care be taken to collect their spawn, which floats on the water, and which they almost entirely devour. This spawn is put into a particular kind of vessel, exposed to the sun, and preserved there until vivified by the heat; gold fish, however, seldom multiply when they are kept in close vases, because they are then too much confined. In order to render them fruitful, they must be put into reservoirs of considerable depth, in some places at least, and which are constantly supplied with fresh water. At certain times of the year a prodigious number of barks may be seen in the great river Yangtse-Kiang, which go thither to purchase the spawn of these fish. Towards the month of May, the neighbouring inhabitants shut up the river in several places with mats and hurdles, which occupy an extent of almost nine or ten leagues, and they leave only a place in the middle sufficient for the passage of barks. The spawn of this fish, which the Chinese can distinguish at first sight, although a stranger could perceive no traces of it in the water, is stopped by these hurdles. The water mixed with spawn is then drawn up, and after it has been put into large vessels, it is sold to the merchants, who transport it afterwards to every part of the empire. This water is sold by measure, and purchased by those who are desirous of stocking their ponds and rivers with gold-fish.

Notwithstanding the tenderness of this fish in its native climate, it is now naturalized in England, France, Holland, several parts of Germany, and other countries of Europe. They are said to have been first introduced into Great Britain about the year 1691, but were not generally known, according to Pennant, till 1728, when a great number were brought over, and presented first to sir Matthew Dekker, and by him circulated round the neighbourhood of London, from whence they were distributed to most parts of the country. "Nothing," says one writer, (Enc. Brit.) "can be more amusing than a glass bowl containing such fishes; the double refractions of the glass and water represent them, when moving, in a shifting and changeable variety of dimensions, shades, and colours; while the two mediums assisted by the

concavo-convex shape of the vessel, magnify and distort them vastly; not to mention that the introduction of another element and its inhabitants into our parlours engages the fancy in an agreeable manner. Some people exhibit this sort of fish in a very fanciful way; for they cause a glass bowl to be blown with a large hollow space within, that does not communicate with it. In this cavity, they put a bird occasionally; so that you see a gold-finch or a lark hopping as it were in the midst of the water, and the fishes swimming in a circle round it. The simple exhibition of the fishes is agreeable and pleasant; but in so complicated a way becomes whimsical and unnatural, and liable to the objection due to him, *qui variare cupit rem prodigaliter unam.*"

One circumstance that has been remarked of the fish, deserves particular mention. It is said when young, to be not unfrequently of a deep black colour, and that after a time little silvery specks begin to appear through the black; these increasing in size very gradually, till the black entirely disappears, the whole fish becomes of a fine and resplendent silver; from which it at last changes to a red. Sometimes, however, it appears of a beautiful golden-red in the first instance.

AURATUS, in Ornithology, a species of CUCULUS, about seven inches in length, that inhabits the cape of Good Hope. Buffon calls this bird *coucou vert doré et blanc*; Hist. Ois., and in his Pl. Enlum. *coucou vert du cap de Bonne Esperance*. The tail is wedge-shaped; body above golden-green, beneath white; on the head five streaks; wing-coverts, secondary quill feathers, with those of the tail, white at the tips. By Latham, it is named in English the *gilded cuckoo*.

AURATUS, a species of PICEUS or wood-pecker, called by Briss. *piceus Canadensis striatus*; *pic rayé de Canada*, et *pic aux ailes dorées* by Buffon; *piceus major alis aureis* by Kalm; *cuculus auratus*, Linn. Syst. Nat. X.; and gold-winged wood-pecker by Catesby and other English writers. Forster and Gmelin describe it as being transversely streaked with grey and black; chin and breast black; nape red; rump white.

The length of this bird is eleven inches; bill an inch and a half long, black, and rather bent; and contrary to others of the same genus, is rounded and ridged only on the top, with the point sharp. The female differs from the male in having the crown and neck behind grey brown; the red of the hind head less vivid; greater quill feathers not spotted on the edges, and being destitute of the black stripe on the throat. It inhabits Virginia, Canada, and other parts of North America. About New Jersey, and New York, it is called by some *hitcock* or *pini*, and by others *high-hole*; the two former, from the sound of its note, and the latter from the situation of its nest. It is almost continually on the ground, and is not observed to climb on the trees like other birds of the same genus.

The food of this bird is chiefly insects, and berries of the red cedar; it is very fat, and in esteem for the table. Forster, in the Philosophical Transactions, informs us that it is a bird of passage in the northern parts of America, visiting the neighbourhood of Albany fort in April, and leaving it in September; that it lays four, five, or six eggs in hollow trees, and feeds on worms and insects. It is called by the natives *outhee-quan-nov*.

AURATUS, a species of TURDUS, the general colour of which is violet; back and wings golden-green; band on the inner margin of the wings, tail, and upper tail-coverts, blue. Gmelin. This beautiful bird is rather larger than *turdus merula*, or common black bird, and inhabits the kingdom of Whidah, in Africa. Buffon calls it *le merle violet du royaume de juda*; and Latham the *gilded thrush*.

AURATUS, a species of TROCHILUS, called by Latham the *garnet-throated humming-bird*. The colour is golden-green;

green; chin, throat, and breast golden-red; belly black. Gmelin.—*Obs.* There is a variety of this brilliantly coloured species, in which the cheeks, nape, and chin are of a golden-red; and the head and body of a dark glossy green. The latter is called *grenat* by Buffon; and it measured five inches in length, being half an inch more than the first mentioned kind.—The legs and bill are black, and in the female, the chin, throat, and breast are golden-green.

AURATUS *Eques*. See *EQUES*.

AURAY, in *Geography*, a sea-port town of France, in the department and in the gulf of Morbihan, and chief place of a canton in the district of Lorient, at the mouth of a river of the same name. The place contains 3210 and the canton 12,096 inhabitants: the territory includes 210 kilometres and 6 communes. N. lat. 47° 48'. W. long. 2° 50'.

AURBACH, a town of Germany, in the circle of Bavaria, and Upper Palatinate; thirty miles north-east of Nuremberg.

AURBURG, a town and castle of Germany, in Upper Bavaria; four miles north of Kufstein.

AURE, a river of France, which runs into the Eure, near Anet.

AUREA, in *Conchology*, a species of *VENUS* of a suborbicular form, golden, inequilateral, with crowded, minute, transverse striae. Lister, Gmelin. Inhabits Europe.

AUREA, in *Entomology*, a species of *LEPTURA*, described by Degener. The colour is greenish gold, thorax spinous; two black longitudinal stripes on the wing-cases; thighs rufous. About two-thirds of an inch in length.

AUREA, a species of *MELOE* (*Mylabris*) of a green-gold colour, with fulvous wings. Length one-third of an inch. Degener. Native country unknown.

AUREA, a species of *CICADA* (*Cercopis* Sec.) of an ash-colour, glossed with gold, shining, and without spots. This is of the middle size, and inhabits Cayenne.

AUREA, in *Ornithology*, a species of *PARADISEA*, about the size of the turtle-dove. It is crested; crown, cheeks, and chin violaceous and shining; throat, breast, and spot on the neck, golden-green. Gmelin. This is *Poisseau, paradis à gorge dorée* of Sonnerat; *sifilet ou mancode à six filets* of Buffon; and gold-breasted bird of paradise of Latham.

The bill is blackish; irides yellow; plumage very brilliant; legs blackish; beneath each wing arise long black feathers, which fall over the wings, when the bird is at rest; the webs of these feathers are loose like those of the ostrich. From the mutilated state in which the skins of these birds are sent to Europe, these feathers are not always observable in specimens of this species: Buffon mentions a figure of it published by M. Marvi, in which even the crest is wanting. This kind inhabits New Guinea.

AUREA, a species of *LOXIA* that inhabits Benguela. It is of a black colour; back golden; wing coverts pale brown, spotted with black. This bird is the golden-backed finch of Brown; and gold-backed grosbeak of Latham. According to the last author, it is six inches in length; bill, head, and neck, deep black; the feathers not velvety, as in the Cape grosbeak; breast and belly black; legs blueish; rump and upper tail-coverts yellow; the latter fringed with a dusky colour; and all the tail feathers very pale at the edges.

AUREA *Alexandrina*, in *Pharmacy*, a compound opiate confection, much in repute among the ancient physicians, but now entirely disused, like all the other medicines of this class: it was considered as a powerful alexipharmic, or antidote to poison.

AUREC, in *Geography*, a town of France, in the department of the Upper Loire, and chief place of a canton in the district of Monistrol; three leagues south-west of St. Etienne, and $1\frac{1}{2}$ north of Monistrol.

AURELIA, in *Entomology*, a term employed by naturalists, about the middle of the last century, to express that intermediate state in which all lepidopterous, and most other insects, remain for some time, between the caterpillar form and the period in which they are furnished with wings, with antennae, and other organs appertaining to the perfect insect. Aurelia and chrysalis are synonymous words, both alluding to the metallic or golden splendor of the case in which the creature, during that state, is contained. This brilliant appearance, it must be observed however, seems confined alone to insects of the papilio or butterfly tribe; and it is even peculiar only to certain kinds of those; so that the terms aurelia and chrysalis are altogether inapplicable, in a general manner, to insects in that state. Among entomologists of the higher class, these terms have been long since discarded in favour of the more expressive one pupa, which Linnaeus had adopted in their stead; a term implying that the insect, like an infant, yet remains in its swaddling clothes; and nothing can be more applicable than this comparative allusion, while the tender insect yet remains enveloped in the drapery of its membranaceous covering; a creature now exposed to every danger, and yet unable to defend itself from the slightest harm; in helpless infancy it must wait the more complete formation of its limbs, and new accession of strength, ere it can burst from these, its trammels of youth, and appear what nature had ultimately designed it for—a mature and perfect creature.—See *ENTOMOLOGY*, and *PUPA*.

The term aurelia is still retained by some few practical entomologists in this country; or, in other words, by those who amuse themselves with collecting and breeding insects, without regarding them scientifically; and persons, engaged in this agreeable pursuit, occasionally denominate themselves Aurelians. The word chrysalis is in more general use than its precise meaning can justify; that of aurelia, as before remarked, is nearly obsolete. The current denominations of an insect in the pupa state among the French naturalists, are *nympha*, or *nymphe*, and *chrysalide*.

"The Aurelian" was likewise the title which Moses Harris gave to his well-known folio work on Insects; a wretched plagiarism from the beautiful etchings of Ammiral, which had been published a short time before in Holland; and in which Harris, by a singular good fortune, not only escaped detection, but actually acquired that very celebrity as a delineator of insects, which attaches an importance to his memory in the present day.

AURELIA, in *Natural History*, a species of *PARAMECIUM* (*vermes infusoria*), of an oblong form, plaited longitudinally on the anterior part. Müll. Hermann, &c. Hill describes it thus: *paramecium corpore sub-linguo medium versus angusto*. It is found in great abundance in ditch water, and vegetable infusions, about the month of June; it is membranaceous; breadth one-fourth of the length; anterior part obtuse, hyaline; posterior part filled with molecules of various sizes; longitudinal fold extending from the middle to the front of the head.

AURELIAN, in *Biography*, a Roman emperor, was a native of Sirmium, in Pannonia. His father cultivated the lands which a Roman senator, called Aurelius, possessed in the country where he lived; and his mother was a priestess of the sun, and pretended to divination. Aurelian was from his youth distinguished by his strength and courage, and addicted to military exercises and achievements. On this career he entered betimes; and, from his warlike passion and exploits, he obtained, by way of distinction from another Aurelian, the name of "Aurelianus manu ad ferrum," or "Aurelian sword in hand;" as he was ready on all occasions to draw his sword, and encounter the enemy. He

is said to have killed with his own hand forty-eight Sarmatians in one day; and within some few succeeding days, 950; so that he became the subject of popular songs, which were sung by the youth at the public festivals. Aurelian was the first Roman who fought against the Franks, and subdued them. As chief commander of the cavalry, to which office he was advanced from the low station of a common soldier, he was a strict observer of military discipline, and punished with the utmost severity the smallest neglect of duty on the part of his soldiers, and the slightest injury done by any of them to the inhabitants of the provinces through which he marched. His military talents and conduct attracted the peculiar attention of the emperor Valerian, who appointed him inspector and reformer of all the Roman camps, gave him the command of Illyricum, under Ulpius Crispinus, a descendant of the same family with Trajan, by whom he was adopted, and whose daughter he married; and at length, A. D. 258, created him consul, with a special order, that, on account of his poverty, the public treasury should defray the expences which that high office incurred. Under Gallienus we find no mention of him, either because that emperor had removed him from jealousy of his merit, or because he himself did not chuse to serve a prince so indolent and despicable. Claudius II. upon his advancement to the empire, duly appreciated the merit of Aurelian, and was assisted by him in the defeat of Aureolus. In the war against the Goths he was eminently distinguished; and this discerning emperor on his death-bed recommended him as the fittest person to be his successor. Accordingly Aurelian was elected to the empire by the legions of Illyricum, in the year 270; and after the death of Quintillus, the brother of Claudius, who closed a short reign of seventeen days by opening his veins, the election of Aurelian was confirmed by the senate, and he was honoured with the title of Augustus. Having been thus acknowledged and invested with the imperial dignity at Rome, he returned to Pannonia, which the Goths had threatened with a new invasion. The Goths before his arrival had passed the Danube; but, after an indecisive battle, which was terminated by the approach of night, the Barbarians retreated, and re-crossed the river, and sent deputies to sue for peace, which was granted them by the emperor. Having withdrawn the Roman troops from Dacia, and relinquished that province to the Goths and Vandals, he hastened to Italy, to repel an incursion of the Allemanni, and other German tribes. After three successive victories, the first near Placentia, a second at Fano near the river Metaurus, and a third in the plains of Picinum, now Pavia, he drove those Barbarians out of Italy, and rescued Rome from the calamities which were apprehended, and which the city had endeavoured to avert by a variety of superstitious practices, sanctioned by the concurrence of the emperor himself, with a view of appeasing the anger of the gods.

Aurelian, on his return to the capital, put to death several senators, who were suspected of having been concerned in conspiracies against him; and having enlarged the city, he provided for its future security by erecting new walls, which bore his name, though they were not finished till the reign of Probus. The extent of these walls was magnified by popular estimation to near fifty, but has been reduced by accurate admeasurement to about twenty-one, miles.

About this time Aurelian marched into Gaul, which had been for some time distracted and oppressed by a rapid succession of usurpers, and where Tetricus, who, from being governor of the peaceful province of Aquitaine, had assumed the ensigns of royalty, and reigned four or five years over Gaul, Spain, and Britain, "the slave and sovereign," says

Gibbon, "of a licentious army, whom he dreaded, and by whom he was despised." The power of Tetricus, however, was of precarious duration; and he invited Aurelian to hasten his relief. Accordingly, in the summer of the year 271, Aurelian arrived in Gaul; and Tetricus, in order to disguise the act of treason by which he was about to resign the sceptre of the west, affected the appearance of a civil war, and led his forces into the field against the emperor; but he posted them in the most disadvantageous manner, betrayed his own counsels to the enemy, and with a few chosen friends, deserted in the beginning of the action. The rebel legions, though disordered and dismayed by the unexpected treachery of their chief, defended themselves with desperate valour, till they were cut in pieces almost to a man, in the bloody and memorable battle, which was fought near Chalons, in Champagne. The retreat of the irregular auxiliaries, Franks and Batavians, whom the conqueror soon compelled or persuaded to re-pass the Rhine, restored the general tranquillity, and the power of Aurelian was acknowledged from the wall of Antoninus to the column of Hercules.

Aurelian, having secured the person and the provinces of Tetricus, turned his arms, A. D. 272, against Zenobia, the celebrated queen of Palmyra and the East. Upon his arrival in Asia, he advanced at the head of his legions, and took possession of Ancyra and Tyana; and as he approached Antioch, it was deserted by the inhabitants; but by his salutary edicts he recalled the fugitives, and granted a general pardon to all, who, from necessity rather than choice, had been engaged in the service of the Palmyrenian queen. This unexpected mildness of conduct, on the part of the emperor, conciliated the minds of the Syrians; and as far as the gates of Emesa, the wishes of the people seconded the terror of his arms. Zenobia attempted to check his further progress; but the fate of the east was decided in two great battles; the first of which was fought near Antioch, and the second near Emesa. In both these battles, Zenobia animated the armies by her presence, but the veteran troops of Aurelian, whose valour had been severely tried in the Alemannic war, prevailed. After the defeat at Emesa, Zenobia found it impossible to collect a third army. As far as the frontier of Egypt, the nations subject to her empire had joined the standard of the conqueror, who detached Probus, the bravest of his generals, to possess himself of the Egyptian provinces. The queen retired within the walls of her capital, Palmyra; and for some time resisted, with the intrepidity and firmness of a heroine, the arms of the emperor, who invested the city. But disappointed of adequate succours, and alarmed by the return of Probus with his victorious troops from the conquest of Egypt, she at length resolved to fly. She mounted the fleetest of her dromedaries, and had already reached the banks of the Euphrates, about 60 miles from Palmyra, when she was overtaken by the pursuit of Aurelian's light horse, seized, and brought back a captive to the feet of the emperor, A. D. 273. To the counsels of her friends she imputed the guilt of her obstinate resistance; and on their heads, and particularly against the celebrated Longinus, she directed the vengeance of the cruel Aurelian. (See ZENOBIÆ.) Soon after her capital surrendered, and was treated with unexpected lenity. By a war thus terminated, those provinces that had renounced their allegiance since the captivity of Valerian, were restored to the obedience of Rome.

Aurelian, on his return from the conquest of the East, had already crossed the straits which divide Europe from Asia, when he was suddenly recalled by the news of the revolt of the Palmyrenians, who had massacred the governor and garrison, and proclaimed a new emperor. Without a

moment's deliberation, he turned his face towards Syria, and soon arrived to execute vengeance on the revolted city, which for three days was delivered to the unbridled rage and rapine of the soldiers. Women, children, and servants, were involved in this dreadful execution, which ought to have been confined to armed rebellion; and although the emperor's principal concern seems to have been directed to the re-establishment of a temple of the Sun, he discovered some pity for the remnant of the Palmyrenians, to whom he granted the permission of rebuilding and inhabiting their city. See PALMYRA.

Aurelian, having thus completely reduced Palmyra, and having also suppressed a rebellion in Egypt, excited by Firmus, a wealthy merchant, and a friend and ally of Odenathus and Zenobia, who had taken possession of Alexandria, and assumed the purple, and whom he first tortured and then put to death; returned to Rome; congratulating the senate, himself, and the people, that in little less than three years he had restored universal peace and order to the Roman world.

Since the foundation of Rome, no general had more nobly deserved a triumph than Aurelian; nor was any triumph ever celebrated with superior pride and magnificence. It is thus described by Gibbon: "The pomp was opened by twenty elephants, four royal tigers, and above two hundred of the most curious animals from every climate of the North, the East, and the South. They were followed by 1600 gladiators, devoted to the cruel amusement of the amphitheatre. The wealth of Asia, the arms and ensigns of so many conquered nations, and the magnificent plate and wardrobe of the Syrian queen, were disposed in exact symmetry or artful disorder. The ambassadors of the most remote parts of the earth, of Ethiopia, Arabia, Persia, Bactriana, India, and China, all remarkable by their rich or singular dresses, displayed the fame and power of the Roman emperor, who exposed likewise to the public view the presents he had received, and particularly a great number of crowns of gold, the offerings of grateful cities. The victories of Aurelian were attested by the long train of captives who reluctantly attended his triumph; Goths, Vandals, Sarmatians, Alemanni, Franks, Gauls, Syrians, and Egyptians. Each people was distinguished by its peculiar inscription; and the title of Amazons was bestowed on ten martial heroines of the Gothic nation, who had been taken in arms. But every eye, disregarding the crowd of captives, was fixed on the emperor Tetricus, and the queen of the East. The former, as well as his son, whom he had created Augustus, was dressed in Gallic trowsers, a saffron tunic, and a robe of purple. The beautiful figure of Zenobia was confined by fetters of gold; a slave supported the gold chain which encircled her neck, and she almost failed under the intolerable weight of jewels. She preceded on foot the magnificent chariot, in which she once hoped, to enter the gates of Rome. It was followed by two other chariots, still more sumptuous, of Odenathus, and of the Persian monarch. The triumphal car of Aurelian (it had formerly been used by a Gothic king) was drawn, on this memorable occasion, either by four stags or by four elephants. The most illustrious of the senate, the people, and the army, closed the solemn procession. Unfeigned joy, wonder, and gratitude, swelled the acclamations of the multitude; but the satisfaction of the senate was clouded by the appearance of Tetricus; nor could they suppress a rising murmur, that the haughty emperor should thus expose to public ignominy the person of a Roman and a magistrate.

"But, however, in the treatment of his unfortunate rivals, Aurelian might indulge his pride, he behaved towards them

with a generous clemency, which was seldom exercised by the ancient conquerors. Princes who, without success, had defended their throne or freedom, were frequently strangled in prison, as soon as the triumphal pomp ascended the Capitol. These usurpers, whom their defeat had convicted of the crime of treason, were permitted to spend their lives in affluence and honourable repose. The emperor presented Zenobia with an elegant villa at Tibur, or Tivoli, about twenty miles from the capital: the Syrian queen sensibly sunk into a Roman matron, her daughters married into noble families, and her race was not yet extinct in the fifth century. Tetricus and his sons were re-instated in their rank and fortunes. They erected on the Alban hill a magnificent palace, and as soon as it was finished, invited Aurelian to supper. On his entrance, he was agreeably surprised with a picture which represented their singular history. They were delineated offering to the emperor a civic crown and the sceptre of Gaul, and again receiving at his hands the ornaments of the senatorial dignity. The father was afterwards invested with the government of Lucania; and Aurelian, who soon admitted the abdicated monarch to his friendship and conversation, familiarly asked him, whether it were not more desirable to administer a province of Italy, than to reign beyond the Alps? The son long continued a respectable member of the senate; nor was there any one of the Roman nobility more esteemed by Aurelian, as well as by his successors.

"The festival was protracted by theatrical representations, the games of the circus, the hunting of wild beasts, combats of gladiators, and naval engagements. Liberal donations were distributed to the army and people; and several institutions, agreeable or beneficial to the city, contributed to perpetuate the glory of Aurelian. A considerable portion of his oriental spoils was consecrated to the gods of Rome; the Capitol, and every other temple, glittered with the offerings of his ostentatious piety; and the temple of the sun alone received above 15,000 pounds of gold."

The arms of Aurelian vanquished the foreign and domestic foes of the republic; and we are assured, that by his salutary rigour, crimes and factions, mischievous arts and pernicious connivance, the luxuriant growth of a feeble and oppressive government, were eradicated through the Roman world. Nevertheless, a few short intervals of peace were insufficient for the arduous work of reformation; and even his attempt to restore the integrity of the coin was opposed by a formidable insurrection, which originated with the workmen of the mint, and terminated by a bloody battle, in which the emperor lost 7000 of his troops. Of this insurrection, the real cause was disguised, and the reformation of the coin furnished merely a feigned pretence to a party already powerful and discontented. The emperor, who was himself a plebeian, and who always expressed a peculiar fondness for this order, had excited the jealousy and incurred the hatred and opposition of the senate, the equestrian order, and the Pretorian guards; and it was a conspiracy of these several orders that procured a strength capable of contending in battle with the veteran legions of the Danube. The rebellion, however, was suppressed, and Aurelian used his victory with unrelenting rigour. The noblest families of the capital were involved in the guilt or suspicion of this dark conspiracy; and it was punished with a spirit of revenge that produced the most sanguinary effects. The executioners, says Calphurnius a contemporary poet, were fatigued; the prisons were crowded; and the unhappy senate lamented the death or absence of its most illustrious members.

Some of the concluding months of Aurelian's reign were occupied

occupied by a visit to Gaul, where he rebuilt the ancient city of Cenabum, called after his own name "Aurelianum," now Orleans, and by an expedition against the barbarians who had made an incursion into Vindelicia. But the object, which engaged his principal attention, was an expedition against Persia; in the prosecution of which he advanced as far as the straits which divide Europe from Asia. Here a conspiracy was formed against his life by one of his secretaries, who was accused of extortion. This criminal, dreading the effects of the emperor's displeasure, determined to involve some of the principal officers of the army in his danger, or at least in his fears. With this view he artfully counterfeited his master's hand, and shewed them in a long and bloody list their own names devoted to death. Without suspecting or examining the fraud, they resolved to secure their lives by the murder of the emperor. On his march, between Byzantium and Heraclea, Aurelian was suddenly attacked by the conspirators, and after a short resistance, fell by the hand of Mucapor, a general whom he had always loved and trusted. Accordingly he died, A. D. 275, regretted by the army, detested by the senate, but universally acknowledged as a warlike and fortunate prince, the useful, though severe, reformer of a degenerate state.

As to his general disposition and character, it has been observed by Dioclesian, one of the most sagacious of the Roman princes, that the talents of his predecessor Aurelian were better suited to the command of an army, than to the government of an empire. His temper was haughty and vindictive. Trained from his youth in the exercise of arms, he transferred the discipline of the camp into the civil administration of the laws; and his love of justice often became a blind and furious passion. Ignorant or impatient of the restraints of civil institutions, he disdained to hold his power by any other title than that of the sword, and governed by right of conquest an empire which he had saved and subdued. Aurelian has been reckoned by several Christian authors among the persecutors of the church; and it is said that he not only intended persecution and framed cruel edicts for this purpose just before his death, but did actually persecute. His persecution, however, reckoned by Augustin the ninth, was short; as he died soon after the publication of his edicts, and before they could reach the more distant provinces. Mosheim is of opinion that many Christians did not suffer at this time; but considering Aurelian's cruel temper, and how much he was addicted to the Gentile superstitions, he thinks that if he had lived, his persecution would have exceeded all the former persecutions in severity.

The historians of this reign are Vopiscus, the Victors, Pollio, Zosimus, and Eutropius. Crevier's Hist. Rom. Emp. vol. ix. p. 149—186. Gibbon's Hist. vol. ii. p. 15—56. Lardner's works, vol. viii. p. 172—176. Mosheim's Eccl. Hist. vol. i. p. 153.

AURELIANA, in Botany. See PANAX.

AURELIOPOLIS, in Ancient Geography, an episcopal city of Asia Minor, in Lydia.—Also, another episcopal city of Asia Minor, in Asia properly so called.

AURELIUS, AMBROSIIUS. See AMBROSIIUS.

AURELIUS, MARCUS. See ANTONINUS.

AURELIUS VICTOR, SEXTUS, in Biography, a Roman historian, flourished in the 4th century, probably from the reign of Constantius to that of Theodosius; was born of mean and illiterate parents, perhaps in Africa, and notwithstanding the obscurity of his origin, was advanced by his talents to distinction. In 361, he was appointed by Julian, prefect of the second Pannonia; afterwards prefect of Rome; and

in 369, consul with Valentinian. The abridgment of the Roman history, intitled "Libellus de origine Gentis Romanæ," and by some ascribed to Asconius Pedianus, though it bears the names of Victor and Livius, proposes a history of the whole period, from the uncertain time of Janus and Saturn to the 12th consulship of Constantius, but really closes in the first year of the city. This treatise was published, together with the works of Dionysius Halicarnassensis, at Frankfort, in 1586; and with a collection of ancient historians, by Gothofred, in 18mo. at Lyons, in 1591. The biographical treatise under the title "De Viris Illustribus Urbis Romæ," received by many as the work of Aurelius Victor, commences with Proca king of the Albans, and terminates with Pompey; it was published in 4to. with notes, by Machæus, at Leipzig, in 1516, and with those of Lycosthenes, in folio, at Basil, in 1563. "The History of the Cæsars from Augustus to Constantius," the unquestionable production of Victor, was first published by Schurerus at Strasburg, in 8vo. in 1505; at Venice, by Aldus, in 1516; by Schottus, at Antwerp, in 1579, in 8vo.; and at Basil, in folio, in 1546, with Suetonius and other Augustan writers. The first general edition of all the writings of Aurelius Victor was printed at Antwerp, in 8vo. with the commentary of Schottus, in 1579, by Plantin, and in 1582, again by Gruter, at Hamam, in the 2d volume of the "Historiæ Augustæ Scriptores," in folio, in 1610. An elegant edition, with heads, "cum notis variorum," was printed in 8vo. in 1671; another by Pitiscus, at Utrecht, in 8vo. 1696; and a third by Artnezius, in 4to. at Amsterdam, in 1733. Aurelius Victor is reckoned an industrious and faithful historian; but his style is much less elegant than that of the earlier writers of the Roman history. Fabr. Bib. Lat. l. iii. c. 9. t. 2. p. 79. &c. See AUGUSTA Historia.

AURELIUS, in Entomology, a species of PAPILIO that inhabits India. The wings are brown, black at the tip, and spotted with white; two eye-shaped spots on the posterior ones beneath. Fabricius, &c.

AURELIUS, in Geography, a military township of New-York, in Onandago county, on the Oswego lake, having the Cayuga reservation lands on the west, and Marcellus to the east, nine miles east of the ferry on the Cayuga lake. By the state census of 1796, 123 of the inhabitants are electors.

AURELLA, in Entomology, a species of PHALÆNA (*Tinea*), wings golden, posterior ones black, with a stripe of silver on the first pair. A minute insect that inhabits Europe, and feeds on apple-trees.

AURENG-ZEBE, AURING-ZEBE, or AURUNG-ZEBE, denoting "Ornament of the throne," in Biography, the great mogul, was the third son of Shah Jehan, and born in the year 1618. His disposition was serious and thoughtful; and in order to prevent jealousy and suspicion, he assumed the austerity of a religious mendicant. Dara, however, his elder brother, discovered his real character through this disguise; and as he had contrived to gain the esteem and confidence of his father, Dara used to say of him, "I fear none of all my brothers but this teller of beads." Shah Jehan, who thought it most prudent and safe to remove all his sons from court, sent Aureng-Zebe to govern the Deccan, where he made an unsuccessful attempt against the king of Golconda. Towards the close of the year, 1656, Dara, endeavouring to gain possession of the empire, confined his father Shah Jehan; upon which Aureng-Zebe began to make preparations, and with the professed design of securing the throne to his brother Morad, who was then at Akmedabad, requested that he would join him with his forces at Eugene, the capital of the province of Malwar. In the beginning of the year 1658, he marched from

from Aurungabad in the Deccan, and the two brothers joined at Eugene, near which place they encountered and defeated the troops which Dara had sent to oppose them. They afterwards marched towards Delhi; and in the fields of Kejoulh, near Agra, obtained a complete victory over Dara and his army; so that Dara himself fled towards Lahore, and Aureng-Zebe entered the castle of Agra. After this victory he took possession of the throne, July 20, A.D. 1658, and was proclaimed emperor at the town of Eazabad, about six miles from Delhi. On the 15th of May 1659, he was proclaimed a second time, and he then issued a decree, that for the future the beginning of his reign should be dated from the first Ramazan, in the year 1069 of the Hegira, or the 12th of May 1659. For the security of his throne, he confined his father at Agra; and his brother Morad, in violation of a solemn oath of fidelity, he imprisoned in a fortress near Delhi, where he was afterwards beheaded. During the civil war which commenced at the time of his accession to the throne, and which was continued till his power was completely established, his brother Sujah was first defeated at a place called Kuvra, in the province of Bengal, and compelled to fly; but being concerned in a plot for dethroning him, he was put to death, and his whole family was extirpated. Dara was taken prisoner, and brought in triumph to Delhi, and sent from thence to Khefrabad, a place at the distance of about 118 miles, where he was murdered by Aureng-Zebe's order, August 28th, 1659. In 1661, Aureng-Zebe confined his own son Mahommed, and the son of Dara, in the castle of Gualiar, where the former died, as some say, in consequence of confinement, and the latter was dispatched by slow poison. Aureng-Zebe, after his accession to the throne, found some difficulty in persuading the chief cadi to acknowledge his sovereignty, because the old king, Shah Jehan, was still living. But another cadi being appointed in his room, the ceremonial of coronation was performed, and Aureng-Zebe obtained undisputed and peaceable possession of the throne. The recollection, however, of the crimes by which he had gained the sovereignty, was an occasion of remorse; and in order to quiet his mind, he imposed upon himself a rigorous penance; eating only barley bread, herbs, and fruits, and drinking nothing but water. This abstemious diet brought on an illness, which endangered his life; and during the agitation which ensued at court, he had an opportunity of displaying that resolution and firmness of mind for which he was always distinguished. Although he had deposed his father, his behaviour to him was so respectful and submissive, that he at length obtained, before his death in 1666, his forgiveness and paternal blessing. When Aureng-Zebe became emperor, he assumed the titles of "Mohy o'din," i. e. the reviver of religion; and "Alumguir," or the conqueror of the world, of which his ignorance and vanity led him to believe that he possessed three parts in four.

From the year 1660 until the year 1678, there prevailed, through Hindostan in general, the most profound peace that had ever perhaps been known; but Aureng-Zebe disdained to have any other boundary on the south besides the ocean. Accordingly, the conquest of the remote part of the Deccan employed a very considerable part of his leisure, during the latter part of his reign, when the whole of that region, together with the peninsula, a few mountainous and inaccessible tracts excepted, were either entirely subjected, or rendered tributary to the throne of Delhi. Aureng-Zebe was particularly induced to subdue the Deccan, by the determined spirit and growing power of Sevajee, the founder of the Mahratta state, who, by his conquests in Visapour, appeared under the character of his rival. Soon after he had quelled by

his personal presence a rebellion of the Patans beyond the Indus, in 1678, his persecution of the Hindoos stirred up the Rajpoot tribes in Agimere. This war he also undertook in person; but he and his whole army were shut up between the mountains, and the empress herself was taken prisoner. She, however, and also the emperor, were permitted to escape. This disaster did not discourage him from carrying the war into the Rajpoot country again, in 1681; when he took and destroyed Cheitore, the famous capital of the Rava, as well as all the objects of Hindoo worship which he found in this place. Nevertheless the spirits of these gallant people were still unsubdued, and Aureng-Zebe was under a necessity of granting them peace. In Mr. Orme's "Historical Fragments of the Mogul Empire," we have a letter written by Jeswont Sing, rajah of Joudypour, to Aureng-Zebe, expostulating with him on the unjust measures he was pursuing with respect to the Hindoos. This letter breathes the most admirable spirit of philanthropy, and of toleration in matters of religion, together with the most determined resolution to oppose the meditated attack on the civil and religious rights of the Hindoos. While Aureng-Zebe was engaged in his contests with the Rajpoots, consisting of several of the most warlike tribes among the Indians, his son, sultan Mahommed Akbar, revolted from him, and joined them; but he was pursued by the emperor to Deccan, from whence he found means for escaping to Persia. In the year 1680, upon the death of Sevajee, the rising state of the Mahrattas devolved on his son Sambajec, who was afterwards betrayed into the hands of Aureng-Zebe, and barbarously put to death. Still, however, the mountainous parts of Baglana were unsubdued; and although the kingdom of Visapour was reduced in 1686, and Golconda in the following year, he found it very difficult to prosecute his conquests towards the west, as we may infer from his camp's being fixed on the Kistnah river, about 200 miles to the north-east of Goa, in 1695. But we have no regular history of any later period than the 10th year of Aureng-Zebe, or the year 1670, when Mr. Dow's history terminates. It is said, that Aureng-Zebe was employed in the Deccan from the year 1678 to the time of his death, and was actually in the field during the greatest part of the last fifteen years of his life. This dereliction of his original empire and capital for nearly thirty years, was the occasion of various disorders. To this circumstance were owing the second rebellion of the Rajpoots in Agimere, that of the Patans towards the Indus, and also that of the Iats, or Iates, in the province of Agra. Besides the conquests of Visapour, Golconda, and the Carnatic, to the south; and those in the kingdom of Asam to the north, Aureng-Zebe reduced Bengal, and rescued the mouths of the Ganges from the Portuguese pirates, who had long infested them. Under his reign the empire attained its full measure of extent. His authority reached from the 10th to the 35th degree of latitude, and nearly as much in longitude; and his revenues, says major Rennell, exceeded thirty-two millions of pounds sterling, in a country where the products of the earth are about four times as cheap as in England. Fraser estimates the whole revenue of the empire from 21 soubahs, or provinces, at 12,071,876,840 dams, which at 320 dams to a pound sterling, amount to 37,724,615 l. 2s. 6d. Such indeed was the reputation for power and wealth which Aureng-Zebe acquired, that embassies were sent to him from all the neighbouring nations, as well as from the European powers, who wished to obtain commercial advantages in his dominions. But under an apprehension of the designs of his sons both against himself and against each other, he was obliged to pass most of his time

in his camp, which formed a kind of moving city. It is described by the curious traveller Bernier, who followed it from Delhi to Cashmir. The guard of cavalry consisted of 35,000 men, that of infantry of 10,000. The number of horses, mules, and elephants, was computed at 150,000; of camels and oxen at 50,000 each; and of persons between 300,000 and 400,000. Almost all Delhi followed the court, whose magnificence supported the industry of its traders and artificers.

Aureng-Zebe fixed his residence, when in winter-quarters, at Almednagur in the Deccan; and here he died, February 21st, 1707, in the 90th year of his age. According to the directions of his will, he was buried in the cell of a holy dervise near this city: and as he professed great zeal for Mahometanism, the votaries of this religion deem it a meritorious pilgrimage to visit his tomb, particularly on the 28th of the month Zeccadih, the day on which he died. In his will, after making this declaration, "I came naked into the world, and naked I go out of it," he prohibits any ensigns or royal pomp to accompany his funeral, and any concern to be manifested by his fortunate children about a monument; and he orders 1000 rupees, about 125/. to be distributed among the poor at his funeral. Aureng-Zebe foresaw the contests that would arise between his sons for the empire; and it has been asserted that he made a partition of it among them. His will expressly intimates, that he had made a division among his children, for preventing confusion and bloodshed; and he says, that as there were two imperial seats, Agra and Delhi, whoever settled in Agra might have the provinces thereof, Deccan, Malwa, and Guzerat; and he who resided at Delhi, might have Cabul and the other provinces. Nevertheless, two letters, written by Aureng-Zebe to two of his sons a few days before his death, cited by major Rennell, indicate no intention of dividing the empire, but express in doubtful terms his apprehension of a civil war. These letters furnish this striking lesson to frail mortality, that however men may forget themselves during the tide of prosperity, a day of 'recollection' will inevitably come sooner or later. Here we are presented with the dying confession of an aged monarch, who made his way to the throne by the murder of his brethren, and the imprisonment of his father, and who, after being in peaceable possession of it, persecuted the most inoffensive part of his subjects, either through bigotry or hypocrisy. Here we behold him in the act of resigning *that*, to obtain possession of which he incurred his guilt; and presented to us as a mere sinful man, trembling on the verge of eternity; equally deploring the past, and dreading the future. How awful must his situation appear to him, when he says, 'wherever I look, I see nothing but the DIVINITY.'

Aureng-Zebe left four sons; Mauzum, afterwards emperor, under the title of Bahader Shah; Azem, and Kaum Buksh, who severally contested the empire with their elder brother; and Akbar, who had rebelled against his father, and fled to Persia. The death of their father was the signal of hostility between Mauzum and Azem; the former approached from Cabul, and the latter from the Deccan, and disputed the possession of the whole empire (for Azem had proposed a partition of it), with armies of about 300,000 men each. Near Agra it was decided by a battle, and the death of Azem. Mauzum was proclaimed emperor, and reigned between five and six years. In the course of fifty years after the death of Aureng-Zebe, a succession of weak princes and wicked ministers annihilated the extensive and mighty empire which he had established.

Aureng-Zebe possessed many talents which qualified him

for governing a large empire. He was sober, active, and resolute, and though he was not scrupulous as to the means by which he acquired power, he was generally mild in the exercise of it; but he allowed his subordinate governors and omrahs to oppress the people with impunity. In the observance of the outward ceremonies of religion, he was rigidly exact; and his zeal for making proselytes, whatever were the views in which it originated, led him to adopt measures of violence and persecution. In his dress, he was plain; in his mode of living, abstemious; in his ordinary occupations, when his military enterprises afforded him intervals of leisure, he condescended to employ himself in making caps, which he distributed among the great lords of his court. The traveller Gemelli Carreri, who saw him in 1695, gives the following description of his person. "He was of a low stature, with a large nose, a white beard, and olive complexion. He was slender, and stooping with age, and supported himself on a staff; yet he endoried petitions without spectacles, and by his cheerful countenance seemed pleased with doing business at a public audience." Frazer's History of Nadir Shah, &c. p. 29—39. Rennell's Memoir of a Map of Hindostan, introd. p. 61.—64. Mod. Un. Hist. vol. v. p. 426—442.

AUREOLA, the crown of glory, given by painters and statues to saints, martyrs, and confessors, as a mark of the victory which they have obtained.

F. Sirmond says, this custom was borrowed from the heathens, who used to encase the heads of their deities with such rays.

AUREOLARIA, in *Entomology*, a species of PHALÆNA (*Geometra*) of a small size, that inhabits Germany. The wings are deep yellow, with three streaks and the margin brown. Fabricius.

AUREOLUS, MANIUS ACILIUS, in *Biography*, a native of Dacia, was advanced from the humble occupation of a shepherd, by enlisting in the Roman army, to the command of a body of cavalry, and distinguished himself by the service he performed to the emperor Gallienus, in a battle against the rebel Ingenuus. Whilst he commanded in Illyricum, he defeated Macrianus, who assumed the purple, and continued to maintain a partial attachment to Gallienus. At length, A.D. 268, a considerable army, stationed on the Upper Danube, invested with the imperial purple their leader Aureolus; who, disdaining a confined and barren reign over the mountains of Rætia, passed the Alps, occupied Milan, threatened Rome, and challenged Gallienus to dispute in the field the sovereignty of Italy. Defeated by the emperor in a battle near Milan, Aureolus retired into the city; and during the siege, he contrived to form a conspiracy in the besieging army of Gallienus, which terminated in his death. Upon the accession of Claudius II. Aureolus was compelled to deliver up the city and himself to the discretion of the new emperor. The judgment of the army pronounced him worthy of death; and Claudius, after a feeble resistance, consented to the execution of the sentence. Crevier's Hist. Emp. vol. ix. p. 77, &c. Gibbon's Hist. vol. ii. p. 2—7.

AUREOLUS, in *Entomology*, a species of SCARABÆUS, of a depressed and somewhat angulated shape, and powdered with gold; thorax and shells dotted with black. Inhabits Dauria. Pallas.

AUREOLUS Pons, now PONTIROLE, in *Geography*, a bridge of Italy over the Adda, 13 miles from Bergamo, and 32 from Milan, near which the usurper Aureolus was defeated by the army of the emperor Gallienus. Near this place, in 1703, the obstinate battle of Cassano was fought between the French and the Austrians.

AURESS, AUREZ, or EYRES, JIBBEL, the name given to

to the mons Aurafius of the middle age, and the mons Audus of Ptolemy, being a part of the ATLAS, extending southward from Constantina, quite to Biledulgerid. See AUREUS.

AURETTE, a river of France, which runs into the Eure, near Bourges.

AUREUS, in *Entomology*, a species of STAPHYLINUS, that inhabits Siam. The head, thorax, and wing-cases, are covered with yellowish or golden down; abdomen black, fasciated with ash-colour. Fabricius, &c.

AUREUS, *Mont.* in *Geography*, a mountain of Mœsia Prima, near the Danube.—And also, a town of the same name at the foot of it on the same river.—Also, a mountain of the northern part of the island of Corsica, the ridge of which runs out to the north-east and south-east, and forms a kind of elbow. The emperor Probus planted vines on this mountain. Ptolemy.

AUREUS, in *Ichthyology*, a very splendid species of CHÆTODON, figured and described by Bloch in his History of Fishes, under the title of C. aureus, and la bandoulière dorée. This author acquaints us, that he found the drawing of this species amongst the designs of father Plumier, and that it inhabits the Antilles, but of its history he is entirely ignorant.

The body is of an oval form, golden-yellow colour, and covered with hard denticulated scales; the mouth is small, lips strong, and jaws furnished with setaceous teeth; gill-cover of a single piece; lateral line rather arched; fins yellow, green at the end; pectoral and tail fin rounded, the others falcated; in the dorsal fin twelve rays.—It is specifically distinguished by being of a golden colour, and having a spine near the cheek bone. Gmelin, Bloch, &c.

AUREUS, in *Natural History*, a species of LIMAX, that inhabits trees in Denmark and Norway, and described by Müll. as being yellow, and without spots. This creature is an inch and a half in length; beneath white; feelers, and a line between them, black.

AUREUS, in *Ornithology*, a species of ORIOLUS in the Linnæan system, and Paradise bird in that of Latham. A bird that is supposed to inhabit New Guinea. General colour tawny yellow, with the frontlet, chin, edges of the wings, and tail black.—*Obs.* The length of this bird is eight inches; bill an inch long, and rather bent; shafts of the tail feathers, and fringe, near the tip yellow. This is the golden paradise bird of Latham; le troupiale des Indes of Brisson; and le rolhier de paradis of Buffon.

AUREUS, a species of PSITTACUS, that inhabits Brasil, and is called by English naturalists the golden-crowned parakeet. This kind is green, with the cere and orbits blueish-flesh colour; crown golden; an oblique blue band on the wing-coverts. Gmelin. Brisson calls it psittaca Brasiliensis; and Buff. perruche couronnée d'or.

AUREUS, in *Zoology*, the species of CANIS usually called the JACKAL; an animal about the size of a middling dog, and specifically distinguished by having a strait tail, and body pale fulvous. Schreber Sacugth.—Gmel. &c. Kæmpfer calls it lupus aureus; Valent. vulpes Indiz Orientalis; Brisson. adil; Buffon, chæcal, adive; Vosmaer, chien sauvage Indien; and Gmel. and Penn. schakall, &c.

This animal inhabits the warmer parts of Asia and Africa, lurking among the woods and mountains in the day-time, and venturing out in search of prey only during the night; when they assemble together in herds to the amount of two or three hundred, and indiscriminately attack and devour the lesser kinds of animals and birds; and will occasionally eat also certain kinds of vegetables. The voice of the jackal is described as peculiarly hideous, consisting of a kind of howl-

ing and indistinct barking; and when they hunt in troops, by their dreadful yellings alarm and put to flight deer, antelopes, and other timid quadrupeds; while the lion, instinctively attending to the clamour, is said to follow till the jackals have hunted down the prey, and having fatiated himself, leaves only the mangled remains to be devoured by the jackals. It is for this reason, Dr. Shaw observes, that the jackals is popularly termed the lion's provider. When pressed by hunger, jackals have been frequently known to enter towns, and devour indiscriminately whatever animal substance they can find. They commit ravages among the flocks, kill fowls, &c. and have been known to attack mankind.

There is great reason, according to Dr. Shaw, for supposing this animal to be the real origin of the dog, since almost all its manners and propensities are the same. When taken young, it is easily tamed; attaches itself to mankind, distinguishes its master, comes on being called by its name, shews an attachment to dogs instead of flying from them, and has all the other peculiarities of character by which the dog is distinguished; amongst others, the important observation of professor Guldensmidt, who has given an accurate description of the jackal in the Petersburg Transactions, should by no means be omitted, viz. that the jackal and dog agree in the structure of the coecum or short intestine, and differ in that respect both from the wolf and the fox.

Dr. Pallas has favoured the world with an accurate description of this animal. In external figure, he remarks, the jackal resembles the wolf more than the fox. It is also larger and stands higher on its legs than the fox. The head is of a fox-red colour above, mixed with ash-grey hairs which have each a blackish ring and tip; the upper lip is white on each side of the nose, and the throat is of the same colour; the whiskers, the long hairs on the chin, and those above the eyes, which are five in number, are black; the ears are fox-red externally, and white internally; the neck and back are all over grey-yellow, and both, but especially the latter, are dashed with a shade of dusky, owing to the tips of the long hairs on those parts; the under part of the body, and the legs, are of a light reddish yellow, but the shoulders and thighs are externally of a fox-red; the claws are black; the thumb claw stands higher than that of the dog, and is crooked; the tail is straight, somewhat longer and more hairy than in the wolf, and is of a greyish-yellow, more inclining to fox-red towards the end; the long hairs have black tips, and consequently the tip of the tail appears black; the hair of the jackal is coarser and stronger than that of the wolf, and is longest on the shoulders and tail, where it measures four inches; on the neck and back it is shorter by an inch; between the hairs is situated a woolly fur of a grey colour; the four middle front teeth are of a truncated form, or, as if cut off, flat, not perceptibly notched or indented; the two exterior larger ones in the upper jaw are somewhat larger than the under; the grinders are six on each side, the first being the smallest, and of a conical shape; the next grinders, to the number of two in the upper, and three in the lower, are gradually larger, and divided into three points; the fourth of the upper jaw and the fifth of the under are the largest, and have two points; the remaining ones stand deeper in the jaw or more inwards, and are smaller than the preceding; the tongue has, on each side, a border or row of small verrucæ or warts.

Mr. Pennant describes the usual length of the jackal to be about two feet and a half; the female rather smaller than the male, and with from six to eight paps. Dr. Pallas counted in a young jackal three teats on one side, and four

on the other, of which the foremost one was situated near the side of the breast.

The more we consider the nature and manners of this animal, says Dr. Shaw, the more reason we shall find to coincide with professor Guldenstadt in opinion, that the jackal is the real origin of the dog (unless, indeed, we allow the wild dogs of Africa to be the dog in a state of nature). M. Guldenstadt very properly observes, that the natale solum of the wolf does not seem to fit it for the supposed origin of the dog, since it is generally confined to the frigid zone; its size is also against the supposition; for the natural size of any species of animal appears to be between that of the large and small varieties. The fox is still more unlike the dog, as to some particulars in the structure of the intestines; the native country of the jackal, which is properly Asia Minor, is the land where we should naturally suppose the principal domestic dog to have originated. The jackal, according to M. Guldenstadt, has a natural propensity to follow mankind, instead of flying from him, like the wolf and the fox. The whelp, he adds, is very readily tamed, and when grown up, assumes all the habits of the domestic dog. That the jackal and dog readily intermix, appears from various testimonies, according to Buffon. M. Guldenstadt cannot consider the recurvate tail as a specific character of the dog, but thinks it may have originated from cicuration. The general colour of the jackals, which this author has seen, is a dirty fulvous, rather blacker on the back, and yellowish-white beneath; on each knee in general a black patch, and the tip of the tail of the same colour.

AUREUS, in *Antiquity*, the Roman gold coin, equivalent to 25 denarii, or 100 sesterces. Suet. in Oth. c. iv. Tacit. Hist. lib. i. Beverin. de Ponder. p. 33, seq.

In *Modern and Middle Age Writers*, it is called *solidus*, or *solidus aureus*.

The aureus, according to Arbuthnot, generally weighed double the denarius; whence it must have been worth, according to the first proportion of coinage mentioned by Pliny, 1*l.* 4*s.* 3*d.* sterling.—According to the proportion that now obtains among us, 1*l.* 0*s.* 9*d.* Plin. lib. xxxiii. c. 3. Arbuth. tab. 25.—Ainsworth, however, makes the aurei (denarii) of the higher empire, weigh only five penny-weights; and under the lower empire, little more than half so much.

The weight of the aureus was gradually diminished by the emperors. The consular aureus weighed at a mean 126 troy grains, 40 of them being contained in the Roman pound; the imperial aureus, being 45 to the pound, weighed 112 grains; and the solidus, being 72 to the pound, weighed 70 grains. Alexander Severus coined pieces of one-half and one-third of the aureus, called semisses and tremisses; whence the aureus came to be called solidus, as being their integer. Phil. Transf. vol. lxi. part ii. art. 42. See COIN, and DENARIUS.

AURIA, VINCENT, in *Biography*, an Italian historian, was born at Palermo in 1625, devoted himself to the profession of the law, and was admitted doctor of laws at Catania, in 1652. He afterwards relinquished this employment, and possessing a liberal fortune, dedicated his time to literature. His works were chiefly Italian, and partly Latin, on subjects of history and antiquities. Those in highest estimation are "An History of the Great Men in Sicily," 4to., Palermo, 1704; and "An History of the Viceroys of Sicily," fol. Palermo, 1697. Nouv. Dict. Hist.

AURICELLA, in *Entomology*, a species of PHALÆNA (*Tinea*) found in France. It is snowy-white, with testaceous streaks on the wings, and a projecting tuft of hairs on the first joint of the antennæ.

AURICH, in *Geography*, a town of Germany, in the circle of Westphalia, and county of East Friesland, ten miles north-east of Emden. It is encompassed with forests that abound with game. N. lat. 53° 28'. E. long. 6° 50'.

AURICHALCEUS, in *Entomology*, a species of SCARABÆUS, of a brassy-opake colour, wing-cases pointed and spotted with white. Fabricius. Inhabits the East-Indies.

AURICHALCEUS, a species of CERAMBYX (*Callidium* Fabr.) of a small size. It is brassy-brown and shining; thorax depressed; antennæ and legs black. Degeer.

AURICHALCEUS, a species of CARABUS that inhabits Denmark. It is of a yellowish colour, and brassy above. Müll. Zool. Dan.

AURICHALCUM. See ORICHALCUM.

AURICLE, AURICULA, in *Anatomy*, the external ear, or that part of the ear which is prominent from the head. The word is a diminution of *auris*, ear; for the description of this part, see EAR.

AURICLE, is also applied, by the English anatomists, to denote those cavities of the heart into which the veins pour their blood: but foreign anatomists call these cavities venous sinuses, and apply the word auricle to those little processes of the general cavity which resemble an animal's ear in shape. See HEART.

AURICOLLIS, in *Ornithology*, a species of MOTACILLA. Colour above olive, beneath orange; belly yellowish; vent whitish; greater wing-coverts, and middle tail-feathers ash-colour; lateral ones white within, without and at the tips black. Inhabits Canada. Gmelin.

AURICOMA, in *Entomology*, a species of PHALÆNA (*Noctua*), with wings of a greyish-brown colour; upper pair marked with black, in streaks and characters; legs annulated with white at the tip. Gmel. &c.

AURICULA LEPORIS, in *Botany*. See BUPHTHALMUM, and BUPLEURUM.

AURICULA MURIS. See ARENARIA, CERASTIUM, HIERACIUM, MYOSOTIS, and SILENE.

AURICULA URSL. See ARCTIA, PRIMULA, DODECATHÉON, and VERBASCUM.

AURICULA, in *Conchology*, a species of CARDIUM, with a white and very pellucid shell, that is found on the shores of Arabia and Egypt. It is heart-shaped and sub-rhombic; ribs twenty-four on each side; the grooves very finely crenulated; beaks remote. Forsk. About two inches and a quarter in length, and one inch and three quarters in breadth.

AURICULA, a species of PATELLA, with a subrotund shell, radiated with furrows and striæ; apex recurved; internal cavity ear-shaped. Inhabits the shores of the islands of Borneo, Santa Cruz, and St. Thomas. This shell is snowy-white, with the crown sometimes encircled with violet; sometimes radiated with black; brown within; border white or yellow; and the vertex brown. Gmelin, &c.

AURICULA, in *Gardening*, a well-known beautiful plant of the flower kind. This is considered in the Linnæan system as a species of primula. See PRIMULA.

The variety of this plant are extremely numerous, as every year produces a great number of flowers, different in shape, size, and colour; in the leaves also there is often great variety, so that the experienced florist is frequently capable of distinguishing the particular sorts by that means. The characters of a good auricula are, that the stems of the flowers be lofty and strong; the footstalks of the single flowers short, with the umbels regular and close; the neck of each flower short, and the flowers large, regular, and spreading, but not inclinable to cup; the colours very bright

and well mixed; the eye of the flower large, round, and of a good white or yellow, with the tube or neck not too wide. Such flowers as want any of these properties are constantly rejected by experienced florists; and as the varieties every year increase from seeds, the bad ones are turned out to make room for such as are good. The proper time for sowing the seed is commonly about August; but a month or two later will answer the purpose. The most proper soil for it is a good light, fresh, sandy mould, mixed with very rotten farm-yard dung, or well rotted dung from the bottom of old hot-beds. The manner of propagating these flowers, when thus obtained, is by offsets or slips, taken from the old roots in April, when the flowers are in full blow. As those plants which have strong single heads always produce the largest clusters of flowers, the curious florists pull off the offsets as soon as it can be done with safety to the plant, in order to encourage them to flower stronger. But in order to have them to flower in the greatest perfection, they should be preserved from too much wet in winter, and have free air, and not too much sun. And in the beginning of February, if the weather be mild, the earth in the auricula pots should be taken off as far as it can be without disturbing the roots, and such as is new and fresh laid in its place. The pots must then be well covered with mats in the night to defend them from frosts while the plants are budding. When the stalks begin to become long, they should be defended from hasty rains, but not kept too much under cover, as it is apt to draw up the stalks too long, and make them weak. They should likewise be watered frequently, a little at a time, care being taken that none of the water falls on the plant. When the flowers begin to open, the pots should be removed to stages, formed with shelves, one above another, placed under cover, but open to the morning sun, and sheltered from the mid-day sun. They may remain in this situation till their flowering is over, and then be set out to have the benefit of the rains and free air, for the ripening of their seeds, which should be carefully preserved and spread on paper to dry before they are put up.

AURICULA, in *Natural History*, a species of LUCERNARIA, of a shape resembling a flask, with a round neck; the lower part is very large, and encircled with eight tufts of tentaculæ or feelers. Fabr. Gron. Müll. calls this species *holothuria lagenam referens tentaculis octonis fasciculatis*. It inhabits the Greenland seas, adheres firmly to the leaves of the largest ulvæ, and rarely moves; feeds on marine insects, particularly on onisci, and is about an inch and a half in length. The body is black or reddish, and sometimes, though rarely, chestnut, glossed with gold; the mouth is white; the tufts of tentaculæ on the body black, with white tips.

AURICULA Jude, or Jew's ear, a kind of fungus or mushroom, somewhat resembling, in figure, a human ear.

It grows on old elder trees, the tree on which, as some pretend, Judas hanged himself; and hence, they think, the name is derived.

This fungus steeped in water, and applied to the eyes, is said to free them of inflammations; but its chief use is under the form of a gargle in decoctions, against inflammations of the throat, or swelling of the tonsils.

AURICULÆ Alvearium. See ALVEARIUM.

AURICULÆ, *primus musculus*, in *Anatomy*, the name given by Fallopius to the *attollens auriculam*. He also calls the *retrahentes auriculam* the *secundus musculus*.

AURICULUM Retrahens. See RETRAHENS.

AURICULAR, something that relates to the ears.

Thus we say, an auricular witness, *auritis testis*, a witness by hearsay.

AURICULAR Confession, is that made in the ear privately.

AURICULAR Medicines, are such as are suited to the cure of distempers of the ear.

AURICULARIA, in *Botany*. See HEDYOTIS.

AURICULARIA, in *Conchology*, a species of HELIX, or fresh-water snail, found in stagnant waters in Europe. This shell is imperforate, obtusely-ovate, with a short and acute spire, and capacious aperture. Lin. Faun. Suec. Müll. Zool. Dan. Donovan. Brit. Shells, &c. It is a very thin and brittle shell, rather pellucid, and of a horny or whitish colour; length from half an inch to an inch and a quarter, and easily known by the very ventricose appearance of the first whorl.

AURICULARIA, in *Entomology*, a species of FORFICULA, that is perfectly known in England by the name of common ear-wig, or ear-piercer, from an opinion generally prevalent that it creeps into the ears, and thence into the brain, of people who inadvertently lie down to sleep in fields, gardens, and other places which those creatures inhabit. It is specifically distinguished from other insects of the same genus by having the wing-cases white, and fourteen joints in the antennæ. Lister calls it *scarabæus subrufus cauda furcata*; and Frisch vermis auricularius.

The ear-wig is a very destructive creature, both in the orchard and flower-garden, and especially to wall-fruit, carnations, and roses. In order to prevent the mischief attending them, it is usual to erect stands supporting basons of water, or to hang the hollow claws of crabs or lobsters, tobacco pipes, &c. on sticks in different parts of the garden, for them to creep into in the day-time, in order to catch and destroy them. Reeds open at both ends, and placed among the branches of fruit-trees, are also a good trap for them, as they crowd into their open channels, and may be easily collected and thrown into a tub of water.

That the ear-wig or ear-piercer will creep into the ears of such as sleep in the open air, in those places where they inhabit cannot be denied; but those who are acquainted with the anatomy of the head, assert that it is impossible it can ever enter the brain, because, say they, there is no open communication between the ear and the brain, and the jaws of the insect are too weak to effect one. In France the same prejudice prevails against this creature, among the lower orders of people, as in England; and, as with us, it is called from that circumstance the ear-piercer (*perce-oreille*). Its most formidable weapon, in their opinion, is the pair of forceps at the extremity of the body, a character peculiar to the genus, and not to this particular species. "C'est cette armure," says Degeer, "qui a fait donner a ces insectes le nom de forficula, et en françois le nom redoutable de perce-oreille, parce qu'on s'est imaginé que cet insecte s'introduisoit dans les oreilles, que de là il pénétrait dans le cerveau & faisoit périr. Ceux qui sçavant l'anatomie, connoissent l'impossibilité d'une pareille introduction dans l'intérieur du crâne, attendu qu'il n'y a point d'ouverture qui y communiquent; mais là frayer de quelqu'un, à qui un de ces insectes sera par hasard entré dans la conduit de l'oreille, aura pu donner lieu a cette fable, &c."

The use of the forceps, with which the ear-wig is furnished, is to defend itself against other small insects, and when touched it never fails to display them in a threatening posture, by turning up the extremity of its abdomen. The larva differs very little from the complete insect, and runs with great agility.

AURICULARIS Abductor, in *Anatomy*. See ABDUCTOR.

The finger next the little finger is also called auricularis, by the Greeks *αυρις*, because used in picking the ear.

AURICU-

AURICULATA, in *Natural History*, a species of **VORTICELLA** that inhabits the fresh waters of Denmark. It is naked, with two small bristles at the tail. Müll. Hist. Verm. This kind is pellucid, cylindrical; the aperture dilated into a small ear on each side.

AURICULATA, a species of **DORIS**, of a white colour, with dorsal fasciculate papillæ of a red colour tipped with white. This kind inhabits the North seas. Gmelin.

AURICULATED Leaf, in *Botany*, is a leaf which has a lobe on each side towards the base.

AURIENSIS, in *Ancient Geography*, an episcopal city of Africa, in Mauritania.

AURIFER, in *Entomology*, a species of **CURCULIO**, with a ferruginous body spotted with gold. Fabricius, Sp. Inf. Inhabits America, and has the front legs long.

AURIFER, a beautiful species of **BUPRESTIS** that inhabits Cayenne. The wing-cases are green, with numerous impressed golden dots, and each terminating in two teeth; legs azure. Fabricius. Oliver.

AURIFLAMMA, in the *French History*, properly denotes a flag or standard, belonging to the abbey of St. Dennis, suspended over the tomb of that saint, which the religious, on occasion of any war in defence of their lands or rights, took down, with great ceremony, and gave to their protector or advocate, to be borne at the head of their forces. Du-Cange.

AURIFLAMMA is also sometimes used to denote the chief flag or standard, in any army.

AURIFLUA, in *Entomology*, a species of **PHALÆNA** (*Bombyx*), that infests the apple-trees in Germany, and bears a strong resemblance to *phalæna chrysothorax*. The wings are white, with a brown rib on the under side of the anterior pair; tail bearded and yellow. The larva is hairy, black, with red lines, and white dots on the sides; a protuberance on the neck, and another near the tail. Gmelin.

AURIGA, in *Astronomy*, the *Waggoner*; a constellation of stars in the northern hemisphere: whose stars, in Ptolemy's catalogue, at 14; in Tycho's, 27; in Hevelius's, 40; in the Britannic catalogue, 66. This is one of the 48 asterisms, mentioned by all the ancient astronomers; and represented by the figure of an old man in a kind of sitting posture, with a goat and her kids in his left hand, and a bridle in his right. Besides the Hoedi, this constellation includes another of the stars which the ancients distinguished by peculiar names, that is, Capella, the goat Capra, and Amalthæa Capra, which is the bright one near the shoulder, and supposed to be the mother of the Hoedi, and the nurse of Jupiter. The Hoedi, or the two stars in the arm of Auriga, were regarded by the ancients as affording presages of the weather; and they were so much dreaded on account of the storms and tempests that succeeded their rising, that they are said to shut up the navigation of the sea at this season. When the day of their peculiar influence was passed, they celebrated a festival with sports and games, under the denomination of "Natalis Navigationis." Germanicus calls them unfriendly stars to mariners; and Virgil joins them with Arcturus, mentioning their setting and rising as circumstances of the most important presage. To the same purpose all the ancient critics represent a part of the constellation Auriga, if not the whole of it, as deserving particular attention, and as much an object of terror as the blazing Arcturus.

AURIGA, in *Ichthyology*, a species of **CHÆTODON**, found in the Arabian seas. It is whitish, obliquely fasciated with brown; and the fifth ray of the dorsal fin, filiform. Forsk. Fn. Arab.

The length of this fish is five inches; form nearly rhombic; whitish colour tinged with blue: the brown oblique bands sixteen in number, and disposed nearly parallel to

each other. The scales are rhombic; head banded, above flat, scaly, of a reddish white colour, with four transverse fulvous stripes; iris black; mouth conic and compressed; lip rotundated and equal; posterior margin of the dorsal fin black; and fin varied with black and yellowish-white; tail truncated and fulvous; lateral line bent.

AURIGNAC, in *Geography*, a town of France, in the department of the Upper Garonne, and chief place of a canton in the district of St. Gaudens, 33 miles south-west of Toulouse, and 10 north-east of St. Gaudens. The place contains 1225 and the canton 10,089 inhabitants; the territory includes 192½ kilometres and 23 communes.

AVRIGNY, **HYACINTH ROBILLARD**, in *Biography*, a French historian, was born at Caen, in 1675, became a member of the society of Jesuits in 1691, and died in 1710. His works, comprised in four volumes 12mo. printed at Paris in 1725 and in 1757, are "Memoirs, chronological and dogmatical, for Ecclesiastical History, from 1600 to 1716," with critical remarks; and "Memoirs for the Universal History of Europe," for the same period. They are much valued for variety of materials, accuracy of dates, and elegance of style; but are not deemed impartial. Nouv. Dict. Hist.

AURIGRAPHUS, from *aurum*, gold, and *γράφω*, I write, in *Middle Age Writers*, a copyist, or calligrapher, who wrote in gold letters.

AURILLAC, in *Geography*, a town of France, and principal place of a district in the department of Cantal, and, before the revolution, the capital of Lower Auvergne. It is situated on the river Jordane, in a fertile valley; and the castle, which is high, commands the town. The place contains 10,357 and its two cantons 29,235 inhabitants; its whole territory includes 390 kilometres, and the north canton 9, and the south canton 11 communes. N. lat. 44° 55'. E. long. 2° 27'.

AVRILLE, a town of France, in the department of the Mayne and Loire, and chief place of a canton in the district of Angers, one league north of Angers.

AURINIA, in *Ancient Geography*, a town of Italy, in Etruria.

AURIOL, in *Geography*, a town of France, in the department of the Mouths of the Rhone, and chief place of a canton in the district of Aix, four leagues south-east of Aix, and four N.N.E. of Marseilles.

AURIPIGMENT, called also *Orpiment*. See **ARSENIC**, *Ores* of, sp. 3. var. 2.

AURIS, the ear. See **EAR**.

AURIS DIANÆ, in *Conchology*, a species of **STROMBUS**, adopted by Linnæus and Gmelin, after Argeville. The lip projects into a sharp point; back muricated; tail erect and pointed. Linn. Inhabits the southern coasts of Africa; is about three inches long; thick; seldom of one colour, but variegated; on the back are generally three, and sometimes four, rows of tubercles, with the interstices transversely ribbed; and the outer whorl cancellated; mouth flesh-colour; pillar white. Gmelin, &c.

AURIS HIRSUTA, a name given by Rumpfius to the shell, since called *murex anus* by Linn. and Gmel. and *grimace* by Argeville.

AURIS JUDÆ, a species of **VOLUTA**, with a contracted oblong shell, having a smooth spire, and tridentated pillar-lip. Linn. Mus. Lud.—Müll. describes it as *helix testa cylindrica subgranulata, apertura lanceolata, labro ad axin tridentato*. This shell inhabits the fens in India, and resembles *voluta auris midæ*, but is smaller, and narrower. The colour is brown, or white with brown waved spots; whorls of six spires, the first and exterior ones very finely striated. Gmelin.

AURIS MALCHI, a species of **VOLUTA**, about three inches in length, and is a native of New Caledonia. The shell

shell is fusiform, granulated, with an ovate aperture; pillar-lip cut and much spread. This is called *helix auris malchii* by Müll; verm. fluvi. et terr. Chemnitz figures it, and two varieties of the same species, tab. 121. Conch.

AURIS MIDA, a species of VOLUTA, found in India, where it inhabits marshy woods and swamps, and in its manners resembles an helix. The shell is contracted, oval-oblong, spire rugose, pillar-lip bidentated. This is *Helix testis fusiformi granulata, apertura lanceolata, labro ad axin bidentato* of Müll. verm. fluvi. et terr.—*Auris mida* of Rumpfius; and *auricula mida* of Argenville. Lister figures one variety of this species in pl. 577. Conch. and Chemnitz another, tab. 149. f. 1395, 1396.

The length of this kind is four inches; it is brown, solid, rugose, or striated; spire large; whorls from six to nine, each terminating in a granulated band; the outer ones cancellated; aperture long, and widest beneath.

AURIS PORCI, a name synonymous with *Crista galli*, &c. and given by Argenville to the species of *Mytilus* called by Gmelin, *M. crista galli*.

AURIS SILENI, a species of VOLUTA, about two inches in length; of a ventricose form, and short; colour brown, with longitudinal undulated striae of a chestnut colour; aperture ovate, and spire obtuse. It is specifically described as being an oval, gibbous, unbilicated shell, with a single thick and flexuous plait on the pillar-lip. Born. Mus. This is called in England Silenus's ear-shell. Its country is unknown.

AURIS MARINA, or sea ear-shell, a vague term for several shells of the HALIOTIS genus, but chiefly for the species *interculata*, which is common in the Mediterranean, and is found, though rarely, on the western coasts of England. Dorov. Brit. Shells, &c.

AURISCALPIUM, a species of TURBO, that inhabits the Mediterranean sea. This shell is white, and very smooth; aperture with an advanced flattish, concave, obtuse lip. Gmel. &c. This kind is milky-white and tubulate; whorls of the spire seven or eight; aperture dilated, and resembling an ear-picker; with a margin.

AURISCALPIUM, an instrument wherewith to pick and cleanse the ear from wax; and also serving for some other operations relating to that part.

The word is compounded of *auris*, ear, and *scalpo*, I scratch, or pick.

AURISPA, JOHN, in *Biography*, was born in 1369, at Noto, in Sicily. He studied the Greek language at Constantinople; and on his return to Italy, brought with him more than 100 Greek MSS. chiefly of Pagan writers, which were more easily obtained than the writings of Christians; after a second visit to Constantinople in the train of the emperor John Palæologus, he taught the Greek and Latin languages at Bologna, Florence, and Ferrara. He was secretary to pope Eugenius IV. and Nicholas V. and enjoyed benefices in Sicily. After the death of the latter, who was his patron, he returned to Ferrara, and continued to teach and write till the time of his death in 1460. He translated some of the writings of Archimedes, and the commentaries of Hierocles on the golden verses of Pythagoras; and published poems and letters. His version of Hierocles was printed at Basle in 1543. Nouv. Dict. Hist. Gen. Biog.

AURIST, in *Medicine and Surgery*, one whose profession it is to cure diseases of the ear.

AURITA, in *Conchology*, a species of BALANUS, that inhabits the North Seas, and is described by Ellis. This shell is membranaceous, ventricose, seated on a tube, and eared; mouth with eight valves, and dentated. Gmelin, &c.—Ellis call this *lepas nuda comosa aurita*.

AURITA, a species of ANOMIA, with a shell of a somewhat ovate form, striated, and slightly eared; beak per-

forated. Gaalt. Inhabits the seas about Norway, and bears some affinity to another species of the same genus, called by Linn. and Gmel. *caput serpentinis*.

AURITA, a species of MYA, that inhabits New Zealand. The shell is ovate, compressed, and closed; hinge with two lateral teeth. Chemnitz. Colour fordid ochraceous.

AURITA, in *Entomology*, a species of PIMELIA, with the thorax margined, dilated in front; each side on the wing-cases bicarinated. Inhabits Siberia, and is entirely of a black colour. Pallas, &c.

AURITA, a species of PHALÆNA (*Noctua*) that inhabits Spain. The wings are shining-brown, with a cinereous band in the middle; two denticles of stiff hairs on the head, and four others on the thorax. Fabricius, &c.

AURITA, a species of CICADA that inhabits Europe. The thorax is dilated into the form of two ears; shield of the head spreading, and rounded. Geoffroy calls this cicada thorace obtuse bicorni. It feeds on the oak and nut trees, and is entirely of a cinereous colour. Gmel. &c.

AURITA, in *Natural History*, a species of MEDUSA, having four cavities beneath. Linn. Fn. Suec. This kind inhabits the Baltic and other seas; is of an hemispherical form; hyaline; from two to four inches in diameter; and when floating on the sea in sunshine, reflects a beautiful splendor. The margins are fringed and yellow. Aldrovandus calls this *urtica sexta*.

AURITA, in *Zoology*, a species of LACERTA that inhabits the sandy parts of Siberia about Naryn, and the desert of Comani. It is described by Pallas as having a tail of a moderate size, round, with callous dots on each side, dilated into a semiorbicular, soft, scabrous, dentated crest. This animal is rather larger than *lacerta gecko*; the colour above is cinereous and yellowish, clouded, and thickly speckled with brown; beneath whitish; spot on the chest, and tip of the tail beneath, black. The head is retuse; crest of the animal, when alive, turgid with blood; body ventricose and depressed, and with the legs and tail rough, with acute prominent dots; toes five, each furnished with a claw, and the three middle-most ones serrated, the inner one having a single notch, and the others two notches each. Gmelin, &c.

AURITÆ, called also HYKSOS, and SHEPHERDS, in *Ancient History*, the denomination of a large body of adventurers who migrated into Egypt at a very early period. Ancient and modern writers have not agreed in their conjectures concerning these enterprising and fortunate people. Manetho supposes the Auritæ to have been Arabians; but the learned Bryant maintains that they were Arkites, who had been expelled from Babylon by the sons of Shem, at the second dispersion. Unwilling to remain at home indigent and inactive, or unable to resist the shock of some powerful foe, they abandoned a region which they could no longer possess in tranquillity, precipitated themselves into Egypt, drove the disinherited tribes of Ham from the most fertile part of their territories at the upper end of the Delta, and settled there. This invasion happened soon after the Syrians had become formidable by the conquests of Ninus; for we are told that the Auritæ fortified the eastern borders of their new settlements towards Arabia and Chaldea. About this time, as all the ancient historians assert, the Delta had acquired the confidence of a morass. Drained by the shepherds, it soon became a temperate and beautiful, as it was naturally a fertile, region. For the space of two centuries and a half, this bold and enterprising race kept possession of Middle and Lower Egypt. In the course of this period they discovered, we are told, many useful arts and inventions, and from time to time sent out colonies in quest of new settlements. Two hundred and sixty years after their arrival in Egypt, the posterity of the original nations, not finding

finding sufficient accommodation in Upper Egypt, to which they had been hitherto confined, or envying the success of their fortunate invaders, commenced hostilities against them. After a long, doubtful, and bloody contest, the Auritæ were obliged to retire. They separated into several bodies, and migrated into Phœnicia, Syria, Greece, and other regions, carrying their inventions and improvements along with them. This memorable revolution happened not long before the descent of Jacob. Playfair's Chronology, p. 64. See DISPERSION of MANKIND, and SHEPHERDS.

AURITINA, in *Ancient Geography*, a town of Africa, in the Pentapolis. Ptolemy.

AURITUS, in *Entomology*, a species of *CANCER* that inhabits Iceland; and is distinguished by having a single spine on both sides of the anterior part of the thorax; back grooved, and softish. Fab. Gmel. &c.

AURITUS, a species of *CRYPTOCEPHALUS*, found on the oak in Saxony. It is black, with a yellow spot on both sides of the thorax, and shanks of the legs yellow. Fabricius.—*Obs.* This is *chrysomela aurita* of Linnæus. Syst. Nat.

AURITUS, in *Natural History*, a species of *ECHINUS* that inhabits the Persian seas. The colour is yellowish-grey, with the upper margin chestnut; base flat; punctured and marked with radiated streaks; anus oblong and situated near the mouth. It is specifically described by Leske *apud Klein echinod*, as having a waved margin, the lower one rounded, upper one nearly square, and twice divided, and a gaping pore between every two avenues.—*Geoorte stomphart*. Phell. Zee-eg, &c.

AURITUS, in *Ornithology*, a species of *TURDUS* that inhabits Cayenne, and is called *fourmilier à oreilles blanches* by Buffon, and white-eared thrush by Latham. Above, it is varied with rufous and olive; beneath white; crown and pectoral band reddish-brown; chin and throat black; streak behind the eye descending on the neck, and consisting of elongated, white, glossy feathers. Gmelin, &c. Length four inches and three quarters.

AURITUS, a species of *COLYMBUS*, with a black head, and ears crested with a tuft of ferruginous feathers. Linn. Fn. Suec.

"The length of this species is twelve inches. In England, they inhabit the fens near Spalding, where they breed; they are found in the northern parts of Europe, and in the temperate parts of Siberia in Iceland. It is said by Bougainville to be met with in the Falkland Islands, where it is called the *diver with spectacles*.

"The nest, like those of most other birds in this genus, is composed of twigs, roots, and stalks of aquatic-plants, and is usually found floating among the reeds and flags nearly filled with water. The female lays four or five small white eggs, which are hatched in the nest while it remains thus immersed in water." *Donov. Brit. Birds*, &c. C. auritus, eared grebe.

Gesner calls this species *merguli genus alterum*; and Buffon *le petit grèbe huppé*. Gmelin speaks of a variety of this species *colymbus cornutus minor* of Brisson; and *colymbus seu podiceps minor* of Will. Orn. Ray, and Albin.

AURITUS, a species of *TROCHILUS*, of a green-gold colour above, and white beneath; below the eyes a band of black; and in the male two tufts of feathers of a violet colour on each side of the head under the ears; legs downy. This is *melisuga Cayenensis* of Brisson; and *l'oiseau mouche à oreilles* of Buff. Latham describes it under the name of violet-eared humming-bird. There is a variety of this bird with a purple stripe below the eyes; near the ears a black spot, and beneath it another of blue. This species in-

habits Cayenne, and is about four inches and a half in length.

AURIUM ABSCISSIO, in *Antiquity*, cutting off the ears, was a punishment inflicted by the Saxon law on those who robbed churches; and afterwards on every thief; and at length on divers other criminals.

AUROBZMÜNSTER, in *Geography*, a town of Germany, in the circle of Bavaria, 16 miles south of Passau.

AUROCAPPILLA, in *Ornithology*, a species of *MOTACILLA*, found in St. Domingo, Jamaica, and other islands in the American seas. It is olive, beneath white; crown golden; eye-brows black; breast spotted with black. Gmelin. This is *ficcula Pennsylvanica auro capilla* of Brisson. *grivelette de S. Domingue* of Buff. and golden-crowned thrush of the Arctic Zoology.

AUROGALLUS, MATTHEW, in *Biography*, a grammarian of the 16th century, was a native of Bohemia; and became professor of languages in the university of Wittemberg. Besides the assistance he gave to Luther in translating the Bible, he wrote in Latin a "Compendium of Hebrew and Chaldean Grammar," printed at Wittemberg, in 1525, and at Basil, in 1539; and a treatise on the geography of the Holy Land, intitled "De Hebræis Urbium, Regionum, Populorum, &c. Nominibus," printed at Wittemberg, in 1526, and at Basil, in 1529. 8vo. He died in 1543. Gen. Dict.

AUROI, in *Geography*, a town of France, in the department of the Cher, 21 leagues north-west of Sancerre.

AURON, a river of France which runs into the Eure, near Bourges.

AURONITENS, in *Entomology*, a species of *CARABUS* of the apterous kind. The shells are green and rough, with raised lines; thighs rufous. Inhabits Saxony. An intermediate species between *carabus auratus*, and *nitens*.

AURONZA, in *Geography*, a town of Italy, belonging to the state of Venice, in the Cadore, seven miles north of Pieve di Cadore.

AURORA, in *Astronomy*, the morning twilight; or that faint light which begins to appear in a morning, when the sun is within eighteen degrees of the horizon.

AURORA, in *Conchology*, a very rare species of *CYPRÆA*, discovered on the coast of Otaheite by Captain Cook. It is rather ovate; margin whitish; back fine orange, and without spots. Among collectors of exotic shells, it is known by the name of *cyprea aurora*, or *morning-dawn cowry*.

AURORA, in *Entomology*, a species of *PHALÆNA*, in Abbot's *Insects of Georgia*. The upper wings are yellow; base and margin speckled with red. Smith.

AURORA, the specific name under which *PAPILIO CARDAMINES* is described by Linn. in Fn. Suec. i. n. 801.

AURORA, a species of *PAPILIO* (*Dan. Cand.*) found in Siberia. The wings are fulvous; beneath, an ocellar dot on the anterior wings, and a silvery dot, with a contiguous one still smaller in the middle of the posterior pair. Fabricius, Gmelin, &c.

AURORA, a species of *LAMPYRIS* (*Pyrochroa* Fab.), given by Herbst. as a native of Pomerania. It is black; thorax red and cancellated; wing-cases chestnut, with four elevated lines, and the intermediate spaces dotted in rows.

AURORA, in *Geography*, an island belonging to the Archipelago of the New Hebrides, in the South Pacific ocean, discovered by Bougainville, in 1768. It is about twenty leagues long, and two broad, and lies nearly north and south. Its eastern shore is steep, but it has a small bay on the north-west coast. It abounds with wood and fresh water; and is inhabited. The vegetation of this island is luxuriant. The middle of it lies in S. lat. 15° 3'. E. long. 168° 17'.

AURORA,

AURORA, in *Mythology*, the goddess of the morning, was, according to Hesiod, the daughter of Thea and Hyperion, and sister of Sol and Luna; but according to others, the daughter of Titan and Terra. Under this title the ancients deified the light which precedes the rising of the sun above our hemisphere. The poets represent her as rising out of the ocean in a chariot, drawn by two rose-coloured horses, called by Homer, Lampus and Phaton, with rosy fingers dropping gentle dew. The large veil on her head was folded backwards, to denote that the brightness of day was already advanced, so as to disperse the darkness of the night. Virgil describes her as ascending in a flame-coloured chariot with four horses.

AURORA, in *Ornithology*, a species of *PSITTACUS* that inhabits Brasil. It is yellow; arm-pits, margins of the wings, and outer great quill-feathers in the middle, red. This is *psittacus luteus* of Brisson, *perroquet jaune* of Saturne. Orn. *amazonc jaune* Buffon, and *aurora-parrot* of Latham.

The length of this bird is twelve inches; bill, cere, legs and claws white; eye-brows and irides red; tail rounded, the four exterior feathers red within from the base to the middle. Gmelin.

AURORA, in *Zoology*, a species of *COLUBER* with 179 abdominal plates, and thirty-seven subcaudal scales. This is a native of America, and is of a livid colour, with the back yellow. Gmelin. Dr. Shaw describes it as an orange-coloured snake, with yellow dorsal band and abdomen. Length about two feet and a half, and moderately thick in proportion; head rather large, and covered with very large scales; tail short, and tapering to an obtuse point.

AURORA Borealis, or **AURORA Septentrionalis**, in *Physiology*, the northern dawn or light, sometimes called *streamers*, is an extraordinary meteor, or luminous appearance, shewing itself in the night-time, in the northern part of the heavens: and most usually in frosty weather.

It is usually of a reddish colour, inclining to yellow, and sends out frequent coruscations of pale light, which seem to rise from the horizon in a pyramidal undulating form, and shoot, with great velocity, up to the zenith. This light sometimes appears remarkably red, as it happened Dec. 5, 1737, of which we have very full accounts from divers parts of Europe, in the Phil. Trans. N° 459. sect. 7. p. 583—606.

The aurora borealis appears frequently in form of an arch; chiefly in the spring and autumn; after a dry year.—The arch is partly bright, partly dark; but generally transparent. And the matter of which it consists is also found to have no effect on the rays of light which pass through it. Dr. Hamilton observes, that he could plainly discern the smallest speck in the Pleiades through the density of those clouds which formed the aurora borealis in 1763, without the least diminution of its splendor, or increase of twinkling. Phil. Essays, Ess. iii. p. 106.

Sometimes it produces an iris.—M. Godin judges, that most of the extraordinary meteors and appearances in the skies, related as prodigies by historians, e. gr. battles, and the like, may be probably enough reduced to the class of aurora boreales. Vide Hist. Acad. R. Scienc. an. 1762. p. 405.

This kind of meteor, which is more uncommon as we approach towards the equator; is almost constant during the long winter, and appears with the greatest lustre in the polar regions.

In the Shetland isles, the “merry dancers,” as the northern lights are there called, are the constant attendants of clear evenings, and afford great relief amidst the gloom of the long winter nights. They commonly appear at twilight, near the horizon, of a dun colour, approaching to yellow; they some-

times continue in that state for several hours, without any perceptible motion; and afterwards they break out into streams of stronger light, spreading into columns, and altering slowly into 10,000 different shapes, and varying their colours from all the tints of yellow to the most obscure russet. They often cover the whole hemisphere, and then exhibit the most brilliant appearance. Their motions at this time are most amazingly quick; and they astonish the spectator with the rapid change of their form. They break out in places where none were seen before, skimming briskly along the heavens, are suddenly extinguished, and are succeeded by an uniform dusky tract. This again is brilliantly illuminated in the same manner, and as suddenly left a dark space. In some nights, they assume the appearance of large columns, on one side of the deepest yellow, and on the other, gradually changing till it becomes undistinguished from the sky. They have generally a strong tremulous motion from one end to the other, and this continues till the whole vanishes. As for us, who see only the extremities of these northern phenomena, we can have but a faint idea of their splendor and motions. According to the state of the atmosphere, they differ in colour; and sometimes assuming the colour of blood, they make a dreadful appearance. The rustic sages, who observe them, become prophetic, and terrify the spectators with alarms of war, pestilence, and famine: nor, indeed, were these superstitious prefaces peculiar to the northern islands: appearances of a similar nature are of ancient date; and they were distinguished by the appellations of “phasmata,” “trabes,” and “bolides,” according to their forms and colours. In old times they were either more rare, or less frequently noticed: but when they occurred, they were supposed to portend great events, and the timid imagination formed of them aerial conflicts.

In the northern latitudes of Sweden and Lapland, the aurora borealis are not only singularly beautiful in their appearance, but afford travellers by their almost constant effulgence a very beautiful light during the whole night. In Hudson's bay, the aurora borealis diffuses a variegated splendor, which is said to equal that of the full moon. In the north-eastern parts of Siberia, according to the description of Gmelin (*Reise durch Siberien*, vol. iii. p. 135.), cited and translated by Dr. Blagden (*Phil. Trans.* vol. lxxiv. p. 228.) these northern lights are observed to “begin with single bright pillars, rising in the north, and almost at the same time in the north-east, which gradually increasing comprehend a large space of the heavens, rush about from place to place with incredible velocity, and finally almost cover the whole sky up to the zenith, and produce an appearance as if a vast tent was expanded in the heavens, glittering with gold, rubies, and sapphire. A more beautiful spectacle cannot be painted; but whoever should see such a northern light for the first time, could not behold it without terror. For however fine the illuminations may be, it is attended, as I have learned from the relation of many persons, with such a hissing, cracking, and rushing noise through the air, as if the largest fire-works were playing off. To describe what they then hear, they make use of the expression “*spolochi chodjat*,” that is, the raging host is passing. The hunters, who pursue the white and blue foxes in the confines of the icy sea, are often overtaken in their course by these northern lights. Their dogs are then so much frightened, that they will not move, but lie obstinately on the ground till the noise has passed. Commonly clear and calm weather follows this kind of northern lights. I have heard this account, not from one person only, but confirmed by the uniform testimony of many who have spent part of several years in these very northern regions, and inhabited different

different countries from the Yenisei to the Lena; so that no doubt of its truth can remain. This seems indeed to be the real birth-place of the aurora borealis." This account of the noises attending the aurora borealis, allowing for some degree of exaggeration, has been corroborated by other testimonies. A person, who resided seven years at Hudson's Bay, confirms M. Gmelin's relation of the fine appearance and brilliant colours of the northern lights, and particularly of their rushing noise, which he affirms he has frequently heard, and compares it to the sound produced by whirling round a stick swiftly at the end of a string. A similar noise has also been heard in Sweden. Mr. Nairne also, being in Northampton, at a time when the northern lights were remarkably bright, is confident he perceived a hissing or whizzing sound. Mr. Belknap, of Dover, in New-Hampshire, North America, testifies to this fact. American Transf. vol. ii. p. 196. M. Cavallo says that the crackling noise is distinctly audible, and that he has heard it more than once. Elem. of Nat. and Exper. Philos. vol. iii. p. 449. See also Musschenbroek Introd. Philos. vol. ii. p. 1056. § 2495. Beccaria dell' Electricismo Artif. et Nat. p. 221.

Similar lights, called *aurora australes*, have been long since observed towards the south pole (see Phil. Transf. N° 461. § 23, 24, and 25. and vol. liv. N° 53.); and their existence has been more lately ascertained by Mr. Forster, who assures us, that, in his voyage round the world with captain Cook, he observed them in high southern latitudes, though attended with phenomena somewhat different from those which are seen here. On Feb. 17, 1773, in south lat. 58°, "a beautiful phenomenon (he says) was observed during the preceding night, which appeared again this and several following nights. It consisted of long columns of a clear white light, shooting up from the horizon to the eastward, almost to the zenith, and gradually spreading on the whole southern part of the sky. These columns were sometimes bent sideways at their upper extremities; and though in most respects similar to the northern lights (*aurora borealis*) of our hemisphere, yet differed from them in being always of a whitish colour, whereas ours assume various tints, especially those of a fiery and purple hue. The sky was generally clear when they appeared, and the air sharp and cold, the thermometer standing at the freezing point."

The periods of the appearance of these northern lights are very inconstant. In some years they occur very frequently, and in others they are more rare; and it has been observed that they are more common about the time of the equinoxes than at other seasons of the year.

Dr. Halley (see Philos. Transf. N° 347. p. 406. or Abr. vol. iv. p. 138.) has collected together several observations, which form a kind of history of this phenomenon. After having particularly described the various circumstances which attended that observed by himself and many others in March 1716, and which was singularly brilliant, he proceeds with informing us, that the first account of similar phenomena recorded in the English annals, is that of the appearance which was noticed Jan. 33, 1560, and called "burning spears" by the author of a book intitled "A Description of Meteors," by W. F. D. D. reprinted at London, in 1654. The next appearance of a like kind, recorded by Stow, occurred on October 7, 1564. In 1574, as Camden and Stow inform us, an aurora borealis was seen for two successive nights, viz. 14th and 15th of November, with appearances similar to those observed in 1716, and which are now commonly noticed. The same phenomenon was twice seen in Brabant in 1575, viz. on the 13th of February and the 28th of September; and the circumstances attending it

were described by Cornelius Gemma, who compares them to spears, fortified cities, and armies fighting in the air. In the year 1580, M. Maßlin observed these phasmata, as he calls them, at Baknang, in the county of Wirtemberg, in Germany, no less than seven times in the space of twelve months; and again, at several different times, in 1581. On September 2d, 1621, the same phenomenon was seen over all France; and it was particularly described by Gassendus, in his "Physics," who gave it the name of "*aurora borealis*." Another was seen all over Germany, in Nov. 1623, and was described by Kepler. Since that time, for more than eighty years, we have no account of any such phenomenon either at home or abroad. In 1707, Mr. Neve observed one of small continuance in Ireland; and in the same year, a similar appearance was seen by Romer at Copenhagen; and during an interval of eighteen months, in the years 1707 and 1708, this sort of light had been seen no less than five times. Hence it should seem, says Dr. Halley, that the air, or earth, or both, are not at all times disposed to produce this phenomenon, though it is possible it may happen in the day time, in bright moon-shine, or in cloudy weather, and so pass unobserved. Dr. Halley further observes, that the aurora borealis of 1716, which he described, was visible from the west of Ireland to the confines of Russia, and to the east of Poland; extending at least near 30° of longitude, and from about the 50th degree of north latitude, over almost all the north of Europe; and in all places at the same time, it exhibited appearances similar to those which he observed at London. He regrets, however, that he was unable to determine its height for want of contemporary observations at different places. Father Boscovich has determined the height of an aurora borealis, observed on the 16th of December 1737, by the marquis of Poleni, to have been 825 miles; and Mr. Bergman, from a mean of thirty computations, makes the average height of the aurora borealis to be 72 Swedish, or (supposing a Swedish mile to be about 6½ English miles) 468 English miles. Euler supposes the height to be several thousands of miles; and Mairan also assigns to these phenomena a very elevated region, the far greater number of them being, according to him, about 200 leagues above the surface of the earth. Dr. Blagden, speaking of the height of some fiery meteors (Phil. Transf. vol. lxxiv. p. 227.), says, that "the aurora borealis appears to occupy as high, if not a higher region, above the surface of the earth, as may be judged from the very distant countries to which it has been visible at the same time;" he adds, that "the great accumulation of electric matter seems to lie beyond the verge of our atmosphere, as estimated by the cessation of twilight." However the height of these meteors; none of which appear to have ascended so high as 100 miles, is trivial, compared with the elevations above ascribed to the aurora borealis. But as it is difficult to make such observations on this phenomenon as are sufficient to afford a just estimate of its altitude, they must be subject to considerable variation and to material error. It is not improbable, that the highest regions of the aurora borealis are the same with those in which fire-balls move; more especially as Dr. Blagden informs us, that instances are recorded, in which the northern lights have been seen to join, and form luminous balls, darting about with great velocity, and even leaving a train behind like the common fire-balls. This ingenious author, however, conjecturing that distinct regions are allotted to the electrical phenomena of our atmosphere, assigns the appearance of fire-balls to that region which lies beyond the limits of our crepuscular atmosphere; and a greater elevation above the earth to that

accumulation of electricity in a lighter and less condensed form, which produces the wonderfully diversified streams and convulsions of the aurora borealis.

Many attempts have been made to assign the cause of this phenomenon. Dr. Halley first imagined that the watery vapours, or effluvia, rarefied exceedingly by subterraneous fire, and tinged with sulphureous streams, which many naturalists have supposed to be the cause of earthquakes, might also have been the cause of this appearance. But this hypothesis was not sufficient to account for the immense extent of these phenomena over the surface of the earth, and for their being always seen on the north side of the horizon, and never to the south. Abandoning this hypothesis, he conceived that the aurora borealis is produced by a kind of subtle matter, or magnetic effluvia, freely pervading the pores of the earth, and which, entering into it near its southern pole, passes out again with a like force into the æther at the same distance from the northern; the obliquity of its direction being proportioned to its distance from the pole. This subtle matter, by becoming some way or other more dense, or having its velocity increased, may be capable of producing a small degree of light, after the manner of effluvia from electric bodies, which, by a strong and quick friction, emit light in the dark: to which sort of light this seems to have a great affinity. If Dr. Halley had known, that an electrical stroke would give polarity to a needle destitute of it, and reverse the poles of one previously endued with it, he would have been led of course to conclude the electric and magnetic effluvia to be the same, and that the aurora borealis was this fluid performing its circulation from one pole of the earth to another; and he would thus have anticipated the hypothesis of Sign. Beccaria. See Mr. Cotes's description of this phenomenon, and method of explaining it, by streams emitted from the heterogeneous and fermenting vapours of the atmosphere, in Smith's Optics, p. 69, &c. or Phil. Trans. Abr. vol. vi. part ii.

The celebrated M. de Mairan, in an express treatise on the aurora borealis, published in 1731, assigns its cause to be the ZODIACAL light, which, according to him, is no other than the sun's atmosphere; this light happening, on some occasions, to meet the upper parts of our air, on the side of the limits where universal gravity begins to act more forcibly towards the earth than towards the sun, falls into our atmosphere, to a greater or less depth, as its specific gravity is greater or less, compared with the air through which it passes. Although the whole atmosphere of the earth be involved in the solar atmosphere, it is thrown off both ways from the equatorial to the polar regions. This projection is owing partly to the centrifugal force arising from the diurnal motion of the earth, which, being greatest at the equator, and decreasing towards the poles, turns aside the zodiacal matter towards each pole; so that by his hypothesis he anticipates the discovery of auroræ australes: and partly to the progressive motion of the earth in its annual orbit. In this case the light should dart from the equator to the poles, and not, as it really does, from the poles to the equator. Vide Tract. Phys. & Hist. del'Aurore Boreale. Suites des Mem. de l'Acad. R. des Scienc. ann. 1731. p. 3, seq. There is an abstract of Mr. Mairan's Physical and Historical Treatise of the aurora borealis, in the Phil. Trans. N° 433: or Abridg. vol. viii. p. 450.

M. Euler thinks the cause of the aurora borealis not owing to the zodiacal light, as Mr. de Mairan supposes; but to particles of our atmosphere, driven beyond its limits by the impulse of the light of the sun. On this supposition he endeavours to account for the phenomenon observed concerning this light. He supposes the zodiacal light,

and the tails of comets, to be owing to a similar cause, See *TAIL of Comets*, and *ZODIACAL Light*.

Ever since the identity of lightning and of the electric matter has been ascertained, philosophers have been naturally led to seek the explication of aerial meteors in the principles of electricity; and there is now no doubt but most of them, and especially the aurora borealis, are electrical phenomena. Beside the more obvious and known appearances which constitute a resemblance between this meteor and the electric matter whereby lightning is produced, it has been observed, that the aurora occasions a very sensible fluctuation in the magnetic needle; that the atmosphere yields, at the time of its occurrence, a quantity of electric fire; and that, when it has extended lower than usual into the atmosphere, the flashes have been attended with various sounds of rumbling and hissing, already mentioned, and attributed by Dr. Blagden (*ubi supra*) to small streams of electric matter running off to the earth from the great masses, or accumulations, of electricity, by which he supposes both meteors and the northern lights to be produced. Besides, the aurora borealis may be partly imitated by means of artificial electricity. Dr. Hamilton, of Dublin, (Phil. Ess. eff. iii.) seems to have been the first person who attempted to discover any positive evidence of the electrical quality of the aurora borealis; but the only proof he produces is an experiment of Mr. Hawksbee, by which the electrical fluid is shewn to assume appearances resembling the aurora borealis, when it passes through a vacuum. He observed, that when the air was most perfectly exhausted, the streams of electric matter were then quite white; but when a small quantity of air was let in, the light assumed more of a purple colour. The flashing of this light, therefore, from the dense regions of the atmosphere into such as are more rare, and the transitions through mediums of different densities, he considers as the cause of the aurora borealis, and of the different colours it assumes. Mr. Canton, soon after he had obtained electricity from the clouds, offered a conjecture, that the aurora borealis is occasioned by the flashing of electric fire from positive towards negative clouds at a great distance, through the upper part of the atmosphere where the resistance is least. And he supposes, that the aurora, which happens at the time when the magnetic needle is disturbed by the heat of the earth, is the electricity of the heated air above it; and this appears chiefly in the northern regions, as the alteration in the heat of the air in those parts will be the greatest; nor is this hypothesis, he says, improbable, when it is considered, that electricity is the known cause of thunder and lightning; that it has been extracted from the air at the time of an aurora borealis (see *CONDENSER*); that the inhabitants of the northern countries observe it to be remarkably strong when a sudden thaw succeeds severe cold weather; and that the tourmalin is known to emit and absorb the electric fluid only by the increase or diminution of its heat. Positive and negative electricity in the air, with a proper quantity of moisture to serve as a conductor, will, he conceives, account for this and other meteors sometimes seen in a serene sky. Mr. Canton afterwards contrived to exhibit this meteor by means of the *Torricellian vacuum*, in a glass tube about three feet long, and sealed hermetically. When one end of the tube is held in the hand, and the other applied to the conductor, the whole tube will be illuminated from end to end; and will continue luminous without interruption for a considerable time after it has been removed from the conductor. If, after this, it be drawn through the hand either way, the light will be uncommonly intense, and without the least interruption, from one hand to the other, even to its whole length. And though

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though a great part of the electricity is discharged by this operation, it will flash at intervals, when held only at one extremity, and kept quite still; but if it be grasped by the other hand at the same time in a different place, strong flashes of light will hardly ever fail to dart from one end to the other, and these will continue twenty-four hours and longer, without any fresh excitation. An arched double barometer of a considerable height is an improvement of this contrivance, for exhibiting the appearance of an aurora borealis, by means of the electric fire. To Mr. Canton's hypothesis it has been objected, that the electrical fire would flash in every direction, according to the position of the clouds, as well as from north to south; and that upon his hypothesis, illustrated by the tourmalin, the aurora borealis ought to be most frequent in summer, when the air is most heated, whereas it is found to be the reverse. Signior Beccaria, who pursued his observations on atmospherical electricity farther than any of his associates in these inquiries, conjectures that there is a constant and regular circulation of the electric fluid from north to south, which may be the original course of magnetism in general; and he thinks, that the aurora borealis may be this electric matter performing its circulation in such a state of the atmosphere as renders it visible, or approaching nearer the earth than usual. Against this supposed circulation it has been alleged that it ought to dart from the horizon towards the zenith in the northern hemisphere, and from the zenith towards the horizon in the southern one; whereas Mr. Forster, as we have already mentioned, informs us, that the columns shot up from the horizon towards the zenith as well in the southern hemisphere as in the northern; so that if the aurora borealis is to be regarded as the flashings of electric matter, its course is plainly directed from both poles towards the equator, and not from one pole to the other. Why the electricity of the atmosphere should be constantly found to direct its course from the poles towards the equator, and not from the equator to the poles, suggests a difficulty which an anonymous writer (*Encycl. Brit.*) has attempted to solve in the following manner.—Assuming three axioms; viz. that all electric bodies, when considerably heated, become conductors of electricity; that, *é converso*, non-electrics when subjected to violent degrees of cold, ought to become electric; and that cold must also increase the electric powers of such substances as are already electric; it is easy (says this writer) to deduce from these principles the cause of the aurora borealis. “The air, all round the globe, at a certain height above its surface, is found to be exceedingly cold, and as far as experiments have yet determined, exceedingly electrical also. The inferior parts of the atmosphere between the tropics, are violently heated during the day-time by the reflection of the sun's rays from the earth. Such air will therefore be a kind of conductor, and much more readily part with its electricity to the clouds and vapours floating in it, than the colder air towards the north and south poles. Hence the prodigious appearances of electricity in these regions, shewing itself in thunder and other tempests of the most terrible kind. Immense quantities of the electric fluid are thus communicated to the earth; and the inferior warm atmosphere having once exhausted itself, must necessarily be recruited from the upper and colder region. This becomes very probable from what the French mathematicians observed when on the top of one of the Andes. They were often involved in clouds, which, sinking down into the warmer air, appeared there to be highly electrified, and discharged themselves in violent tempests of thunder and lightning; while in the mean time, on the top of the mountain, they enjoyed a calm and serene

sky. In the temperate and frigid zones, the inferior parts of the atmosphere, never being so strongly heated, do not part with their electricity so easily as in the torrid zone, and consequently do not require such recruits from the upper regions; but notwithstanding the difference of heat observed in different parts of the earth near the surface, it is very probable that at considerable heights the degrees of cold are nearly equal all round it. Were there a like equality in the heat of the under part, there could never be any considerable loss of equilibrium in the electricity of the atmosphere; but as the hot air of the torrid zone is perpetually bringing down vast quantities of electric matter from the cold air that lies directly above it; and as the inferior parts of the atmosphere lying towards the north and south poles do not conduct in any great degree; it thence follows, that the upper parts of the atmosphere lying over the torrid zone will continually require a supply from the northern and southern regions. This easily shews the necessity of an electric current in the upper parts of the atmosphere from each pole towards the equator: and thus we are also furnished with a reason why the aurora borealis appears more frequently in winter than in summer; namely, because at that time the electric power of the inferior atmosphere is greater on account of the cold than in summer; and consequently the abundant electricity of the upper regions must go almost wholly off to the equatorial parts, it being impossible for it to get down to the earth: hence also the aurora borealis appears very frequent and bright in the frigid zones, the degree of cold in the upper and under regions of the atmosphere being much more nearly equal in these parts than in any other. In some parts of Siberia particularly, this meteor appears constantly from October to Christmas, and its coruscations are said to be very terrifying. Travellers agree, that here the aurora borealis appears in greatest perfection; and it is to be remarked, that Siberia is the coldest country on earth. In confirmation of this, it may also be observed, that, from the experiments hitherto made with the electrical kite, the air appears considerably more electrical in winter than in summer, though the clouds are known to be often most violently electrified in the summer-time; a proof, that the electricity naturally belonging to the air is in summer much more powerfully drawn off by the clouds than in the winter, owing to the excess of heat in summer, as already observed.

“A considerable difficulty, however, still remains from the upright position which the streams of the aurora borealis are generally supposed to have; whereas, according to the hypothesis above-mentioned, they ought rather to run directly from north to south. This difficulty occurred to Dr. Halley; but he answers it by supposing his magnetic effluvia to pass from one pole to another in arches of great circles, arising to a vast height above the earth, and consequently darting from the places whence they arise almost like the radii of a circle; in which case, being set off in a direction nearly perpendicular to the surface of the earth, they must necessarily appear erect to those who see them from any part of the surface, as is demonstrated by mathematicians. It is also reasonable to think that they will take this direction rather than any other, on account of their meeting with less resistance in the very high regions of the air than in such as are lower.

“But the greatest difficulty still remains: for we have supposed the equilibrium of the atmosphere to be broken in the day-time, and restored only in the night; whereas, considering the immense velocity with which the electric fluid moves, the equilibrium ought to be restored in all parts almost instantaneously; yet the aurora borealis never appears

except in the night, although its brightness is such as must sometimes make it visible to us did it really exist in the daytime.

"In answer to this it must be observed, that though the passage of electricity through a good conductor is instantaneous, yet through a bad conductor it is observed to take some time in passing. As our atmosphere therefore, unless very violently heated, is but a bad conductor of electricity; though the equilibrium in it is broken, it can by no means be instantaneously restored. Add to this, that as it is the action of the sun which breaks the equilibrium, so the same action, extending over half the globe, prevents almost any attempt to restore it till night, when flashes arise from various parts of the atmosphere, gradually extending themselves with a variety of undulations towards the equator."

It has been observed, that the streams of the aurora borealis do not always move with rapidity; but they sometimes appear for a considerable time quite stationary, and they are sometimes carried in different directions with a slow motion. In order to account for these circumstances, it should be considered, that weak electric lights have been sometimes observed to exhibit the same appearance at the surface of the earth, and we may therefore suppose them much more capable of doing so at great heights above it, where the conductors are fewer in number, and much more imperfect. From instances that might be adduced, we may reasonably conclude, that small portions of our atmosphere may by various causes be so much electrified as to shine, and likewise be moved from one place to another, without parting with the electricity they have received for a considerable time. In this manner we may account for the corona, or circle, which is often formed near the zenith by the aurora borealis, when any of its parallel streams of light that shoot upwards, and by the laws of perspective, appear to converge towards a point, are over our heads, and actually come to a point. As this corona is commonly stationary for some time, it would serve as a mark by which to determine the distance of the object; e. g. let two persons, one at London, and the other at Edinburgh, observe an aurora borealis; then by noting the stars among which the corona was observed at each place, its true altitude from the surface of the earth may easily be determined by trigonometry. Although the true height of the aurora borealis has never yet been determined, there is no sufficient reason for supposing that it is higher than a meteor, seventy miles above the surface of the earth, which meteor, both by its splendor and figure, seems to prove that the air possesses a considerable degree of density at that distance from the earth. Besides, if its streams resemble the passage of electric light through a vacuum, it cannot be hence inferred, that the air is in a state similar to the vacuum of an air-pump in those places where the aurora borealis is produced; because we have instances of similar appearances that are produced in very dense air. "The plate of an electrophorus is often so highly electrified, as to throw out flashes from different parts as soon as it is lifted up, and by proper management, it may be always made to emit long and broad flashes, which shall scarcely be felt by the finger; instead of small, dense, and pungent sparks; so that, though long flashes may be produced in rarefied air, it by no means follows, that the same may not also be produced in denser air. As little can we infer any thing from the colours, for we observe the electric spark sometimes white, sometimes blue, and sometimes purple, in the very same state of the atmosphere, and from the same substance." Mr. Little, the inventor of an air-pump of a new construction, stating the boundaries of the atmo-

sphere within which the aurora borealis, considered as an electrical phenomenon, is visible, conceives that it cannot appear in air less rarefied than near 4000 times, and consequently that its nearest distance from the earth is about 45 miles, according to Dr. Halley's table of the air's refraction at different altitudes; and that in air rarefied more than 26,000 times, it would not be less visible, and therefore its greatest distance is about fifty miles, by the same table. He is also of opinion, that it is air burnt and exploded in its passage, which makes the electric matter visible, and that without air, if it could pass at all, it would not be luminous. Upon the whole he concludes, that the aurora borealis is confined within our atmosphere. Irish Transf. vol. vi. p. 387.

Dr. Franklin supposes, that the electrical fire discharged into the polar regions from many leagues of vaporised air raised from the ocean between the tropics, accounts for the aurora borealis; and that it appears first, where it is first in motion, i. e. in the most northern part, and the appearance proceeds southward, though the fire really moves northward. Franklin's Exper. and Obs. 1769, p. 49. Phil. Transf. vol. xlviii. part i. p. 358, part ii. p. 784. Ib. vol. li. part i. p. 403. Ib. vol. lxxii. p. 15. Lettere dell'Ellettricismo, p. 269.; or Priestley's Hist. of Electricity, vol. i.

Mr. Kirwan (Irish. Transf. 1788, p. 70, &c.) supposes, that the rarefaction of the atmosphere in the polar regions proceeds from the aurora borealis and australis, and that these are produced by a combustion of inflammable air, caused by electricity. This inflammable air is generated, particularly between the tropics, by many natural operations, such as the putrefaction of animal and vegetable substances, volcanoes, &c.; and being lighter than any other, occupies of course the highest regions of the atmosphere. Consequently, this kind of air is chiefly thrown off towards the poles, and occasions the northern lights, which are the highest of all meteors, though they sometimes extend pretty low into the atmosphere. Mr. Kirwan further adds, that after the appearance of an aurora borealis, the barometer commonly falls, and that it is generally followed by high winds, proceeding usually from the south; all which facts strongly prove a rarefaction in the northern regions. To the same purpose, it is observed by Mr. Winn (Phil. Transf. vol. 73.), that the appearance of an aurora borealis is a certain sign of an hard gale of wind from the south or south-west. This occurred, without fail, in twenty-three instances; and he thinks that the splendor of meteors will enable the observer to form some judgment concerning the ensuing tempest. If the aurora is bright, the gale will come on within twenty-four hours, but will be of no long duration; if the light is faint and dull, the gale will be less violent, and longer in coming on, but will last longer. His observations were made in the English Channel, where such winds are very dangerous; and by attending to the aurora, he says, that he often escaped, when others were nearly wrecked. Observations of this kind would serve to lessen the dangers of navigation.

"That the aurora borealis ought to be succeeded by winds, may be easily deduced from the hypothesis above-mentioned. If this phenomenon is occasioned by the vast quantity of electric matter conveyed to the equatorial parts of the earth, it is certain that the earth cannot receive any great quantity of this matter at one place without emitting it at another. The electricity, therefore, which is constantly received at the equator, must be emitted nearer the poles, in order to perform its course; otherwise there would not be a constant supply of it for the common operations of nature. It is to be observed, that electrified bodies are always

always surrounded by a blast of air, which is sent forth from them in all directions; hence, if the electric matter find a more ready passage through one part of the earth than another, a wind will be found to blow from that quarter. If, therefore, one of these places happens to be in the Atlantic ocean, near the coast of France, or in the bay of Biscay, the electric matter which has been received at the equator during an aurora borealis, will be discharged there some time after, and consequently a wind will blow from that quarter, which will be from the south-west to those ships which are in the English channel. It cannot be imagined, however, that all the matter can be discharged from one place; and therefore, according to the different situations of those electrical vents, winds may blow in different directions; and thus the same aurora borealis may produce a south-west wind in the English channel, and a north-west one in Scotland."

AURORA Surgens, a phrase used by *Alchemists*, to express the multiplicative virtue of the philosopher's stone.

AUROREA, in *Ornithology*, a species of *MOTACILLA*, called by Latham the *Daurian warbler*. This bird is fulvous beneath; crown and upper part of the neck hoary; front whitish; throat black; back and wings black, with a white triangular spot on the latter; tail-feathers fulvous, two middle feathers black. Pallas. This bird is the size of the red-start, and inhabits Siberia to the confines of China; most common in the vicinity of the river Selenga, among willows.

AUROS, in *Geography*, a town of France, in the department of the Gironde, and chief place of a canton in the district of Bazas, five miles north-east of Bazas. The place contains 493, and the canton 7, 22 inhabitants: the territory includes 160 kilometres and 13 communes.

AUROTA, in *Entomology*, a species of *PAPILIO* (*Dan. Cand.*) that inhabits the coast of Coromandel. The wings are entire and white; margin black, spotted with white; posterior ones yellow beneath. Cramer.

AUROTUS, a species of *PHALÆNA*, of the larger kind of *Bombyces*, with falcated wings; above and beneath of the same yellowish colour; with a white band, and transparent lunar spot in the disk of each. This kind inhabits America, and was described by Fabricius from a specimen in the Museum of the late Dr. Hunter.

AUROUX, in *Geography*, a town of France, in the department of the Lozère, and chief place of a canton in the district of Langogne, seventeen miles north of Mende.

AURULENTA, in *Entomology*, a species of *BUPRESTIS*, of a somewhat oblong or rather narrow form, that inhabits Carolina. The wing-cases are fastigate, bidentated at the end, and green with a golden margin; body golden; thorax slightly dotted. Fabricius.

AURULENTA, a species of *CICADA* (*Ranatra* Sec.), of the size and shape of *cimex obtusa*. The head and thorax are rufous; wing-cases brown, cinereous at the tip. A native of Cayenne. Fabricius.

AURULENTA, a species of *SPHEX*, the head and thorax of which are covered with golden coloured down; the abdomen black, with the margin of the segments ash-colour, and the legs rufous. This insect is of the middle size, and inhabits China. Fabricius.—*Obs.* Both Fabricius and Gmelin have evidently described this insect twice, once under the specific name *aurulenta*, and afterwards under that of *aurata*; or at least the only difference in the description is, that the legs are not mentioned in the specific character of the latter, but we are told in the general description, that they are of a ferruginous colour, which approaches pretty nearly to that of rufous; and as both kinds are said to be natives of Asia, the

one of China, and the other of India, we have no doubt that Fabricius has inadvertently described the same insect in both instances; and that Gmelin, without inquiry, has implicitly relied on his authority. See *AURULENTA*, Fabr. Mant. Inf. 1. p. 274. n. 10. and Fabr. Mant. Inf. 1. p. 276. n. 45.

AURUM, in *Natural History*, denotes gold. See *GOLD*. The word is chiefly used among us as applied to certain chemical preparations, whereof gold is the basis, or principal ingredient.—Such are the *aurum potable*, *aurum fulminans*, &c.

AURUM Fulminans, in *Chemistry*. See *GOLD*, *Salts of*. *AURUM Mosaicum*, *mosaicum*, or *mosaicum*. See *TIN*.

AURUM Potabile, potable gold, a liquid preparation of this metal formerly much used in medicine, but now entirely obsolete.

The discovery of an universal medicine was a favourite speculation of the ancient alchemists, and they eagerly indulged the hope of finding it in the precious metal which alone was the object of all their attention. Hence we meet with a number of vaunted preparations of gold, most of them kept secret, but some revealed by the inventors, all of which had a certain reputation for a time, but are now sunk into deserved neglect.

Two methods were practised for the preparation of this metal as a medicine; the one was to grind gold leaves to a most impalpable powder, by a trituration of several days or even weeks; the other was to dissolve the metal in its proper menstruum, the nitro-muriatic acid, and to mix it with ether or any essential oil, which, by operating a reduction of the metal in a very divided state, has the power of separating it from its acid solvent. As this fact is important in the chemical history of this metal, we shall mention it more particularly under the article *GOLD*.

The potable gold of Helvetius, retained till within these few years in the Paris pharmacopœia, is thus prepared. "Dissolve half a dram of pure gold in two ounces of aqua regia, employing a gentle heat; to the solution add one ounce of oil of rosemary, shake the mixture, and immediately the gold will quit the acid, and unite with the essential oil, giving it a beautiful yellow colour; this is to be decanted from off the acid which remains at the bottom, and mixed with fifteen ounces of rectified spirit of wine, which forms the potable gold."

The dose is from six to twenty drops.

The powers of this medicine are supposed to be in a high degree cordial, stimulating, and tonic.

In such a preparation as this, when the quantity of gold in each dose is so extremely minute (though still sufficient to give it somewhat of a yellow colour), it requires little discernment to see that all the medicinal powers, whatever they may be, depend altogether on the ethereal oil and the ardent spirit with which the gold is united; and accordingly it is now entirely rejected in every pharmacopœia.

A fairer trial, however, has been made of the virtues of gold in medicine. We read that some of the crafty alchemical empirics had the address to persuade several of their noble patrons that the royal metal was peculiarly well calculated to cure the diseases of persons of exalted rank; and under this circumstance this precious metal has been swallowed in larger doses. These, however, are not the follies of the present day, public credulity being diverted into other channels.

From all that we know concerning the properties of gold, it appears, that its inertness when taken into the human body, depends on the ease with which it is reduced to the reguline state, and when in this state, its absolute insolubility in any of the animal juices. As the nitro-muriate of gold

gold possesses the power, in a very high degree, of staining almost every animal matter, it is probable that it would act as a topical stimulant with equal energy as the lunar caustic, or nitrate of silver, but it does not appear that gold would in any case be preferable to the other metals. It is now, therefore, entirely rejected from the *Materia Medica*.

AURUM, *Problematicum, Paradoxum, and Grophicum*, in *Mineralogy*. See GOLD, *Ores of*; and TITANIUM, *Ores of*.

AURUM, *Reginæ*, in *Antiquity*. See QUEEN GOLD.

AURUM *Coronarium*. See CORONARY GOLD.

AURUM *Sophisticum, mimic gold*, in *Chemistry*, a preparation made as follows: take fine distilled verdigris, eight ounces; crude Alexandrian tutty, four ounces; borax, twelve ounces; salt-petre, one ounce and a half; pulverize and mix them all together, tempering them with oil to the consistence of a plaster; then put a German crucible into a wind-furnace, heat it red-hot, and putting your mass into it, let it be covered, and the furnace filled with coals over the crucible. When the mass is melted, let it cool of itself, then break the crucible, and you will find at the bottom a fine regulus, like gold, weighing about four ounces, which being malleable, may be wrought into any form.

AURUM *Vegetabile*, a name given to saffron.

AURUNCI, in *Ancient Geography*, a people of Italy, in Latium. They have been often confounded with the Aufones; though Pliny distinguishes them. They appeared in a war against the Romans, in the year of Rome 258; but were entirely defeated in 408.

AURUNGABAD, AURINGABAD, or AURENGABAD, in *Geography*, a modern city of India, owing its rise from a small town to the capital of the province of Dowlatabad, in the Deccan, to Aurang-Zebe; from whom also it had its name. When the Deccan became a province of the Mogul empire, this city became the provincial capital, and continued to retain its rank after the Nizams became independent of Delhi; and until the encroachments of the Poonah Mah-rattas, of late years, made it an uncomfortable residence to the Nizam. It is situated on a plain, almost surrounded with mountains; it is large and populous; and was encompassed, by Aurang-Zebe, with walls and bastions. His palace, in which he resided, was also surrounded by walls and gates of entrance. The country about is fertile, and produces millet, wheat, and other provisions, but not sufficient for the immense number of its inhabitants, as it is one of the largest and most populous cities of India. N. lat. 19° 45'. E. long. 76° 2' 30".

AURUNGZEBED. See AURENGZEBED.

AURUSPI, in *Ancient Geography*, a people of Africa, in Ethiopia, whose capital, according to Pliny, was not far from the Nile.

AURUSULIANA, an episcopal city of Africa, in Numidia.

AUSA, in the middle ages called *Aufona*, a town of Hispania Citerior or Tarraconensis, south-west of the Indigetes, between Gerunda and Mandresa. The inhabitants were called Aufetani and Authetani. It is now *Vic de Osona*, in Catalonia. N. lat. 41° 50'. E. long. 2°.

AUSANA, a village of Belgic Gaul, where the twelfth legion had its winter quarters.—Also, an episcopal see of Africa, in the proconsular province.

AUSANCALI, a town of Italy, in Liburnia. Ptolemy.

AUSARA, a town of Arabia Felix, in the country of the Sacalites, near the sea.—Also, a town in the interior part of Arabia Felix. Ptolemy.

AUSCHE, in *Geography*, a town of Bohemia, in the circle of Leitmeritz, eight miles E.N.E. of Leitmeritz.

AUSCHISÆ, in *Ancient Geography*, a people of Africa, in Libya, to the west of Asbystæ, and east of the Nafamons. Herodotus.

AUSCII, a people of Europe, in that part of Gaul called Aquitania. Their capital was Climberris, which afterwards assumed the name of the people. They occupied the country corresponding to the territory of Auch, west of the Tolosates. See AUCH.

AUSCULTARE, in *Ancient Customs*.—Because the reading of prayers with a graceful tone or accent, makes some impression on the hearers; there was anciently a person appointed, in monasteries, to hear the monks read and sing, who instructed them how to perform, before they were admitted to read or chant publicly in the church, or before the people.—This was called *auscultare*, q. d. *to hear, or listen*.

AUSER, or AUSAR, in *Ancient Geography*, now *Serchio*, a small river of Italy, in Etruria, which discharges itself into the sea, about six miles north of the mouth of the Arnus.

AUSI, a people of Africa, on the sea-coast of Libya, encompassing the lake of Tritonis, and separated by the river Triton from the Machlyes. Herodotus relates, that these savage people celebrated a feast in honour of Minerva, at which the young women separated into two companies, and fought against one another with clubs and stones; those who fell in the combat, or died of their wounds, were deemed not to have been virgins. They paid no respect to marriage, but possessed their women in common. Their children were nursed by their mothers till they were able to walk; and they were then introduced to an assembly of the men, who met every three months, and the man to whom any child first spoke, was acknowledged as its father.

AUSIGDA, a town of Africa, in the Pentapolis, watered by the river Cimydhius. An island of the same name is mentioned by Stephanus.

AUSILINDUM, a place of Africa, in the province of Tripoli, on the road from Tacape to the greater Leptis.

AUSIMUM, or AUMIMUM, an ancient Roman colony, in the Picenum; now *Osimo*, or OSIMO.

AUSINZA, a town of Asia, in Persia Propria. Ptolemy.

AUSITÆ. See ÆSITÆ.

AUSONA, a town of the Aufones, reckoned among the most ancient people of Italy, who occupied that part of Italy, which extends from the promontory of Circæum to the straits of Sicily; but they were afterwards reduced to a more limited territory between the montes Circæi and Massici. They were extirpated before the time of Pliny. Virgil represents them as a colony of Trojans.

AUSONIA, a name first restricted to the territory of the Aufones, and afterwards applied to the whole of Italy.

AUSONIUM MARE, denotes that part of the Mediterranean now called the sea of Sicily. It was formerly a part of the sea called Ionian, extending southwards from the promontory of Japygium to Sicily, which it washes on the east, as it does the Brutii and Magna Græcia on the south and east. It is separated from the Tuscan sea by the strait of Messina.

AUSONIUS, DECIUS, or DECIMUS MAGNUS, in *Bio-graphy*, a Roman poet of the fourth century, was a native of Bourdeaux, where his father Julius Aufonius was an eminent physician. Having enjoyed the advantages of an excellent education, under his grandfather Arborius at Toulouse, and also under other eminent professors of grammar and rhetoric, he became himself professor in these departments of literature in his native city. Such was his reputa-
tion,

tion, that he was called to court by the emperor Valentinian, and appointed preceptor to his son Gratian. By the latter he was advanced to the office of prætorian prefect of Gaul and Italy about the year 376, and to the consulship in 379. He was much esteemed by the emperor Theodosius, and as some say, created by him a patrician. The time of his death is not accurately ascertained; but he appears to have been alive in 392, and probably lived to an advanced age. Amongst the learned it has been a subject of dispute, whether Ausonius was a Christian or a Pagan. If he was not a Christian, the poems on Christian topics ascribed to him must have been supposititious; and the lasciviousness of several of his pieces suggests a presumption, that he had not embraced Christianity.

His poems manifest learning and ingenuity; but they cannot bear the test of comparison with the productions of the Augustan age, as they are generally insipid, harsh, and inelegant, and bear obvious marks of the declining genius and taste of the period in which they were written. The "Cento Nuptialis" is altogether formed of lines and hemistichs from Virgil, and the latter part of it is highly censurable for its obscenity. The epigrams are generally flat and insipid. The best editions of Ausonius are the "Variorum" of 1671, and the "Delphin" of 1730. Gen. Dict. Fabr. Bib. Lat. t. ii. p. 87, &c.

AUSPEX, in *Roman Antiquity*, a name originally given to those who were afterwards denominated *augurs*. In which sense the word is supposed to be formed from *avis*, *bird*, and *inspicere*, *to inspect*; *auspices*, q. d. *avispices*, or inspectors of birds.

At first the auspices were properly those who prefaged future events by inspection of the flight of birds; as the *auspices* predicted them by the inspection of victims, and *augurs* by the singing of the same birds. But Plutarch informs us (Quæst. Rom. 72.), that in process of time these distinctions were disregarded; and that the name of *augurs* was given to those who had been originally called *auspices*.

AUSPICIUM, *AUSPICY*, the same with *AUGURY*.

Servius, indeed, distinguishes between *auspicy* and *augury*; making *auspicy* comprehend the consideration merely of birds, and of their flight; *augury*, of the notes of birds, and of all sensible objects; he adds, that the former was allowed a man any where abroad, whereas the latter might only be performed in his native place. And it is certain, that consuls, generals, and others, who took omens out of Rome, were properly said *auspicari*: nevertheless, custom appears to have over-ruled this distinction.

The auspices were consulted on a variety of occasions, so that nothing was done respecting the public, either at home or abroad, in peace or war, without this ceremony; and at first in important affairs of a private nature they were scrupulously regarded. The auspices were referred to before any battle; they assisted at marriages (Juvenal, x. 336.); and they were consulted on the choice of plebeian and patrician magistrates; and on the first day of every year, in order to determine whether the progress of it would be happy or otherwise. To this purpose Ovid, in his *Fasts* (l. 167.), says:

"Tempora commisi nascentia rebus agendis;
Totus ab auspicio ne foret annus iners.
Quisque suas artes ob idem delibet agendo,
Nec plus quam solitum testificatur opus."

And in case of war he observes (Trist. ii. 173.):

"Per quem bella geris, cuius nunc corpore pugnas;
Auspicium cui das grande, deosque tuos."

AUSPITZ, in *Geography*, a town of Moravia, in the

circle of Brunn, forty-two miles S.S.W. of Olmutz, and 114 S.E. of Prague.

AUSSEE, New, a town of Germany, in the duchy of Stiria, forty-eight miles W.N.W. of Judenburg.

AUSSIG, or AUSTI, a town of Bohemia, in the circle of Leitmeritz, on the Elbe; 10 miles N.W. of Leitmeritz.

AUST, a very small village of England, in the county of Gloucester, on the side of the Severn; whence is a passage-boat or ferry to the opposite shore in Gloucestershire, and thence across the Wye to Chepstow; 12 miles north of Bristol, and 6 south of Chepstow.

AUSTER, in *Mythology*, was like each of the other winds, one of the sons of Ætrea and Aurora; and it denoted the south wind. See *WIND*.

AUSTERE, is in general applied to a rough austere taste, united with that of sourness. It is really synonymous with *acerb*.

AUSTERITY, among *Moral Writers*, sometimes denotes rigour in the inflicting of punishments. We say also, austerity of manners; the austerities of the monastic life. The austerity of the Roman censors kept the people in their duty. The greatest austerity of the Carthulians is perpetual solitude.

AUSTERLITZ, or SLAWKOW, in *Geography*, a town of Moravia, in the circle of Brunn, which was almost destroyed by the Swedes, in the seventeenth century: twelve miles E.S.E. of Brunn, and 112 E.S.E. of Prague.

AUSTIL, or ST. AUSTEL, is a market and stannary town of Cornwall, in England. It is built on the eastern side of a hill, and has greatly increased during the last century in the number of its houses and inhabitants. This augmentation may be attributed to the prosperous tin mines that are in the immediate vicinity, to the privilege of having one of the stannary courts held here, and in consequence of having a turnpike road carried through the town from Plymouth to the land's end. The church is a large ancient pile of building dedicated to St. Austin; and the town is ornamented with several statutes in canopied niches. The seats of the church, and the external walls, are carved with various devices emblematical of the crucifixion. The original charter for holding a weekly market was granted by queen Elizabeth, who directed that the tolls should be applied to the relief and maintenance of the poor. The principal part of the inhabitants are employed in the mining concerns, in the pilchard fishery, and in a small manufactory of coarse woollens. At the west end of the town are three blowing-houses, where the tin is separated from the ore by means of fire. This process was formerly effected by smelting-furnaces, but the present method seems to be more economical, and far preferable. The old smelting-houses (some of which are still used in common), are supplied with coals, and are reverberatory; but in the blowing-houses, the fire is made with charcoal, and ignited by air impelled through cylindrical tubes. Beauties of England and Wales, vol. ii. p. 422, &c. See *BLOWING-HOUSE*, *MINES*, *STANNARY*.

AUSTIN, St. See *AUGUSTIN*.

AUSTIN Friers. See *AUGUSTINES*, and *HERMITS*.

AUSTRAL, derived from *auster*, *south wind*, the same with *southern*.

Thus *austral signs* are the six last signs of the zodiac; so called, because they are on the south side of the equinoctial.

AUSTRAL Earth, in *Mineralogy*. See *TERRA Syaneia Australis*.

AUSTRALASIA, in *Geography*, a name given, about half a century ago, by the learned president De Brosses (*Histoire des Navigations aux Terres Australes*, Paris, 1756,

2 vols. 4to.), to those countries that lie to the south of Asia, namely, New Holland, New Guinea, New Zealand, &c.; whilst he distinguished the numerous isles in the Pacific by the appellation *POLYNESIA*. These regions constitute, by discoveries already made, about a fifth part of the world, and include, under the name of "Austral Lands," "Southern Indies," and other denominations, New Holland, New Guinea, New Britain, New Ireland, New Caledonia, New Zealand, the Friendly isles, Society islands, the Marquesas, and even the Sandwich islands in the north. But as these regions are of wide extent and distinct nature, consisting of almost a new continent in the south of Asia, and scattered groups of isles in the Pacific, many of which are nearer to South America than to Asia, whilst most of them are not above twenty degrees to the south of the equator, the denomination of "Austral Lands," has been thought to be very objectionable, and that of the "Southern Indies," ridiculous. Since, therefore, they cannot well be blended under one common appellation, De Brosses adopted the above-mentioned distribution. Some recent German geographers have considered Australasia and Polynesia as synonymous terms, in contradiction to the first inventor of these appellations. This fifth part of the world, as the Germans call it, would not even then exceed the wide extent of Asia or America, but it has been thought preferable, for several reasons, to consider Australasia and Polynesia, as two great and distinct *maritime* divisions of the globe. The name of Australasia is the more proper, because it not only implies a continent, but the reminiscence that this region supplies the place of the ideal Terra Australis, after which geographers and navigators have so long inquired in vain. Mr. Dalrymple (Introduct. to Collect. of Voyages), whose judgment in these matters cannot be disputed, approves of the two divisions assigned by De Brosses. But if these should be rejected as divisions of the globe, they must of course be arranged among the "Asiatic islands;" and in this case the appellation may be still retained. The length of Australasia may be computed from 95° of E. longitude to 185°, that is 90° in lat. 30°, or nearly 5000 geographical miles; while the breadth, N. lat. 3° to S. lat. 50°, will be 3180 geographical miles. "The western boundary of Australasia may be taken in the meridian from the south of Sumatra, or extended to 100°, or even 90°, east from Greenwich; but as few or no isles of consequence have yet been discovered in that direction, the strict demarcation may be discovered by future circumstances. A like observation may be applied to the southern boundary of Australasia, which, as including New Zealand, and some isles not far distant, must be extended to the southern latitude of 50°, or even of 60°, where the islands of ice begin to appear. The most difficult boundaries are those on the north and east. A wide and vacant channel seems to divide the north-west part of Notasia, or New Holland, from the isles of Sunda, or Sumatran chain. From the north cape of Van Diemen, E. long. 131° from Greenwich, a line ascends to the north between the Indian and Pacific oceans, leaving in the former the isles of Banda, Ceram, Mysol, and Gilolo; while in the Pacific, and belonging to Australasia, are Timorlaut, Waijoo, and other isles immediately connected with Papua. This line being extended in the same direction about two degrees to the north of the equator, turns east into a wide channel of separation between the Carolines, &c. and New Ireland, and other isles belonging to Australasia. Bending south-east, Sir Joseph Banks's isles and the New Hebrides are left in Australasia, while a considerable interval leaves the Feejee islands in Polynesia. Thence a wide and open sea gives the line of demarcation an ample sweep, about six or seven degrees, to

the east of New Zealand, when bending S.W. it joins the southern boundary."

"From these indications it will be perceived, that Australasia contains the following countries: 1. The central and chief land of Notasia, or New Holland, with any isles which may be discovered in the adjacent Indian ocean, twenty degrees to the W., and between twenty and thirty degrees to the E., including particularly all the large islands that follow. 2. Papua, or New Guinea. 3. New Britain, and New Ireland, with the Solomon isles. 4. New Caledonia, and the New Hebrides. 5. New Zealand. 6. The large island called Van Diemen's land, recently discovered to be separated from New Holland by a strait, or rather channel, called Bass's strait." See the several articles. Pinkerton's Mod. Geog. vol. ii. p. 431—464, &c.

AUSTRALASIE, in *Entomology*, a species of *BLATTA*, very frequently found in ships that have visited the islands in the South seas. It is of a ferruginous colour, with a white ring on the thorax; and a little white line at the base of the wing-cases. Fabricius, &c.

AUSTRALASIE, one of the New Holland species of *PHALENA*, described by Fabricius in his Spec. Inf. The wings reddish-orange; base of the lower ones beneath ferruginous. Mus. Sir J. Banks.

AUSTRALASIE, a species of *SCORPIO*, described by Forster as a native of the islands in the Southern ocean. It is distinguished by having combs with six teeth, and the hands, or hand-claws, being smooth. The body is rather depressed; brown above, paler beneath; extreme joint of the tail and legs pale.

AUSTRALASIAN SNAKE, in *Zoology*, a trivial name assigned by Dr. Shaw to a species of *COLUBER* that is figured in White's Journal of a Voyage to New South Wales; and which he describes as a blackish-brown snake, speckled with yellow, with very narrow scuta, and abdomen clouded with brown and yellow. This is a large snake, measuring nine or ten feet, and is rather slender in proportion to its length. The number of abdominal scuta, and subcaudal scales, from the imperfect manner in which the dried skins of this kind have been observed, has not yet been ascertained.

AUSTRALE, in *Conchology*, a species of *BUCCINUM*, found in rivers in New Zealand. The shell is oblong, smooth, thin, fasciated; aperture ovate and entire. *Obs.* This appears to be an intermediate species between the *Buccinum*, *Bulla*, and *Helix* genera. Gmelin.

AUSTRALIS CORONA, in *Astronomy*. See *CORONA Australis*.

AUSTRALIS Piscis, is a constellation of the southern hemisphere, being one of the forty-eight constellations mentioned by the ancients, not visible in our latitude. The stars in Ptolemy's catalogue are 18; and in the Britannic catalogue 24. The star Fomahaut, of the first magnitude, is in the mouth of this fish.

AUSTRALIS, in *Conchology*, a species of *HALIOTIS*, rather exceeding three inches in length, and two inches in breadth. This shell is varied with grey, bluish, and red; form ovate, convex, and cancellated; spire prominent and inflated. Found adhering to the rocks upon the coast of New Zealand. Within, this kind is very pearly, and finely glossed with red and yellow.

AUSTRALIS, a species of *MUREX* that is found in the South seas. The shell is ovate, with longitudinal striae; lip undulated; whorls of the spire guttered; first whorl turgid with four plaits; second with three plaits. Gmel. Spengl. This shell bears affinity to *Murex stramineus*; is about an inch and a half in length; of a straw colour, with a yellow pillar; and lip pure white.

AUSTRALIS,

AUSTRALIS, a species of *VENUS*, of a heart-shape, white, and glossy, with brownish characters, and entire margin. Chemn. Conch. A native of the South Seas.

AUSTRALIS, in *Entomology*, a species of *CANCER* (*Scyllarus*, Fabr.), described by Fabricius from a specimen in the collection of sir Joseph Banks, that was brought from the South Seas. The plates of the antennæ are smooth and rounded. This kind bears some resemblance to *Cancer Aræus*; but it is of a narrower shape; the plates of two joints; thorax unequal, with crenated margin; legs ten; claws simple.

AUSTRALIS, a species of *SCORPIO* that inhabits Africa, and, according to Degeer and Fabricius, has thirty-two teeth in the combs, and the hand-claws smooth.

AUSTRALIS, a species of *MUSCA* (*Stratiomy*,) that inhabits South America. It is large and glabrous, with black eyes, and is specifically described as being testaceous, with a bidentated scutellum; and the first segment of the abdomen brownish. Fabricius.

AUSTRALIS, a species of *FORMICA* found in New Holland. It is black, with the thorax unarmed; and petiole scale armed with two spines. Fabricius.

AUSTRALIS, a species of *SPHEX* that inhabits New Holland. The colour is blackish blue; thorax lobed, fulvous in front. Fabr. Gmel, &c.

AUSTRALIS, a species of *MYRMELEON* that inhabits the south of Europe. The wings are white, with a black spot on the margin; and the body variegated. Fabricius.

AUSTRALIS, a species of *LYGÆUS* (Fabr.) that inhabits Otaheite. It is black; thorax slightly spinous, with a red anterior band; shanks of the posterior legs membranaceous.

AUSTRALIS, a species of *CIMEX*, with the upper-wing rufous, marked with a waved black streak; under-wings black, with a white dot in the middle. Inhabits New Holland; and is called by Fabricius *lygæus 2-guttatus*.

AUSTRALIS, a species of *GRYLUS* that inhabits Amsterdam island. It is greenish; thorax rotundate; wings and wing-cases equal; legs anteriorly very spinous; is larger, but bears some affinity to the Brazilian species *spinipes*.

AUSTRALIS, a species of *LAMPYRIS* that inhabits New Holland. It is of a yellowish colour, with the head and wing-cases brown. Fabricius.

AUSTRALIS, a species of *CERAMBYX*. (*Callidium* Fabr.) On the thorax two white lines; on the wing-cases four; the two middle ones united and abbreviated. Inhabits New Zealand. Fabricius.

AUSTRALIS, a species of *CRYPTOCEPHALUS* (*Crioceris*) that inhabits New Holland. The colour is rufous; thorax cylindrical; and two stripes of white on the wing-cases. Fabricius.

AUSTRALIS, a species of *CYRINUS*, found in the fresh waters in New Holland. It is slightly straited; greenish; wing-cases short; and furnished with a single tooth. Fabricius.

AUSTRALIS, in *Ornithology*, a species of *TRINGA* that inhabits Cayenne, and is about eleven inches in length. It is grey above, spotted with brown; beneath reddish; belly and rump whitish; tail and wings dusky; bill and legs black. Gmelin, &c. The crown is straited with brown.

AUSTRALIS, a species of *STERNA* or Tern, that inhabits Nativity island, in the South Seas. It is grey; bill and legs black; front fordid yellow; quill feathers white; connecting membrane of the feet tawny; length from seven inches and a half to nine inches; and called by Latham the southern Tern.

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AUSTRALIS, a species of *CORVUS*, about eleven inches in length, that inhabits Cayenne. It is black above, beneath cinereous; bill red; wing-coverts spotted with white; tail rounded. Gmelin. This is the Cayenne red-billed crow of Latham. Olf. Gmelin has another bird under the same name, *corvus australis*, which he describes as being entirely black; feathers on the chin lax; quill-feathers brownish-black. This is the South Sea Raven of Latham, and inhabits the Friendly Islands in the South Sea. Length nineteen inches.

AUSTRALIS, a species of *PSITTACUS*, of a green colour; crown blue, and crested with long-feathers; chin and middle of the abdomen red; thighs purple. A native of the Sandwich islands, and described by Latham under the name of the blue-crested parakeet. The length of this bird is six inches and a half; beak orange; front pale-green; two middle tail feathers green, and yellow at the extremity; the others yellowish-edged, and tipped with green; legs dusky; claws black. Gmelin.

AUSTRALIS, a species of *FALCO* that inhabits Stateland. It is brown; cere yellow; tail black, dotted at the end with fordid white; size of the plaintive eagle; voice like a hen. Gmelin.

AUSTRIA, ARCHDUCHY OF, in *Geography*, one of the principal provinces of Germany, derives its name from its situation towards the east: *Ost-ryak*, or *Ost-rych*, signifying in German the *eastern kingdom*. This name was softened into Austria by the Italian and French enunciation; and this division, which may be considered as partly belonging to ancient Pannonia, arose after Charlemagne had established the western empire; being a remnant of the sovereignty of what was called Eastern France, established by that conqueror. It was also styled "Marchia Orientalis," the eastern march, or boundary; and after the failure of the Frank line, became a marquisate feudatory to the dukes of Bavaria, till the emperor Frederic Barbarossa, in 1156, constituted it a duchy held immediately of the empire. See ARCHDUKE.

The archduchy of Austria is bounded on the north by Bohemia and Moravia, on the east by Hungary, on the south by Stiria, and on the west by Bavaria. It is divided by the river Ens into Upper and Lower Austria; the capital of the latter is Vienna, besides which it contains 35 other cities, and 256 market towns; and that of the former is Linz, besides which it has 13 other cities, and 88 market-towns. The population of this archduchy has been usually computed at 1,685,000 persons; and more lately by Hoeck, in his "Statistical View of the States of Germany," at 1,820,000.

The Austrian dominions, or hereditary states of the house of Austria, comprehended, before the late war, besides the archduchy of Lower Austria, containing the country on this side the river Ens, sometimes called Lower Austria, and the country beyond the Ens, denominated Upper Austria, and also the country called the Inn-Viertel, or the part taken from Bavaria, of which the capital is Brannau, the following territories; viz. Interior Austria, including the duchies of Stiria, Carinthia, Carniola, Austrian Friuli, and Trieste; Upper Austria, or the Tyrolese; Anterior Austria, comprising the Brisgaw, Austrian territories in Swabia, Hohenembs, Falkenstein, Langenargen, and Tettnang; the kingdom of Bohemia; the margraviate of Moravia; Austrian Silesia; Austrian Netherlands, now in possession of the French; Lombardy, including the duchies of Milan and Mantua, now in possession of the French; the kingdom of Hungary, and bannate of Temeswar;

war; Illyricum, including Dalmatia, Croatia, and Slavonia; Transylvania; the province of Buckovina, annexed to the Austrian territory in 1777; and the provinces of Galicia and Lodomeria, being that part of Poland acquired by Austria in the partition of 1772. From the frontiers of Switzerland to the utmost limits of Transylvania, the length of the Austrian dominions may be reckoned at about 760 British miles, and the breadth about 520, from the river Bag, which forms a boundary between Austria and Prussian Poland, to the Save, which divides the Austrian from the Turkish sovereignty. The contents may be about 184,000 square miles; and the Boetticher estimates the inhabitants at 108 to a square mile. Since he wrote, the populous region of the Netherlands has been withdrawn; however the population of the Venetian territories is little inferior. Towards the east, the Austrian dominions border on those of Russia and Turkey; to the north, on those of Prussia, Upper Saxony, Bavaria, from which it is separated by the river Inn, and Swabia; and on the utmost west are Switzerland and the Italian states.

The original population of these extensive regions is various; but chiefly Gothic and Slavonic. The native ancient Germans, a Gothic race, from the ruling, the most industrious, and most important part of the inhabitants. The present population of the Austrian dominions is computed at more than 20,000,000; that of Hungary, Transylvania, and the Buckovina, being estimated at $4\frac{1}{2}$ millions. Some authors, however, have computed the population of Hungary alone, at 7,000,000; and a late German author (see Townson. ch. v.) has consequently swelled the general population of the Austrian dominions to 25,000,000; and a modern geographer (see Pinkerton's Mod. Geog. vol. i. p. 345.) thinks it reasonable to allow 23,000,000 as a medial computation of the numbers subject to the Austrian sceptre. Of the other chief provinces, Bohemia is supposed to hold $2\frac{1}{2}$ millions; Moravia $1\frac{1}{2}$ million; the acquisitions in Poland, more than 3 millions; and the archduchy of Austria, as we have already stated, 1,685,000.

Hoeck (ubi supra) has exhibited the hereditary states of Austria, with their respective population, in three tables; from which it appears, that Bohemia contains 2,806,493 persons; Moravia, 1,256,240; the duchy of Austrian Silesia, 250,000; Lower Austria, 1,820,000; Interior Austria or Stiria, &c. 1,645,000; Superior Austria, or the Tyrolese, 610,000; Anterior Austria, 293,433; Roverit and the Voralberg, 77,971; Hungary and Illyria, 7,350,000; Transylvania, 1,443,364; Buckovina, 130,000; Eastern Galicia, 2,797,119; and Western Galicia, 1,106,178; amounting in the whole to 21,585,798 persons. The army is computed by Boetticher at 365,455 men, in 136 regiments, of which 46 are German, and only 11 Hungarian. But in the sanguinary contest with France, this army has been greatly diminished; and, at present, it is supposed not to be equal to that of Prussia, estimated at about 200,000; and far less than that of Russia, which is supposed to double this number. The revenue is computed at more than ten millions sterling; to which Austria contributes about three millions; and Hungary a little more than a million and a half. This revenue used to exceed the expences; but the public debt is now supposed to surpass 40,000,000l. sterling, and the recent wars have occasioned great defalcations.

Austria, before the acquisition of Venice, might have been regarded as an inland power; as the small harbour of Trieste had no commercial importance. Since the Austrian dominions have acquired their present extent and power, de-

termined rivalry has subsisted between them and France. There are also causes of confirmed jealousy between Austria and Prussia, and of irreconcilable hatred between the Austrians and Turks. As Austria is also jealous of Russian power, it is not easy to select any state on the continent with which it could enter into a strict and permanent alliance.

The aspect of the Austrian dominions is rather mountainous than level, and presents in this respect a striking contrast to that of Russia and Prussia. Of the elevated chains which diversify the Austrian territories, the first that deserves mention is the Rhætian or Tyrolese Alps, called the Brenner mountains (see ALPS, and BRENNER), among which are several glaciers; and there are also considerable hills, which branch from the Swiss and Tyrolese Alps, in the northern parts of the territory that was formerly Venetian, such as mount Baldo, mount Bolca, and the Euganean hills near Padua. The provinces of Carinthia and Carniola present many chains of mountains, as that of Lobel, which separates these countries, and the Julian or Carnic Alps, now called Birnbaumer Wald, which divide Carinthia from Italy. The summits of the Carniolan mountains are covered with permanent snow; of these, the most memorable are the Kalenberg near the river Save, and the Runberg, and the Karst to the south of Idria. Here also terminates the vast chain which proceeds by the north of Dalmatia towards the Hæmus, and is known by many local appellations, as mount Prominia near Gnin, mount Prologh, mount Clobu, &c. &c. but better distinguished by the Dalmatian chain. The latter mountains are chiefly calcareous. Towards the north in the south of Stiria, there first occurs the chain of Bacher; mount Grafan on the east of Judenburgh; and the chief mountain in this province, or those of Grimin, in its western extremity towards Salzburg. On the east towards Hungary, this country is more plain and fertile. On the south of Austria is a chain of considerable elevation. (See CETIUS, and KALENBERG.) Upper Austria, or the western part of this province, contains many considerable mountains, the highest of which is in the maps called Priel, but the proper name is Gressenberg. Towards the north, Austria is divided from Bohemia by a ridge of considerable elevation, which passes to the north-east of Bavaria. On the north-west, Bohemia is parted from Saxony by a chain of metallic mountains called the Erzgebirg, a word that denotes hills containing mines. On the west of the river Eger, near its junction with the Elbe, stands the mountainous group of Milessou, supposed to be the highest in the province. On the north-east the Sudetic chain, which, branching from the Carpathian, divides Bohemia and Moravia from Silesia and the Prussian dominions. The Carpathian mountains, bounding Hungary on the north-east, deserve particular notice. See CARPATHIAN.

Of the rivers which pervades the Austrian dominions, the principal is the DANUBE. Next to this in importance is the TISS; and there are also the SAVE, the DRAVE, the INN, the MULDA, the ELBE, the MORAU, the ADIGE, and several others of less note. The lakes are numerous, and some are of considerable size. In Austria Proper, are the lake Traun, the Abensee, and others. Carinthia contains a large central lake not far from Clagenfurt, and Carniola another, called the Cirknitz see. Tyrol has no lake of any consequence, except a part of Lago di Garda; but its glaciers are numerous. For the morasses and lakes of Hungary, see HUNGARY. See NEUSIDLER and PALITZER. In Transylvania is the Tesege To; and many small lakes are situated amidst the Carpathian mountains.

The soil of the Austrian dominions is upon the whole extremely fertile and productive, in spite of the neglect of industry, which has permitted many parts of Hungary, and of the Polish provinces, to pass into wide forests and marshes. In Austria Proper, Mr. Marshal observes (*Travels*, vol. iii. p. 104.), that oats were little cultivated; the other products were such as those of England, particularly abundance of cabbages and potatoes; but the cultivation was not neat, small waste spots being left by the plough, which harboured weeds to the great detriment of the field. The vineyards and fields of saffron were numerous; cattle appeared in abundance; and large herds of swine, which fed all the summer in the woods. At a more recent period Mr. Coxe (*Travels in Poland, &c.* vol. i. p. 153, &c.) gives a deplorable picture of the want of cultivation in the southern provinces of Poland, now subject to Austria; the country being chiefly overspread with vast tracts of gloomy forests, and exhibiting few symptoms of an inhabited, and still less of a civilized country. In travelling the high road from Cracow to Warsaw, in the course of 253 miles, he met with only two carriages and a dozen carts. The country was equally thin of human habitations; a few wooden villages succeeded one another at long intervals, whose miserable appearance corresponded with the wretchedness of the surrounding country. The darkness of the night during which he travelled for want of decent accommodation, deprived him of nothing but the sight of indifferent crops of corn, gloomy forests, and objects of human misery. The natives were poorer, humbler, and more miserable, than any he had observed in the course of his travels; wherever he stopped, they flocked around him in crowds, and demanded charity with the most abject gestures. The whole country is for the most part sandy or marshy. According to this description, Austria seems to have made no great acquisition in the Polish provinces.

The domestic animals in the Austrian dominions are commonly excellent, particularly the cattle. The mineralogy of these territories is the most various and interesting of any in Europe. There is scarcely a province from the frontiers of Switzerland to those of Turkey, which cannot boast of its minerals; and the acquisitions made by the house of Austria in Poland, contain one of the most remarkable mines in Europe, the saline excavations of Wilizka. See **SALT**, and **WILIZKA**. See also **BOHEMIA**, and **MORAVIA**.

The fertile archduchy of Austria furnishes few minerals; though mines of gold are found near the abbey Goettwig, and those of alum near Krems; salt-petre, however, is prepared in abundance; and at a little distance from St. Annaberg, near the frontiers of Stiria, a rich mine of silver was opened in 1754. The southern provinces of Stiria, Carinthia, and Carniola, afford many important minerals. See these articles. The northern parts of Italy, now subject to Austria, have been remarkable for mineralogy; but on passing into the Tyrol, several mines occur of ancient reputation, such as that of silver and lead near Lermos; and in the same quarter, those of Naseriat, in the Verner mountains, about 30 miles north-west of Innsbruck, which are rich in silver, copper, lead, and iron; nor is the southern region of Trent wholly destitute of mines. But the principal mines in the Austrian dominions are situated in the eastern provinces of **HUNGARY** and **TRANSYLVANIA**.—See also **CHEMNITZ**, and **SHEMNITZ**.

The climate of Austria Proper is commonly mild and salubrious, though occasionally exposed to violent winds; and the southern provinces in general enjoy a delightful temperature, excepting merely the severities of Alpine win-

ter in the mountainous parts. The more northern regions of Bohemia and Moravia, with the late acquisitions in Poland, can likewise boast of the maturity of the grape, and of gentle and favourable weather. The numerous lakes and morasses of Hungary, and the prodigious plains resembling deserts, are supposed to render the air damp and unwholesome, the cold of the night rivalling the heat of the day; but the keen blasts from the Carpathian mountains seem in some measure to remedy these evils, the inhabitants being remarkable for health and vigour.

The manufactures seem not to have been cultivated to any great extent in any part of the Austrian dominions. Those of Vienna are the most considerable. (See **VIENNA**, and also **BOHEMIA**.) The commerce of these dominions depends principally on their native opulence; Austria Proper, and the southern provinces, producing abundance of horses and cattle, corn, flax, saffron and various wines, with several metals, particularly quicksilver from the mines of Idria. Bohemia and Moravia are also rich in oxen and sheep, corn, flax, and hemp; in which they are rivalled by the dismembered provinces of Poland. The linen manufactures of Bohemia, according to Hoeck, amount annually to 16,000,000 florins, besides some in wool and in cotton. The woollen manufacture at Lintz employs 30,000 persons; and in the whole archduchy of Austria there are seven great manufactures of cotton cloth, which occupy 140,000 individuals. The wide and marshy plains of Hungary, afford excellent pasturage for numerous herds of cattle; and other parts of the same country produce corn, rice, the rich wines of Tokay, and tobacco of an excellent flavour, with extensive mines of various metals and minerals. Upon the whole, the Austrian territories in general abound to such a degree with the various necessities and luxuries of life, which are found either in the north or south of Europe, that the imports would seem to be few and inconsiderable; and before the acquisition of Venice, the chief exports were from the port of Trieste, consisting of quicksilver and other metals, with wines and other native products. From a table of the exports of Hungary for one year, given by Dr. Townsend, it appears, that they consisted chiefly of cattle, hogs, sheep, flour, wheat, rye, wool, and wine, carried to other Austrian provinces; and only about one-seventh part sent to foreign countries.

The prevailing religion of the Austrian dominions is the Roman Catholic. However, Protestants of various sects are found in Bohemia and Moravia; nor are Lutherans unknown at Vienna, though they chiefly abound in Transylvania; and in Hungary the Protestants are supposed to be equal in number to the Catholics.

The form of government is an hereditary monarchy, approaching to absolute power. Hungary, indeed, retains its ancient states, or rather an aristocratical senate; but as the military force is lodged wholly with the sovereign, no distinct kingdom or state can withstand his will. Austria also has its states, consisting of four orders, clergy, peers, knights, and burghesses: the assembly for Lower Austria being held at Vienna, and that of the Upper at Lintz. But these local constitutions can little avail against the will of a powerful monarch, supported by a numerous army. The laws vary according to the different provinces; and almost every state has its peculiar code, (See **HUNGARY**.) Upon the whole, the laws may be regarded as mild and salutary; and the Austrians in particular are a well regulated and contented people, while the Hungarians are often dissatisfied, and retain much of their ancient animosity against the Germans.

The history of Austria properly so called, may be concisely delineated in the following epochs, collected and detailed by Mr. Pinkerton, in his "Modern Geography," vol. i. p. 337.

"1. The house of Austria, which, by successive fortunate marriages since the fifteenth century, has arisen to such a summit of power, is well known to have sprung from the humble counts of Hapsburg. Those lords possessed a small territory in Switzerland, in the northern corner of the canton of Bern, near the river Aar, about three miles south of the town of Bruck, and the same distance to the north of Mellingen. On a lofty eminence, crowned with beech, stands an ancient tower, the first seat of the house of Austria. In the twelfth century Otho is designed count of Hapsburg, and even heraldy can scarcely ascend beyond his grandfire Radebot, brother of Werner, bishop of Strasburg. In 1273, Rodolph of Hapsburg was called to the imperial throne, after an inter-reign, during which the German potentates had increased, and secured their own power; and wisely preferred a nominal sovereign, whose humble extract, and small possessions, could afford no check to their ambition. Yet Rodolph was at this time lord of the greater part of Switzerland; after the extinction of the powerful house of Zaeringen, and that of the counts of Kyburg, whose joint inheritance devolving to Rodolph, became the basis of his power, and that of his successors. (See *Planta's* *Swiss*. i. 170.)

"2. Another emperor of the house of Austria appeared in Albert, A. D. 1298; from whom the Swiss made their signal revolt in 1307. His son Frederic was obliged to yield the empire to Louis of Bavaria. (See *ALBERT I.*)

"3. Albert II. duke of Austria, A. D. 1438, succeeded to three crowns, on the death of his father-in-law the emperor Sigismund, those of Hungary, and Bohemia, and that of the empire by unanimous election. This was the epoch of the lasting grandeur of the house of Austria. Yet his successors Frederic III. and Maximilian I. were feeble princes; and Charles V. first astonished Europe with a real display of Austrian power. (See *ALBERT II.*)

"4. Maximilian having married the heiress of Burgundy, the Netherlands became subject to the house of Austria in 1477; and his son Philip, in 1496, marrying the heiress of Arragon and Castile, the ample dominions of Spain fell afterwards under the Austrian sceptre. Charles V. inherited all these domains; but on his resignation, Spain and the Netherlands passed to his son Philip II. and the former crown continued in the Austrian line till the close of the 17th century. Austria, Bohemia, and Hungary, passed to Ferdinand, the brother of Charles V. who was also chosen emperor of Germany.

"5. The noted bigotry of the house of Austria was not confined to the Spanish branch, for though Maximilian II. about 1570, had granted liberty of conscience even to the Protestants of Austria, yet those of Bohemia, and other parts, were afterwards so much oppressed, that the Protestant princes of Germany called in Gustaf Adolf, the celebrated Swedish monarch, to their assistance, who shook the empire to its very foundation. Even France supported the Protestants, in the view of weakening the Austrian power; and the war continued till 1648, when the famous treaty of Westphalia was signed, which has served as a basis for other diplomatic transactions. (See *WESTPHALIA*.)

"6. The war with France was often rekindled during the long reign of Leopold I. 1658 to 1705; and in 1683 the Turks were so successful as to lay siege to Vienna.

"7. His son Joseph I. joined the allies against France, and shared in their success. He married the daughter of John Frederic, duke of Hanover.

"8. By the death of the emperor Charles VI. on the 20th of October 1740, without male issue, the house of Austria became extinct. The elector of Bavaria seized the kingdom of Bohemia, and was elected emperor in 1742, but died in 1745.

"9. Francis of Lorraine, son of Leopold duke of Lorraine, having married Maria Theresa, daughter of the emperor Charles VI. succeeded to the Austrian dominions, which continue to be held by his descendants. In 1745 he was elected emperor, and his successors have enjoyed the imperial crown, as if hereditary. The powerful house of Lorraine is of great antiquity, descending from Gerard count of Alsace, in the 11th century, whose origin is referred to a collateral branch of the house of Austria.

"10. The reign of the emperor Joseph II. beneficent but impetuous prince, whose grand designs of reformation were frustrated by his ignorance of the inveteracy of habits and prejudices, which must ever be considered in a due estimate of human affairs.

"11. The obdurate and sanguinary contest with France, the events of which are known to all."

For an abridged detail of the history of the other Austrian dominions; see *BOHEMIA*, *HUNGARY*, *VENICE*, &c.

AUSTRIACA SYDERA, in *Astronomy*, a name given by Maupertuis to the spots in the sun, as supposing them to be small stars between the sun and us.

AUSTRIACA, in *Entomology*, a species of *SPHEX* found in Austria, and described by Schranck. It is of a black colour, with a sulphur-coloured band, and two dots of the same at the base of the abdomen; legs sulphur-colour, with the thighs of the posterior ones thick.

AUSTRIACA, a species of *CICADA* (*Ranatra* Sec.), of a small size, that inhabits Austria. It is black, with pale legs; white at the base of the eyes; wings transparent, with three faint bands of black. Schranck, &c.

AUSTRIACA, a species of *BUPRESTIS*, with brassy, striated and bidentated wing-cases; head and thorax greenish; abdomen violet. Gmelin. This kind inhabits Idria, is about the size of *buprestis rustica*, and is called *mordella gigantea* by Scopoli.

AUSTRIACA, a species of *CICINDELA* found in Austria. This insect is green, with the breast and belly golden red; wing-cases with a thin golden margin, and a few white spots. Schranck, Beytr.

AUSTRIACUS, a species of *CIMEX* that inhabits Austria. This insect is ferruginous, and has the scutellum divided by a black band. Schranck.

AUSTRIACUS, a species of *CURCULIO* found in Austria. It is apterous, cinereous; wing-cases lined with whitish, and dotted with black. Fabricius.

AUSTRIACUS, a species of *SCARABÆUS* (*Melolontha*) found in Austria. This kind is glabrous; wing-cases brown, with an exterior elevated margin, and four spots on the scutellum. Herbst, &c. It is uncertain whether this is a distinct species or a variety only of *scarabæus agricola*.

AUSTRIACUS, in *Ornithology*, a species of *FALCO*, named by Latham the *Austrian kite*. Cere and legs rather woolly and yellow; body above chestnut; beneath testaceous, spotted with brown; tail forked. Inhabits the woods in Germany, and feeds on small birds and bats. Gmelin.

AUSTRIACUS, in *Zoology*, a species of *COLUBER* that is found in the environs of Vienna, and is so very analogous to *coluber*

coluber natrix, or common snake, as to be formerly confounded with it. Laurenti, in his work on the Amphibia, appears to be the first writer who distinguished them; the principal difference seems to consist in the perfect smoothness of the scales in auriacus, while those of natrix are slightly carinated. It is of a blueish-ash, inclining to rufous on the sides and abdomen, with a double row of alternate rufous spots along the back. This kind lives in moist meadows, hedges, and watry places, and is of a fierce disposition, but incapable of producing injury, being unprovided with poisonous fangs. It occasionally varies a little in colour. Gmelin, Shaw, &c.

AUSTRO AFRICUS, in *Meteorology*, the south-south-west point, or wind.

AUSTROMANCY, in *Mythology*, properly denotes soothsaying, or a vain method of predicting futurity, from observations of the winds.

AUSUFAL, in *Ancient Geography*, the name of a place in Africa, on the road from Carthage to Alexandria, thirty-four miles from this latter city. Anton. Itin.

AUSUM, a town of Africa, in Mauritania Cæsariensis. Ptolemy.

AUTARIATES, a people of Illyria, mentioned by Arrian, in his account of Alexander's expedition into this country; and probably the same with those placed by Strabo in Thrace, to the north of mount Rhodopus.

AUTARIS, a place in Arabia Felix. Pliny.

AUTEFAGE, in *Geography*, a town of France, in the department of the Lot and Garonne, and chief place of a canton in the district of Villeneuve d'Agén, nine miles N. N. E. of Agén.

AUTENIQUA, an extensive and beautiful country of Africa, lying to the east of the cape of Good Hope, and partly inhabited by Dutch colonists. The term "Auteniqua," in the language of the Hottentots, denotes, "loaded with honey," and is strictly applicable to this country, as you cannot advance a step in it, proceeding from the Cape, without seeing innumerable swarms of bees. Mr. Vaillant, who visited this country in 1782, calls it the most delightful region in the universe. It is interspersed with hills and vallies, enamelled meads and beautiful pastures; and it abounds with small rivulets, which contribute both to the scenery and fertility of it. The whole of Auteniqua, from the chain of mountains which divides it from the race of Hottentots called "Gonaquas," to the sea, is inhabited by planters, who rear cattle, make butter, cut down timber, and collect honey, with all which they supply the Cape. But though they employ wood in commerce, they use none of it for building houses. Their habitations are wretched hovels, constructed of wicker work, daubed over with clay; the skin of a buffalo, fixed at the four corners to as many stakes, serves them for a bed; and the door, which serves also for a window, is shut by a mat. The furniture is mean and scanty, as the dwelling is incommodious. With this appearance of poverty and wretchedness, the people live well; they have plenty of game and salt-water fish, and vegetables of every kind in their gardens through the year. For these they are indebted, to the fertility of the soil, and the rivulets flowing in various directions from the mountains by which it was watered. In the mountainous regions of this district, there are multitudes of elephants, buffaloes, panthers, hyenas, and antelopes of every species, which are hunted and killed by the natives, partly for food, and partly with a view to the preservation of their herds and flocks. The kites and vultures of this country are singularly fierce and voracious. Beyond the limits of the country called "Auteniqua," is a spacious bay, with sufficient

depth of water for the largest vessels, and safe anchoring ground, known to navigators by the name of the bay of "Agoo," but called by the colonists "Blettenberg's" bay, from the name of a governor who visited it. In advancing about a league along the coast, there is a considerable river called "Queur-Boom," which would afford an ample supply of water. The Hottentots, who in scattered "kraals" inhabit this delightful country, are described by Vaillant as a faithful, gentle, and rather timid race. He affirms, but probably without sufficient evidence, that they have not any notion of superior powers who govern the world. He also says that, totally free from jealousy, they lend their wives to travellers who visit them. In Vaillant's map, Auteniqua lies between 33° 30' and 34° 50' S. lat. and between 20° and 23° 40' E. long.

AUTENOW, a town of Poland, in the palatinate of Kiof, eighteen miles W. S. W. of Bialacerkiew.

AUTENTUM, in *Ancient Geography*, a town of Africa, in the route from Thene to Thevesta, thirty miles from Suffetula, and twenty-five miles from Amudarfa. Anton. Itin.

AUTER Droit, in *Law*, is where persons sue or are sued, in another's right; as executors, administrators, &c.

AUTER Vie; a person who holds an estate by the life of another, is usually called tenant *per auter vie*. Litt. sect. 56.

AUTERFOITS Acquit, a plea by a criminal, that he was heretofore acquitted of the same treason or felony. For one shall not be brought in danger of his life, for the same offence, more than once. 3 Inst. 213. But by stat. 3 Hen VII. c. 1. this plea shall be no bar to the prosecution of any appeal. See ACQUITTAL.

AUTERFOITS Attaint, a plea of former attainder, which is a good plea in bar, whether it be for the same or any other felony, under some exceptions; so that this plea is never good but when a second trial would be quite superfluous. See ATTAINDER.

AUTERFOITS Convict, a plea upon a former conviction for the same identical crime, though no judgment was or ever will be given; and this is a good plea in bar to an indictment.

AUTERIVE, in *Geography*, a town of France, in the department of the Upper Garonne, and chief place of a canton in the district of Muret on the Arrige, fifteen miles south of Toulouse. The place contains 4,000, and the canton 9,171 inhabitants; the territory includes 147½ kilometres, and 11 communes.

AUTHENTIC, something of received authority. It also signifies something solemn, and celebrated; clothed in all its formalities; and attested by proper persons, to whom credit has been regularly given.

Biblical writers have differed in opinion about the meaning of the phrase "Authentic letters," used by Tertullian, De Præscrip. c. 36. p. 245. B. Some by authentic letters have understood the originals themselves, in the apostle's hand-writing, or that of his amanensis, and signed at the conclusion by himself. Others are of opinion, that Tertullian means letters in their original language. But Dr. Lardner, rejecting these two interpretations, maintains that this ancient father means by authentic letters such as were certain and well attested. In this sense the word authentic is used by Cicero Ad. Attic. l. x. ep. 9. Accordingly, by "Authenticæ literæ" we are not to understand "Authentic letters, or epistles," but "Scriptures;" and so the word should have been rendered. Hence it may be inferred, agreeably to the argument used by Tertullian, that the scriptures

scriptures received by the apostolical churches were authentic; the testimony given by those churches being, according to this father, an authentic, original, and certain testimony. Lardner's Works, vol. ii. p. 266, &c.

AUTHENTIC, in *Musick*, a term used in speaking of the ecclesiastical modes of *canto fermo*, or plain-song. An authentic tone or mode is that, when the octave is harmonically divided in this proportion, 6.4:3. that is to say, when the

d
fifth is at the bottom, and the fourth at top, as A. When

D
the octave is divided arithmetically, as 4.3:2. where the

a
fifth is above the fourth, as D, then the mode is termed

A
plagal. Of the eight ancient ecclesiastical modes, four are authentic; namely, the first, third, fifth, and seventh. The rest, that is the second, fourth, sixth, and eighth, are plagal. See **MODES**.

AUTHENTICATING, the punishing an adulteress, by public whipping, and shutting her up in a convent for two years; after which, if the husband be not willing to take her back, she is shaven, veiled, and shut up for life. It is so called, as being the punishment prescribed in the Authentics. If the husband die within the two years, she seems to have a right to petition the court for her liberty; at least, another man, willing to marry her, may petition, and probably obtain it.

AUTHENTICITY of the *Old and New Testament*. See **BIBLE** and **TESTAMENT**.

AUTHENTICS, **AUTHENTICES**, in the *Civil Law*, is a name given to the Novels of Justinian. See **NOVEL**.

The reason of the denomination is not well known.—Alciat will have it to have been first given them by Accursius. The Novels were originally composed in Greek, and afterwards translated into Latin by the patrician Julian, who also reduced them into fewer words, and less compass. And in the time of Bulgarius, there was a second version made, more exact and literal, though not quite so elegant as the former.

This translation, says the author just cited, being preferred by Accursius, he called it *authentica*, by way of preference to that of Julian, as being more conformable to the original. They are hereby distinguished from some other publications of later imperial constitutions, which are not regarded as of much authority.

AUTHIE, in *Geography*, a river of France, which runs into the sea, eight miles north from the mouth of the Somme, and separates the department of the straits of Calais from the department of the Somme, through almost its whole course.

AUTHION, a river of France, which runs into the Loire, two miles south of Angers,

AUTHON, a town of France, in the department of the Eure and Loire, and chief place of a canton in the district of Nogent le Rotrou; six leagues west-north-west of Chateaudun. The place contains 1,165, and the canton 10,250 inhabitants: the territory includes 315 kilometres, and 18 communes.

AUTHOR, formed of *αυτορ*, *ipse*, or rather from the Latin participle *actus*, or *augeo*, *I increase*; properly denotes one who created or produced any thing; and is applied, by way of eminence, to the first cause; viz. God. Thus we say, the author of nature; author of the universe, &c.

The term author is sometimes used in the same sense with institutor or inventor. Polydore Virgil has wrote eight books of the authors or inventors of things, &c. See **INVENTION**.

AUTHOR, in matters of *Literature*, denotes a person who has wrote or composed some book or writing. Accordingly we say, the sacred authors, anonymous authors, ancient and modern authors, &c. An original author is he who first treated of any point or subject; who did not follow any other person, or imitate any model either in the matter or manner of what he has wrote.

AUTHORITY, in a general sense, denotes a right or power to command, and make one's self obeyed. In this sense we say, the supreme or sovereign authority; absolute or despotic authority; the royal authority; the episcopal authority; the authority of the church, of a father, &c. the authority of scripture, of a creed, confession, or the like.

AUTHORITY is also used for the testimony of an author or writing.

The word is also particularly understood of an apophthegm, or sentence of some great or eminent person, quoted in a discourse, either by way of proof, or embellishment.

Authority also includes rules, laws, canons, decrees, decisions, &c. alleged in confirmation of a matter in dispute. Passages quoted from Aristotle were of great authority in the schools: texts of scripture are of decisive authority.

Authorities make a species of arguments called by rhetoricians inartificial or extrinsic arguments. See **ARGUMENTS**.

For the use and effect of authorities, see **EVIDENCE**, **FAITH**, **PREJUDICE**, **PROBABILITY**, **REASON**, **REVELATION**, &c.

AUTHORITY, in *Law*, is a power to do something, conveyed by word or writing; as also by writ, warrant, commission, letter of attorney, &c.; and sometimes by law.

AUTHORITY, or **AUTHORITIES**, likewise denote the treatises of ancient authors, such as Glanvil, Bracton, Britton, the author of the book Fleta, Hengham, Littleton, Statham, Brooke, Fitzherbert, Staundforde, and some others of ancient date, which are cited as authority; and furnish evidence that cases have formerly happened in which particular points were determined, which are now become settled and first principles.

One of the last of these methodical writers, in point of time, whose works are of any intrinsic authority in the courts of justice, and do not entirely depend on the strength of their quotations from older authors, is sir Edward Coke, who hath written four volumes of Institutes, as he is pleased to call them, though, says judge Blackstone, they have little of the institutional method to warrant such a title.

AUTIRE, in *Geography*, a river of France, which runs into the Sevre, a little below Maillerais.

AUTO Da Fe. See **ACT of Faith**.

AUTOCABDALI, in *Antiquity*, an order of musicians, who wore an ivy crown, or garland.

Scaliger seems to rank them in the number of *mimi*.

AUTOCEPHALUS, compounded of *αυτορ*, *ipse*, and *κεφαλη*, *caput*, *head*, a person who is his own ruler or master, and who has no other over him.

This denomination was given by the Greeks, to certain archbishops, who were exempted from the jurisdiction of patriarchs.—Such were the archbishop of Cyprus, by a general decree of the council of Ephesus, which freed him from the jurisdiction of the patriarch of Antioch.

There were several other bishops in the East, who were autocephali; and in the West, those of Ravenna pretended to the same right.—The sixth council, canon 39, says, that the autocephali have the same authority with patriarchs;

bat

but this is not to be understood in the full latitude of the words; but only as intimating, that the autocephali have the same authority over their bishops, that patriarchs had over their archbishops: in which sense, only, they are equal to patriarchs.

AUTOCHTHONES, from *αὐτός*, *ipse*, and *χθών*, *terra*; an appellation assumed by some nations, importing, that they sprung, or were produced, from the same soil which they still inhabited. In this sense, autochthones amounts to the same with **ABORIGINES**. In this sense it was that the Greeks, and especially the Athenians, pretended to be *autochthones*, and, as a badge thereof, wore a golden grasshopper woven in their hair, an insect supposed to have the same origin.

This favourite epithet of the Athenians, which gave denomination to one of the tribes of Athens, signifies only, "people born in the country where they live," in opposition to strangers. The common people of Athens perverted this to signify people sprung from the earth. See what Plato makes Socrates say on this matter, in Menexen, p. 518. See also Isocr. in Paneg. p. 65. Cicero Orat. pro L. Flacc. 26. Isocrates says, that people of sense at Athens understood by this epithet, that Athens was the most ancient of the Greek cities, and that it had been built by those who, from time immemorial, had been established in the country known by the name of Attica. See Herod. l. vii. § 161. Suid. voc. *Αὐτοχθόνες*, t. i. p. 389. History, however, destroys this last pretension; as few circumstances are better known than the time of the building of Athens.

AUTOCRATOR, from *αὐτός*, and *κράτος*, *power*; a person vested with an absolute independent power, by which he is rendered unaccountable to any other for his actions. The power of the Athenian generals, or commanders, was usually limited; so that, at the expiration of their office, they were liable to render an account of their administration. But, on some extraordinary occasions, they were exempted from this restraint, and sent with a full and uncontrollable authority: in which case they were styled *αὐτοκράτορες*.

The same people also applied the name to some of their ambassadors, who were vested with a full power of determining matters according to their own discretion, and resembled our *plenipotentiaries*.

AUTOCRATOR was also a title given to the Roman emperors, first to Julius, and afterwards to his successors, like that of Cæsar, or Augustus.

AUTODIDACTUS, from *αὐτός* and *διδάσκω*, *I teach*; a person self-taught.

It is used in divers senses, sometimes to denote a person who received his knowledge immediately from heaven without any help or study. In which sense the word occurs in Homer, and Clemens Alexandrinus.—Sometimes for him who acquires his knowledge without instruction, either by word of mouth, or reading of books. Such were the inventors of sciences and laws.—Sometimes, and that most usually, for him who arrives at learning by the use of books alone, without the assistance of any master, or instruction *visâ voce*.

AUTOGLYPHUS *Lapis*, a stone, mentioned by Plutarch, and some other of the ancients, as having naturally impressed on it the figure of Cybele. It is said to have been found in Sagaris a river of Persia. Doubtless, if any such stone ever existed, the priests had got it made to deceive the people.

AUTOGRAPHUM, formed of *αὐτός*, and *γράφω*, *scribo*, the very hand writing of any person; or the original of a

treatise or discourse.—The word is used in opposition to a copy.

Autographa, or original MSS. of the New Testament, are the first copies of each book, which were written either by the apostles themselves or by amanuenses under their immediate inspection. St. Paul usually adopted the latter mode; but to prevent the circulation of spurious epistles, he wrote the concluding benediction with his own hand. See Rom. xvi. 22. Gal. vi. 11. and 2 Thess. iii. 17, 18. compared with ch. ii. 2. and 1. Cor. xvi. 21. None of these original MSS. are now remaining, nor could they have been preserved, without the interposition of a miracle, during the space of eighteen centuries. "But what benefit (says Michaelis, Introd. to the N.T. by Marsh, vol. i. p. 247.) should we derive from the possession of these MSS.; what inconvenience do we sustain from their loss? No critic in classical literature inquires after the original of a profane author, or doubts of the authenticity of Cicero's Offices, because the copy is no longer extant which Cicero wrote with his own hand. An antiquarian, or collector of ancient records, will hardly maintain, that the probability of these books being genuine, is inferior to the probability that a record in his possession of the twelfth century is an authentic document of that period; for though his record is only 600 years old, and the works of Cicero are thrice as ancient, we are more exposed to imposition in the former instance, as the forgery of antiquities is often practised by those, whose business and profit are to lead the curious into error. But supposing that the original MSS. of Cicero, Cæsar, Paul, and Peter, were now extant, it would be impossible to decide whether they were spurious, or whether they were actually written by the hands of these authors. The case is different with respect to persons who have lived in the two last centuries, whose hand-writing is known, with which a copy in question may be compared and determined; but we have no criterion, that can be applied to MSS. so old as the Christian æra. Yet admitting that these original writings were extant, that we had positive proofs of their authenticity, and, what is still more, that the long period of seventeen centuries had left the colour of the letters unfaded, still they would be no infallible guide in regard to the various readings."

Knittel, in his edition of a fragment of Ulphilas, p. 129. accounts for the loss of the original MSS. of the N.T. by supposing that the original gospels and epistles, as soon as the different communities, for whose use they were written, had taken a copy, were returned to the authors; and he says, that it was the general practice among the Christians of that age, and in support of the assertion appeals to a passage in Polycarp, and another in Jerom. But his arguments, in the opinion of Michaelis, are very unsatisfactory; and he thinks it reasonable to suppose, that the very same accidents, which have robbed us of other ancient documents, have deprived us likewise of these originals. From a passage of Ignatius, in the eighth chapter of his epistle to the Philadelphians, it has been inferred, that some of the first Christians appealed to the original MSS. at that time extant, and held them in great veneration; for which they were ridiculed, as the same passage is thought to suggest, by the early fathers, and those who had the greatest authority in the church. But the passage to which appeal is made, in order to prove the existence of the original MSS. in the time of Ignatius, is found to relate to a different subject. See **AUTHENTIC**.

The early loss of the autographa of the N.T. affords just matter of surprise, when we reflect that the original

MSS.

MSS. of Luther and other eminent men who lived at the time of the reformation, whose writings are of much less importance than those of the apostles, are still subsisting. Various causes may have contributed to this circumstance, of which several have been alleged in Griesbach's "*Historia Textus Epistolarum Pauli*," sect. ii. § 7, 8. Michaelis has given the following account of it. The several books of the N. T. were circulated among the Christians in numerous copies; "these were soon collected into a volume, and formed the edition in general use; and as no disputes had then arisen on the subject of various readings, they felt not the necessity of preserving in a common archive the MSS. of the apostles. The situation of the Christian churches was at that time extremely different from the present: the most eminent, which were those of Rome, and Corinth, consisted of a number of small societies, that assembled separately in private houses, having no public building as a common receptacle for the whole community; and even in those private houses a moderate number only could meet together, as it was their custom not merely to pray and to teach, but likewise to celebrate their feasts of love. The epistle, which they had received from St. Paul, was not the property of any one society in particular, but belonged to the community at large, and that which was sent to the Corinthians was addressed to the communities throughout all Achaia. Each society copied the epistle in its turn, and beside the general copies many individuals probably took copies for themselves, whence the original MS. of the apostle, in passing through so many hands, where perhaps not always the greatest care was taken, must unavoidably have suffered. The Christian communities in Rome and Corinth had no common archive, or public library, in which the MS. of the apostle might have been afterwards deposited, for want of which, the original, as soon as a sufficient number of copies had been, was forgotten and lost. In other cities, the number of single societies, among which the epistle was divided, was inferior indeed to that in Rome, Corinth, or Ephesus, but the same causes contributed in each to the loss of the original epistle."

The same learned author adds, "the late or early loss of the autographa has no influence on the grounds of our faith; for the credibility of a book, which during the life of the author has been made known to the world, depends not on the preservation of the author's manuscript. No reader of the present work will enquire after the copy, which I send to the printer, to determine whether the work itself be spurious or authentic; nor was it necessary, for determining the authenticity of the New Testament, to preserve the originals; for each book, during the lives of the apostles, was circulated throughout the Christian world, in numberless copies, though they were not collected during that period into a single volume." As the autographa of the N. T. fell so early into oblivion, it seems reasonable, in certain cases, to make use of critical conjecture for settling the true reading of disputed passages in the N. T., as well as in other books. On this subject, see Michaelis *Introd.* vol. i. §. 2. p. 253, &c.

For the purpose of multiplying autographs, or original copies of the same writing, several machines have been invented. See *Writing Machine*.

AUTOISON, in *Geography*, a town of France, in the department of the Upper Saone, and chief place of a canton, in the district of Vesoul; five leagues south of Besançon.

AUTOL, a town of Spain, in Old Castile, one league from Calahorra.

AUTOLITHOTOMUS, he who cuts himself for the stone. See *LITHOTOMY*.

Of this we have a very extraordinary instance given by Reiselius, in the *Ephemerides* of the *Academy Naturæ Curiosorum*, an. 3. obs. 190.

AUTOLALA, in *Ancient Geography*, a town of Gætulia, in Libya Interior, which stood betwixt the Subus and the Salathus, the only two rivers of note, except the Gir and Niger, that watered Gætulia. Nothing is now known of this ancient city, but that it gave name to the Autololes, a powerful tribe of Gætulia Proper, that spread themselves over that part of Tingitania which bordered on the coast of the Atlantic ocean.

AUTOLYCUS, in *Biography*, a Greek mathematician and astronomer of Pitane, in Æolia, flourished about 320 years before Christ. He was preceptor in mathematics to Arcefilaus, who was also a disciple of Theophrastus, the successor of Aristotle. That he was an eminent mathematician appears from two of his works that are extant; viz. a treatise "*On the moveable Sphere*," published by Dasypodius in Greek and Latin, 8vo., at Strasburg, in 1578; and in a Latin translation in the "*Synopsis Mathematica*" of Merfennus, published in 4to., at Paris, in 1644; and also a treatise "*On the rising and setting of the Stars*," edited with the former work by Dasypodius Diog. Laert. Vit. Arcefil. Fabr. Bid. Græc. tom. ii. p. 89. Montucla *Hist. Mathem.* t. i. p. 192.

AUTOMATON, or AUTOMATON, compounded of *αὐτός*, *ipse*, and *μαρμαιναι*, *I am excited or ready*, whence *αὐτοματός*, *spontaneous*; a self moving engine; or a machine which has the principle of motion within itself. Such were Archytas's flying dove, mentioned by Aulus Gellius, Noct. At. lib. x. c. 12. (See *AEROSTATION*); and regiomontanus's wooden eagle, which, as historians relate, flew forth from the city of Nuremberg, met the emperor Maximilian on his arrival, June 7, 1470, saluted him, and returned; as also his iron fly, which, at a feast, flew out of his hands and taking a round, returned thither again; and also Dr. Hooke's flying chariot, capable of supporting itself in the air. Hakew. *Apol. c. x. sect. 1.* None of the contemporary writers, though they often mention Regiomontanus, take any notice of those pieces of mechanism that have been ascribed to him, and it is probable, says Beckmann (*Hist. Invent.* vol. iii. p. 325.) that the whole tale originated from Peter Ramus (Schol. *Mathem.* l. ii. p. 65.), who never was at Nuremberg till the year 1571. Charles V., it is said, after his abdication, amused himself during the latter period of his life, with automata of various kinds.

Among automata are also reckoned all mechanical engines which go by springs, weights, &c. included within them: such are clocks, watches, &c. Vide *Bapt. Port. Mag. Nat. c. 19. Scalig. Subtile.* 326.

When clocks were brought to perfection, some artists added to them figures, which, at the time of striking, performed certain movements; and as they succeeded in these, some of them attempted to construct single figures, detached from clocks, which either moved certain limbs, or advanced forward and ran. In the middle of the sixteenth century, when Hans Bullman, of Nuremberg, constructed figures of men and women, which moved backwards and forwards by clockwork, beat a drum, and played on the lute, according to musical time, they excited universal astonishment. The most ancient automata, of which we have any record, are the tripods constructed by Vulcan (see *Iliad*, xviii. 373. *Philostat. Oper.* ed. Olearii, p. 117 and 240.), which being furnished with wheels, advanced forwards to be used, and

again returned to their places. These tripods, which are mentioned also by Aristotle (*Polit.* i. 3.) were probably only a kind of small tables, or dumb waiters, with wheels so contrived that they could be put in motion, and driven to a distance, on the smallest impulse.

Automata that represent human figures are called Androides. (See *ANDROIDES*, under which article an account has been given of several figures of this kind.) From a letter addressed by Thomas Collinson, esq. to Dr. Hutton, we learn, that the secret of the chess-playing figure exhibited in various places by M. Kempelen (baron Kempell), was discovered by a gentleman of rank and talents named Joseph Freidrick Freyherr, who published, at Dresden, in 1789, a treatise explaining its principles. A well taught boy, very thin and small of his age, so that he might be concealed in a drawer almost immediately under the chess-board, agitated the whole machine. M. Droz of La Chaux de Fouds, in the province of Neuchâtel, has also executed some very curious pieces of mechanism. One of these was a clock, presented to the king of Spain, to which pertained, among other curious contrivances, a sheep that imitated the bleating of this animal, and a dog, watching a basket of fruit, that barked and snarled when any one offered to take it away, and a variety of moving human figures. Mr. Collinson informs us, that when he was at Geneva, Droz, the son of the former, shewed him an oval gold snuff-dox, about $4\frac{1}{2}$ inches long, 3 broad, and $1\frac{1}{2}$ thick, which was double, with an horizontal partition; one of the partitions contained snuff, and in the other, upon opening the lid, there sprang up a very small bird, of green enamelled gold, perching on a gold stand. This minute curiosity, being only three quarters of an inch from the beak to the extremity of the tail, wagged its tail, shook its wings, opened its bill, of white enamelled gold, and poured forth such a clear melodious song as would have filled a room of twenty or thirty feet square with its harmony. Another automation of Droz's was the figure of a man, about the natural size, which held in its hand a metal style; and by touching a spring that released the internal clock-work from its stop, the figure began to draw on a card of Dutch vellum laid under the style. Having finished its drawings on the first card, the figure rested. It then proceeded to draw different subjects on five or six other cards, which number limited its delineating powers. The first card exhibited elegant portraits and likenesses of the king and queen facing each other; and the figure was observed with the most surprising precision to lift its pencil, in the transition from one point of the draft to the other; as, e. g. from the forehead to the eye, nose, and chin, and from the waving curls of the hair to the ear, &c. without making the least stir.

AUTOMEDON, in *Entomology*, a species of *PAPILIO* (*H. liconius*), with broad angulated wings of a brown colour above, and livid beneath; an ocellar spot in the anal angle. Fabricius, &c. Native place unknown.

AUTONINE, BERNARD, in *Biography*, a French lawyer and advocate to the parliament of Bourdeaux, was born at Agenois, in 1587, and died in 1666. The principal of the law treatises which he wrote are in French, "A Comparison of the French with the Roman law," published in 2 vols. fol. in 1644; and "A Commentary upon the Provincial Law, or 'La Coutume,' of Bourdeaux," the best edition of which is that of Dupin, 1728, fol. with notes. He also wrote in Latin "Censura Gallica in Jus Civile Romanum," Paris, 8vo. 1615; and he published at Paris, in 1607, in two volumes, 8vo., an edition of Juvenal and Persius, with ample notes. He has been deemed

an industrious rather than a judicious author. *Nouv. Dict. Hist.*

AUTONNE, in *Geography*, a river of France, which runs into the Oise near Verberie.

AUTONOMI, in *Ancient Geography*, so called because they were their own law-givers, a people who inhabited the most rocky and barren parts of Thrace, separated from Mœsia by mount Hæmus. In their engagement with Alexander, they behaved with extraordinary valour; but their whole army was cut in pieces, and their baggage taken, together with their wives and children. After this defeat, they submitted to the conqueror, who, in order to prevent their revolt during his absence, took with him into Asia all the chief men of their nation. They afterwards served under Perseus against the Romans; but were allowed to live according to their own laws till the reign of Vespasian, who made their country part of the province of Thrace. *Thucyd.* l. ii. *Arrian*, l. i.

AUTONOMIA, from *αυτο*, *self*, and *νομος*, *law*, a power of living or being governed by our own laws and magistrates. The liberty of the cities which lived under the faith and protection of the Romans, consisted in their autonomia, i. e. they were allowed to make their own laws, and elect their own magistrates, by whom justice was to be administered and not by Roman præfidents or judges, as was done in other places which were not indulged the autonomia.

AUTOPRACTI, from *αυτο*, and *πραξις*, *I exercise*, in the *Civil Law*; those indulged this privilege, that they should not be summoned or compelled to pay taxes or tributes by the collectors, but should be left to their own free will. *Du-Cange*.

Of this number were men of distinguished dignity, and those eminent for their probity and honour.

AUTOPSY, compounded of *αυτο*, *one's self*, and *οψις*, *sight*, ocular inspection, or the seeing a thing with one's own eyes.

AUTOPYROS, from *αυτο* and *πυρος*, *wheat*, in the *Ancient Diet*, an epithet given to a species of bread, wherein the whole substance of the wheat was retained, without retrenching any part of the bran.

Galen describes it otherwise, viz. as bread where only the coarser bran was taken out.—And thus, it was a medium between the finest bread, called *similagineus*, and the coarsest, called *furfuraceus*.

This was also called *autopyrites*, and *syncomistus*.

AUTOUR, in *Ornithology*, the name under which Buffon describes the gohawk, or *falco palumbarius* of Linnæus.

AUTOUR, in *Natural History*, a sort of bark which resembles cinnamon, but is paler and thicker; it is of the colour of a broken nutmeg, and full of spangles. It comes from the Levant, and is an ingredient in the carmine dye.

AUTREAU, JAMES D', in *Biography*, a painter and a poet, was born at Paris, in 1656; but being of a singular and misanthropic disposition, secluded himself from the world, lived in obscurity, and died in an hospital. As a painter, though not eminent, he produced some pieces that were esteemed. With a view of doing honour to the character of cardinal Fleury, he adopted the device of exhibiting Diogenes with a lantern searching for an honest man, and pointing him out in a portrait of the cardinal. Having nearly attained the age of sixty, he began to write for the stage; and the species of composition which he first adopted, notwithstanding his contrary disposition and habits, was light and humorous comedy. He wrote both for the Italian and French theatres. His "Port a l'Anglois" was

his first piece, and another of his works was the "Amans Ignorans." He also composed some tragedies and serious pieces for the French theatre; and wrote Lyric compositions for the opera. The plots of his pieces are simple and inartificial; but the dialogue is easy and natural; and some of his scenes contain genuine comedy. Notwithstanding all his exertions, Autreau died in extreme poverty, at the hospital of the Incurables in Paris, in 1745. His works were collected and published, with a preface, by Pesselier, in four volumes, 12mo. in 1749. *Nouv. Dict. Histor.*

AUTRE COURT, in *Geography*, a town of France, in the department of the Meuse, and chief place of a canton in the district of Clermont; four miles S. S. E. of Clermont, and eleven south-west of Verdun.

AUTREY, a town of France, in the department of the Upper Saone, and chief place of a canton in the district of Gray; one league north-west of Gray. The place contains 1213, and the canton 8,395 inhabitants; the territory includes 270 kilometres and 21 communes.

AUTRICOURT, a town of France, in the department of the Côté d'Or, and chief place of a canton in the district of Chatillon sur Seine, eight miles north of Chatillon.

AUTRICUM, in *Ancient Geography*, now *Chartres*, a town of Gaul, the capital of the Carnutes, and called *Civitas Carnotum*, and *Carnotena*. It was seated on an eminence, and seems to have derived its first name from the river *Autura*. It was celebrated in Gaul, as the principal residence of the Druids, who held their assemblies among the woods in its vicinity. The name of Carnotum was probably derived from the Celtic *Kar* or *Ker*, denoting a *city*, and expressing its peculiar excellence.

AUTRIGANES, a people of Hispania Citerior, in Cantabria, who dwelt near the foot of the Pyrenées, towards the south-west. The only town they had on the coast was *Flaviobriga*.

AUTRUCHE, in *Ornithology*. See *STRUTHIO CAMELUS*.

AUTRY, in *Geography*, a town of France, in the department of the Ardennes, and chief place of a canton in the district of Grandpré; three leagues west of Varennes.

AUTUMN, the third season of the year; being that in which the harvest and the fruits of the summer are gathered. It begins on the day when the sun's meridian distance from the zenith, being on the decrease, is a mean between the greatest and the least; which in these countries is supposed to happen when the sun enters Libra, or about the twenty-second day of September. Its end coincides with the beginning of winter.

Divers nations have computed the year by autumns; the English Saxons, by winters.—Tacitus tells us, the ancient Germans were acquainted with all the other seasons of the year, but had no notion of autumn.

Autumn has always been reputed an unhealthy season. Tertullian calls it "tentator valetudinum;" and the satirist speaks of it in the same light:

"Autumnus Libitinæ quæstus acerbæ."

Autumn is commonly represented by painters under the figure of a female crowned with vine branches, and bunches of grapes; naked in that part which respects summer, and clothed in that which corresponds to winter. Its garment is covered with flowers, like that of Bacchus.

AUTUMNAL, something peculiar to autumn. Thus,

AUTUMNAL Point, is one of the equinoctial points; being that from which the sun begins to descend towards the south pole.

AUTUMNAL Equinox, is the time when the sun enters the autumnal point. See *EQUINOX*.

AUTUMNAL Flowers. See *FLOWER*.

AUTUMNAL Plants, in *Gardening*, all such as attain perfection in autumn, either in their growth, or in their flowering, &c.

AUTUMNAL Season, that period, which, in regard to the numerous operations to be performed in it, is commonly considered to be, from about the beginning or middle of August to the latter end of November; and in which the different works of sowing, planting, and propagation, &c. are most successfully accomplished; as, for instance, the putting in various sorts of esculent plants to stand the winter for the ensuing spring and summer, such as cabbages, cauliflowers, carrots, lettuces, spinach, onions, &c. in the more early part; and in the latter, beans, peas, coleworts and early cabbage plants; likewise cauliflowers, some to remain under hand and bell glasses, others in frames, to stand till spring; also lettuces on warm borders, and in frames, to stand the winter; and celery in shallow trenches, for spring use; and the making and spawning of mushroom-beds, for winter and spring. Different sorts of fibrous-rooted flower-plants are also increased at this season, by dividing or parting their roots, particularly in the months of September, October, and November, when the flower-stems decay; the slipped or divided parts mostly flowering the following year: and from the middle of September to the middle or end of November, is the time for transplanting from one place to another different kinds of hardy fibrous-rooted perennials, as directed under their proper genera. Most sorts of bulbous flower-roots, that were taken up in summer, are now planted in order to exhibit an early spring and summer bloom, in the following year. The seeds of many sorts of flowers are likewise at this time to be sown, which do not grow so freely when sown at other seasons, as is shewn under their proper heads. In the latter part of this season it is necessary to plant cuttings, and make layers, for the propagation of various trees and shrubs of the hardy kind. The seeds of many sorts of hardy trees and shrubs may also be sown. Besides these, many other parts of garden culture are particularly necessary at this season.

AUTUMNAL Signs, are those through which the sun passes during the season of autumn, Libra, Scorpio, and Sagittarius.

AUTUMNALIS, in *Ornithology*, a species of *PSITTACUS*, called by Brisson *psittacus americanus*; crick à tête bleue by Buffon; lesser green parrot by Edwards, Av. and autumnal parrot by Latham. It is distinguished by being of a green colour, with the front and spot on the quill feathers scarlet; crown and primary quill feathers blue. Gmelin.

Of this kind there are two distinct varieties; one with the front and chin blue, and the other with the head varied with red and white. The first is var. (*β*) *psittacus fronte gulaque cæruleis* of Gmel.; crick à tête bleue of Buffon; blue-faced green parrot of Edwards; and blue-headed creature of Bancroft. Gujan. The latter is called Cocho in Fernand. Hist. Nov. Hisp. Inhabits Guiana.

This species is about the size of a pigeon; region of the eyes blue; primary wing-coverts blue, and red at the base; tail feathers green above, and tipped with yellowish, outer one blue at the exterior edge: beneath yellowish, reddish at the base, with a green spot in the middle.

AUTUMNALIS, a species of *ANAS* or duck, that inhabits South America. It is greyish; wings, tail, and belly black; spot on the wing tawny and white. Jacquin Beytr. This is the red-billed whistling duck of Edwards; *anas fistularis*

laris americana of Brissl.; and siffleur à bec rouge et narines jaunes of Buffon.

This bird is represented to be of a very quarrelsome disposition, but may be tamed; sits on trees, and measures in length twenty-one inches. The bill is red, black at the tip; crown, back, and scapulars chestnut; breast yellowish ash; legs yellow.

AUTUMNALIS, a species of FRINGILLA, called by Latham the autumnal finch. It inhabits Surinam; is of a greenish colour, with a ferruginous cap, and vent testaceous. Linnæus. The tail is even at the end.

AUTUMNUS, in *Entomology*, the name given by Admiral to the moth, or phalæna, called by Gmelin *P. jagana*; which see.

AUTUN, in *Geography*, an ancient city of France, and chief place of a district in the department of the Saone and Loire; and, before the revolution, the capital of a district called *Autunois*, with a bishop's see. It is situated near the river Arroux, at the foot of three mountains, in which are three springs, that supply the city with water. The city itself is small, being about $\frac{3}{4}$ of a mile in length, and about the same breadth; it has now few good buildings, but its ruins indicate its former magnificence; and those of its walls in particular, seem, by the firm union of the stones that compose them, as if they had been cut out of the solid rock. Here are the remains of three ancient temples, one dedicated to Janus, and another to Diana; and also of a theatre, and a pyramid, the last probably having been a tomb. It has also two beautiful antique gates; the field in which it stands is called "the field of urns," because several urns have been dug in it. Autun was made a Roman colony by Augustus, and after him called "Augustodunum;" and as early as the reign of Claudius, it ventured of itself, and without assistance, to declare against the legions of Gaul. After a siege of seven months, they stormed and plundered this unfortunate city, already wasted by famine; nor was it restored till the time of Dioclesian. The country from Chalons to Autun is very rich in vineyards and cornfields, and presents, by its lofty hills and swelling outline, a picturesque scene. The approach to it is by a road which winds over hills, that is covered with an underwood of broom, and crowned with a forest of birch and fir-trees. The cathedral is a handsome building. The place contains 9,176 and the canton 15,016 inhabitants: the territory includes $262\frac{1}{2}$ kilometres and 10 communes. N. lat $46^{\circ} 56' 48''$. E. long. $4^{\circ} 17' 44''$.

AUTURA, in *Ancient Geography*, a river of Gallia Celtica, now the *Eure*, which falls into the Seine on the south side.

AUTZ, in *Geography*, a town of the duchy of Courland, thirty-six miles S. S. E. of Goldingen.

AUVE, a town of France, in the department of the Marne, and chief place of a canton in the district of St. Menehould, thirteen miles E. N. E. of Chalons.

AUVERGNE, a province of France, before the revolution, but now forming the two departments of Puy de Dôme, and Cantal, bounded on the east by Forez, on the north by Bourbonnois, on the west by Limousin, Quercy, and La Manche, on the south by Rouergue, and the Cevennes. Its extent from south to north is about forty French leagues, and from west to east thirty. It is divided into Upper and Lower Auvergne. The former is cold and mountainous, and yet has excellent pastures, and supplies many large cattle; the latter, to which belongs the valley of Limagne, and by which appellation it has sometimes been distinguished, is a fertile and pleasant country, abounding in wine, grain, fruit, and hemp. Auvergne supplies Lyons and Paris with fat cattle; a large quantity of cheese is

made in this province; and it has several manufactures. It has mines of silver, iron, lead, and coals. Its principal rivers are the Allier, the Dordogne, and the Alagnon; which see. The capital of the whole province is Clermont. The basaltic mountains of this ancient province are famous; and have been ascribed by some eminent naturalists to volcanoes; but as they consist chiefly of basaltic columns and elevations, others, among whom may be reckoned the best judges, allege that they have no claim to a volcanic origin. Those of Auvergne are too extensive to have been produced by a single volcano, and it would be too bold a conjecture to attribute them to a chain of volcanoes. "The northern part of the chain is styled the Puy de Dôme, while the southern is called that of Cantal. The Mouts d'Or from the centre and are the highest mountains in France. The chief elevation is that of the Puy de Sanfi, which rises about 6,300 feet above the level of the sea, while the Puy de Dôme is about 5000, and the Plomb du Cantal, the highest of that part, is about 6,200 feet. Near the Puy de Sanfi is l'Ango, that gigantic mountain, and Ecorchade, a shattered and wrecked elevation. The Plomb du Cantal is also accompanied by bold rivals, as the Puy de Griou, le Col-de-Cabre, le Puy Mari, and the Violent. This enormous assemblage of rocks covers an extent of about 120 miles, and according to the French authors, is chiefly basaltic. The Puy de Sanfi is capped with almost perpetual snow, followed in the descent by naked rocks and ancient pines; from its sides issues, from two sources, the river Dordogne, and many picturesque cascades devolve amidst basaltic columns. On the 23d of June, 1727, Pradines, a village on the slope of one of these mountains, was totally overwhelmed by its fall; the whole mountain with its basaltic columns rolling into the valley. The inhabitants were fortunately engaged in the celebration of Midsummer eve, round a bonfire at some distance. These mountains are in winter exposed to dreadful snowy hurricanes, called *Acirs*, which in a few hours obliterate the ravines, and even the precipices, and descending to the paths and streets, confine the inhabitants to their dwellings, till a communication can be opened with their neighbours, sometimes in the form of an arch under the vast mass of snow. Wretched the traveller who is thus overtaken: his path disappears, the precipice cannot be distinguished from the level; if he stand he is chilled, and buried if he proceed: his eye-sight fails amidst the snowy darkness; his respiration is impeded; his head becomes giddy; he falls and perishes. In summer, thunder storms are frequent and terrible, and accompanied with torrents of large hail, which destroy the fruits and flocks, which for six months pasture on the mountains, guarded by shepherds, who have temporary cabins of turf and reed, styled *burons*." Pinkerton's Mod. Geog. vol. i. p. 274.

Auvergne, in the revolutions of France, formerly maintained a just pre-eminence among the independent states and cities of Gaul. The brave and numerous inhabitants displayed a singular trophy, which was the sword of Cæsar himself, which he had lost when he was repulsed before the walls of Gergovia. As the common offspring of Troy, they maintained a paternal alliance with the Romans; and if each province had imitated the courage and loyalty of Auvergne, the fall of the western empire might have been prevented or delayed. They firmly maintained the fidelity which they had reluctantly sworn to the Visigoths; but when their bravest nobles had fallen in the battle of Poitiers, they accepted, without resistance, a victorious and catholic sovereign. This easy and valuable conquest was achieved, and possessed by Theodoric, the eldest son of Clovis. At length, however, Childbert, the king of Paris was tempted by the neighbourhood and beauty

of Auvergne; and on the false report that their lawful sovereign was slain in Germany, the city and diocese were betrayed by the grandson of Sidonius Apollinaris. Childbert enjoyed this clandestine victory. Theodoric having promised to the Franks of Austrasia the possession of this rich and productive country, forfeited the allegiance of the inhabitants, and devoted them to destruction. His troops, reinforced by the fiercest barbarians of Germany, spread desolation over the fruitful face of Auvergne, and two places only, the strong castle of Meroliac, and the holy shrine of St. Julian at Brivas or Brioude, were saved or redeemed from their licentious fury. Before the Austrasian army retreated from Auvergne, Theodoric exacted some pledges of the future loyalty of a people, whose just hatred could only be restrained by their fear. A select band of noble youths, the sons of the principal senators, were delivered to the conqueror, as the hostages of the faith of Childbert and of their countrymen; and, on the first rumour of war, or conspiracy, these guiltless youths were reduced to a state of servitude; and one of them only, whose name was Attalus, escaped by a singular adventure. See Gibbon's Hist. vol. vi. p. 362—369.

AUVERGNIE, a town of Switzerland, one league south of Neuchâtel.

AUVERNAS, a very deep-coloured heady wine, made of black raisins so called, which comes from Orleans. It is not fit to drink before it is above a year old; but if kept two or three years, it becomes excellent.

AUVIGNY, N. CASTRES D', in *Biography*, a French historian, was born at Hainault in 1712, and in his youth resided with La Fontaine. But engaging in the military profession, he entered into a company of life-guards, and was killed in the battle of Dettingen, in 1743. In the province of literature, he distinguished himself by several works, the principal of which was "The Lives of Illustrious Men of France, from the commencement of the Monarchy to the present time." Of this work, 8 volumes in 12mo. appeared in the author's life-time; two posthumous volumes were published by his brother; and the publication has been since continued by the abbé Pereau and M. Turpin. The biographical sketches of Auvigny are written with animation and elegance, but they approach so much to fiction that they cannot be implicitly relied on as historical truth. An abridged history, written by Auvigny, and published in two vols. 12mo. is intitled "An Abridgment of the History of France, and of the Roman History, in question and answer." In 1735, he published, in five volumes 12mo. "An History of the City of Paris;" but part of the fourth and the whole of the fifth, were written by M. de la Barre. The principal of Auvigny's works of imagination is "Memoirs of Madame de Barneveldt." Nouv. Dict. Hist.

AUVILLARD, in *Geography*, a town of France, in the department of the Lot and Garonne, and chief place of a canton, in the district of Agen; 13 miles south-east of Agen, and two south of Valence. The place contains 2,007, and the canton 8,767 inhabitants: the territory includes 122½ kilometres and 11 communes. N. lat. 44° 3'. E. long. 0° 48'.

AUVILLERS-LES-FORGES, a town of France, in the department of the Ardennes, and chief place of a canton in the district of Rocroi, ten miles W. N. W. of Mezieres.

AVUS, in *Ancient Geography*, a river of Spain, in the territory of the Calinici, whose course lay from east to west, and which discharged itself into the sea towards the north.

AUW, in *Geography*, a town of Germany, in the arch-

duchy of Austria, seated on the Danube; ten miles W. S. W. of Grein.

AUWAWA, in *Ichthyology*. See BALISTES KLEINII.

AUX, in *Astronomy*. See AUGES.

Some use *aux* to denote the arch of the ecliptic, intercepted between the first point of Aries, and the point wherein the sun, or a planet, is at its greatest length from the earth. Wolf. Lex. Math. p. 222.

AUXACIA, in *Ancient Geography*, a town of Asia, in Scythia, beyond mount Imaus, and to the west of Issodon Scythia.

AUXENTIUS, in *Biography*, an Arian divine, was a native of Cappadocia, and flourished in the fourth century. In the contest between the Arians and Catholics, he was advanced by the emperor Constantius to the see of Milan. By Hilary, bishop of Poitiers, he was accused to the emperor Valentinian, as an enemy of Christ, and a blasphemer; and in order to silence his enemies, he made a declaration of his faith, with which the emperor was satisfied. But the Catholics proceeded against him, and a council, which was held at Rome by pope Damasus, in 368, excommunicated him. He was also condemned by Athanasius, and the prelates of Gaul at the same time. However, he retained the see of Milan to the time of his death in 374, and was succeeded by Ambrose. Cave, H. L. tom. i. p. 214.

AUXERRE, in *Geography*, a city of France, and capital of the department of the Yonne, seated advantageously for trade, on the side of a hill, near the Yonne, which washes its walls. Before the revolution, it was the see of a bishop, and capital of a country called Auxerrois. The episcopal palace was one of the most beautiful in France. The place contains 12,047, and the canton 16,913 inhabitants: the territory includes 117½ kilometres, and 9 communes. N. lat. 47° 47' 57". E. long. 3° 34' 6".

AUXERROIS, a name given before the revolution to a country of France, in the northern part of Burgundy; bounded on the east and north by Champagne, north-west by Nivernois, and on the south by the rest of Burgundy, about nine leagues long and five broad. Its capital was Auxerre.

AUXESIS, in *Mythology*, a goddess worshipped by the inhabitants of Egina, and mentioned by Herodotus and Pausanias.

AUXESIS, *αὐξήσις*, increase, in *Rhetoric*, a figure whereby any thing is magnified too much. See AMPLIFICATION, and INCREMENT.

AUXILIARY, any thing that is helping or assisting to another. For an account of the auxiliary troops of the Romans, see ALLIANCE.

AUXILIARY Verbs, in *Grammar*, are such as help to ascertain or limit the sense of others; that is, are prefixed to them to form or denote their moods or tenses.

Such, in English, are *have*, *am*, or *be*; in French, *être* and *avoir*; in Italian, *ho*, and *sono*, &c.—The auxiliary *am* supplies the want of PASSIVES in our language.

All the modern languages we know of make use of auxiliary verbs. The reason is, that the verbs thereof do not change their terminations or endings, as those of the Latin and Greek, to denote the different tenses or times of being, doing, or suffering; nor the different moods or manners of their suffering, &c.: so that, to supply this defect, recourse is had to different auxiliary verbs.

Besides the perfect auxiliary verbs, we have several defective ones; as *do*, *will*, *shall*, *may*, *can*, and *have*; which, by changing the terminations, save the necessity of changing those of the verbs to which they are added. Thus, instead of *ego uro*, *tu uris*, *ille urit*, &c. we say, *I do burn*, *thou dost burn*, *he doth burn*, &c.

The verbs *have*, *be*, *will*, and *do*, when they are unconnected with a principal verb, expressed or understood, are not auxiliaries, but principal verbs; as, we *have* enough; I *am* grateful; he *wills* it to be so; they *do* as they please; and in this view, they also have their auxiliaries; as, I *shall have* enough; I *will be* grateful, &c. Murray's Eng. Gram. p. 76.

AUXILIUM, in *Law*. See **AID**.

AUXILIUM curie, signifies an order of court, for the summoning of one party at the suit of another.

AUXILIUM ad filium militem faciendum, vel filiam maritandam, was a writ directed to the sheriff of every county, where the king or other lord had tenants, to levy of them reasonable aid, towards the knighting of his eldest son, or the marriage of his eldest daughter.

AUXIMA, in *Ancient Geography*, a town of Spain, mentioned by Florus.

AUXIMIS, a town of Africa, in Mauritania Cæsariensis. Ptolemy.

AUXIMUM, or **AUXUMUM**, **OSIMO**, a town of Italy, in the Picenum, south of Ancona. It was a Roman colony.

AUXO, in *Mythology*, the name of one of two graces worshipped by the Athenians. See **HEGEMONE**.

AUXORS, in *Geography*, a name given before the late division, to a territory of France, of which Semuren-Auxois was the capital.

AUXON, a town of France, in the department of the Aube, and chief of a canton in the district of Ervy; $4\frac{1}{2}$ leagues south of Troyes, and $1\frac{1}{2}$ north of Ervy.

AUXONNE, a town of France, in the department of the Côte d'Or, and chief place of a canton, and seat of a tribunal, in the district of Dijon, seated in a plain near the east side of the Saone. It is surrounded by a double wall built in the 17th century, and has a bridge of 23 arches over the Saone, serving for the passage of the waters when the river overflows; and at the end of the bridge is a causeway of 2250 paces in length; $5\frac{1}{2}$ leagues E. S. E. of Dijon. The place contains 5282, and the canton 11,306 inhabitants: the territory includes 185 kilometres and 17 communes. N. lat. $47^{\circ} 11' 24''$. E. long. $5^{\circ} 23' 35''$.

AUXY-LA-REUNION, a town of France, in the department of the straits of Calais, and chief place of a canton, in the district of St. Pol, three leagues S. S. E. of Hesdin. The place contains 2469 and the canton 13,875 inhabitants; the territory includes 185 kilometres and 28 communes.

AUXY, in the *French Manufactures*, a name given to that sort of wool which is spun in the neighbourhood of Abbeville, by those workmen who are called *loupriers*. It is a very fine and beautiful wool, which is commonly used to make the finest stockings.

AUZAGUREL, or **AUSSAGUREL**, in *Geography*, a town of Africa, in the kingdom of Adel, reckoned by some the capital, and situated on an eminence near the Hawash. See **ADEL**.

AUZANCES, a town of France, in the department of the Creuse, and chief place of a canton, in the district of Aubusson, seated on a hill, surrounded with ponds; 25 miles E. S. E. of Gueret, and nine south of Evaux. The place contains 1230 and the canton 8449 inhabitants; the territory comprehends 165 kilometres and 12 communes.

AUZARA, **OSARA**, in *Ancient Geography*, a town of Asia, in Syria; or according to Ptolemy, in Arabia Deserta, S. S. E. of Circesium; situated on the western bank of the Euphrates.

AUZATA, **AUZA**, or **AUZIA**, a town of Libya, built according to Josephus, in his "Antiquities," by Ithobaal, king of the Tyrians; situated, according to Ptolemy, in the interior of Mauritania Cæsariensis, to the east of a lake

from which flowed the new Chinalaph. It was the capital of the Aufes, who were situated to the west of the river Triton. Tacitus informs us, that it was built in a small plain, surrounded on all sides with barren forests of immense extent. The ruins of this city were called by the neighbouring Arabs "Soar Guffan," or "the walls of the Antelopes;" a great part of which, flanked at proper distances with little square towers, is still remaining.

AUZILS, in *Geography*, a town of France, in the department of the Aveyron, and chief place of a canton in the district of Albin; 15 miles north-west of Rhodéz.

AUZOIR-LE-MARCHE, a town of France, in the department of the Loir and Cher, and chief place of a canton in the district of Blois. The place contains 960 and the canton 7150 inhabitants: the territory includes 315 kilometres and 14 communes.

AUZON, a town of France, in the department of the Upper Loire, and chief place of a canton, in the district of Brioude, on the Allier, six miles north of Brioude. The place contains 1256 and the canton 9882 inhabitants: the territory includes 155 kilometres and 13 communes.

AUZOUT, **ADRIAN**, in *Biography*, a French mathematician of the 17th century, and one of the first members of the Academy of Sciences at Paris, was born at Rouen, and died in 1693. Some have ascribed to him the honour of having invented the Micrometer; but he is more justly entitled to the praise of having contributed to the improvement of it, in pursuance of the ideas suggested by M. Huygens, and the marquis of Malvasia. (See **MICROMETER**.) *Auzout's* treatise on this subject was published in 1667, and may be found in the *Memoirs of the Academy* for 1693, tom. vii. *Auzout* was also concerned with M. Picard in the important discovery of the method of applying the telescope to the quadrant, which has been highly useful to astronomers. It has been said, particularly by M. de la Hire, that M. *Auzout* had a principal part in this discovery; but from the description given of it by M. Picard, in his "Figure de la Terre," the reader cannot hesitate in pronouncing M. Picard himself to have been the original and sole author. It appears, however, from several fragments of letters in a correspondence between our ingenious but unfortunate countryman Mr. Gascoigne, who was killed in the battle of Marston-Moor, and Messrs. Horrox and Crabtree, and which are recorded by Derham, in the *Phil. Trans.* for 1723 (vol. 48. p. 190), that the method of constructing a micrometer, and also of applying telescopic sights to quadrants, was known to him before the time of the civil wars. But as these two important discoveries were not published even in England, and were not likely to be made known on the continent at this early period; it is not improbable that *Auzout* and Picard might also have a just claim to the honour of being original, though not the first inventors. The honour of having discovered the method of applying the telescope to astronomical instruments in the year 1665, was also claimed by Dr. Hooke. M. *Auzout* published "An Ephemeris of the Comet of 1665;" "A Letter to the Abbé Charles on the Observations of Campani," in 1665; his "Treatise on the Micrometer," in 1667; and some "Remarks on the Machine of Hooke." These three last pieces were contained in the 6th vol. of the *Memoirs of the Academy*. Montucla, *Hist. Mathem.* t. ii. p. 569—572.

AW, in *Geography*, a town of Germany, in the county of Bregentz, 25 miles S. E. of Bregentz.

AWA, a town of Japan, in a province of the same name. - Also, a town of Persia, in the province of Irak; 28 leagues south of Casbin.

AWAIT, in our old *Statutes*, is used to signify what we now call *waylaying*, or lying in *wait*, to execute some mischief. In stat. 13 R. II. c. 1. it is ordained, that no char-

ter of pardon shall be allowed before any justice, for the death of any man slain by *await*, or malice prepened, &c.

AWARD, in *Law*, the judgment of some person who is neither assigned by law, nor appointed by the judge, for ending a matter in controversy; but is chosen by the parties themselves that are at variance. See **ARBITRATION**.

AWATCHA, in *Ornithology*, a species of *MOTACILLA*, that inhabits Kamtschatka. It is of a brown colour; chin and breast white, spotted with black; middle of the belly and lores white; primary quill-feathers bordered with white; tail-feathers orange at the base. *Arct. Zool.*—Gmelin.

AWATSKA, in *Geography*. See **AVATSCHA**.

AWCHAR, a town of Persia, in the province of Adirbeizan, 50 leagues S. W. of Tauris.

AWE, a river of Scotland, in the Highlands. See **LOCH-AWE**.

A-WEIGH, in *Sea-Language*, the same as *A-trip*, when applied to the anchor.

AWENYDHION, in *British Antiquity*, a name that was given to certain persons in Wales, and derived from *Awen*, was, of course, expressive of poetical raptures. These persons, when consulted about anything doubtful, appeared to be inflamed with a high degree of enthusiasm, and even to be possessed by an invisible spirit. They were neither hasty, nor very direct and explicit in their answers, or in the solution of the difficulties that were proposed to them; but in the course of a long and wild circumlocution, the required answer or solution would be obtained by means of some turn or digression in the speech, which was thought to imply or express it. These persons were at length roused from their seeming extacy as from a deep sleep, and they were compelled as it were, by violence, to return to their natural condition. When persons of this description recovered their reason, after an apparent and temporary alienation of mind, they did not recollect any of those circumstances that had occurred, or of the words which they had uttered during their extacy. If they were, therefore, again consulted about the same subject, they would express themselves in very different words. The gift, which they possessed, was conferred upon them, as they imagined, in their sleep, and the mode of communication seemed, says Giraldus, as if new milk or honey was poured into their mouths; to others, as if a written scroll had been put into their mouths; and when they awoke, they knew and declared that they had been endowed with this extraordinary spirit of divination. Some gift, resembling that to which the *Awenydhion* of Wales pretended, has been long known in Scotland, under the denomination of **SECOND SIGHT**. *Warrington's Hist. Wales*, p. 102, &c.

AWERRI, in *Geography*, a town of Africa, and capital of a kingdom of the same name, about 20 leagues from Benin to the south.

AWIN-EA, a river of Ireland, which rises in lake Ea, in the province of Donegal, and runs into the sea, seven miles north of Killebegs.

AWK. See **AUK**.

AWL, or **AUL**, a shoemaker's implement, wherewith holes are bored in leather, to facilitate the stitching or sewing the same.—The blade of the awl is usually a little flat, and bending; and the point ground to an acute angle.

AWME, or **AUME**, a Dutch measure of capacity for liquids; containing eight *steckans*, or twenty *verges*, or *verrels*; answering to what in England is called a tierce, or one-sixth of a ton of France, or one-seventh of an English ton. *Arbuth. Tab.* 33.

AWN, **ARISTA**, in *Botany*, the needle-like bristles which

form beards of different sorts of grass or grain, as wheat, barley, &c. The word is, in some districts, pronounced *Ails*. It is sometimes used to signify a sharp point terminating a leaf. See **ARISTA**.

AWNING, on board a ship, is when a sail, a tarpaulin or the like, is hung over any part of the ship, above the decks, to keep off the sun, rain, or wind.

Awnings are made of canvas. The length of the main deck awning is from the centre of the fore-mast to the centre of the main-mast; the width corresponds to the breadth of the ship, taken at the main-mast, foremast, and at the midway between. The length of the quarter deck awning is from the centre of the main-mast to the centre of the mizen-mast; and the width answers to the breadth of the ship, at the main-mast, mizen-mast, and at the midway between. The length of the poop, or after-awning, is from the centre of the mizen-mast to the ensign-staff, about seven feet above the deck; and the width is formed agreeably to the breadth of the ship, taken at the mizen-mast, the taffarel, and at the midway between. The canvas is cut to the given breadths of the awning, allowing about nine inches to hang down on each side, which is sometimes scolloped and bound with green baize, and is sewed together with an inch seam, and tabled all round with a two or three inch tabling. Half the diameter of the masts is cut out in the middle at each end, and lacing-holes are made across the ends to connect one awning to another. On the upper part, along the middle and sides, is sewed a one inch and half or two inch rope, to which the trucks are sewed at about three quarters of a yard asunder. A thimble is spliced in each end of the rope. Sometimes curtains are made to hang to the sides of the awnings, of the same length as the awnings. Their depth is taken from the sides of the awning to the gun-wale, supposing the awning to be in its place. The seams and tablings are the same as those of the awnings, and lacing-holes are made along the upper tabling of the curtain, and the side tabling of the awning. *Clerke's Elem. and Practice of Rigging*, vol. i. p. 140. 230.

In the long-boat they make an awning, by bringing the sail over the yard and stay, and booming it out with the boat-hook.

AX, a carpenter's instrument, serving to hew wood.—The ax differs from the joiner's hatchet, in that it is much larger, and heavier, as serving to hew large stuff; and its edge tapering into the middle of its blade.—It is furnished with a long handle or helve, as being to be used with both hands.

AX, in *Geography*, a town of France, in the department of the Arriège, and chief place of a canton in the district of Foix, on the Arriège; 9 leagues west of Prades, and 4½ S. E. of Tarascon. The place contains 1500 and the canton 7291 inhabitants; the territory includes 390 kilometres and 14 communes.

AX. See **AXBRIDGE**, and **AXMINSTER**.

AX, *Battle*. See **CELT**.

AXAMENTA, in *Antiquity*, a denomination given to the verses, or songs, of the *salii*, which they sung in honour of all men.

The word is formed according to some, from *auxare* q. d. *nominare*. Others will have the *carmina saliarum* to have been denominated *axamenta*, on account of their being written in *axibus*, or on wooden tables.

The *axamenta* were not composed, as some have asserted, but only sung by the *salii*. The author of them was Numa Pompilius; and, as the style might not be altered, they grew in time so obscure, that the *salii* themselves did not understand them. Varro says they were seven hundred years old. *Quint. Inst. Or. lib. i. c. 11*.

AXAMENTA, or *Affa menta*, in *Ancient Múse*, hymns or songs performed wholly with human voices.

AXAS, in *Geography*, a town of America, in the interior part of New Albion. N. lat $39^{\circ} 5'$. W. long. $114^{\circ} 30'$.

AXAT, or **AZAT**, a town of France, in the department of the Aude, and chief place of a canton, in the district of Quillan, on the Aude; twenty-five miles south of Carcassonne, and five S. S. E. of Quillan.

AXBERG, a town of Sweden, in the province of Nericia.

AXBRIDGE, a town of England, in the county of Somerset, about eight miles north of Wells, and 131 west of London. The river Ax divides the bridge from Over-Weare, and gives the place its appellation. This town is pleasantly situated at the south-western roots of the dark Mendip hills. It has a corporation consisting of a mayor, bailiff, eight capital burghesses, and twenty-two common councilmen; and sent members to parliament, till excused at the request of the inhabitants, in the reign of Edward the third. Its market for corn, sheep, pigs, &c. is on Saturday, and two fairs are held here annually for the sale of cattle and cheese. Its only manufacture is knit-hose, in which a great number of families is employed. The church is particularly noted for its beautiful and uniform architecture, and for the stately monuments which it contains. Most of them are erected to the memory of the Prowse family, many of whom were interred within the walls. This town contains 190 houses, and 1000 inhabitants. About two miles east of Axbridge is the village of *Chedder* which is celebrated for its fine cheese; and extraordinary rocks or cliffs. The village is situated under Mendip hills, having the flat moors which extend to Glastonbury on the south side, and a high ridge of hills on the north. The Chedder cliffs seem to have been the effect of some great convulsion of nature, which rent the hill asunder and formed an opening or chasm completely through it. This chasm is now appropriated to a road, which leads from the bottom to the top of the hill, having its sides formed by the high craggy rocks. The length of this gap is nearly two miles, in a winding direction. In many parts the cliffs rise to the height of full 300 feet, quite perpendicularly, some terminating in bold pinnacles, others in irregular fragments like shattered battlements, and others impending over head in an awful manner. Yews project out of several of the fissures, forming lofty canopies, and many of the rocks wear long mantles of ivy, which produce a picturesque appearance, and form a pleasing contrast to the craggy nakedness of others. The romantic and grand appearance of these rocks attracts the notice of many travellers. Mendip hills, which are often called the alps of Somersetshire, abound with lead and calamine, and like the similar hills of Derbyshire, contain many vast caverns and subterraneous vaults. Various coralloid relics are found in this limestone. Several curious plants are also obtained here, among which the following are the most rare; *dianthus cæsius* (Chedder Pink) *d. arenarius*, and *thalictarum minus*. Maton's Observations on the Western Counties, and Collinson's History of Somersetshire.

AXEL, a strongly fortified town of Flanders; it was taken from the Spaniards by Maurice, prince of Nassau, in 1586; nine leagues W. of Antwerp. It is now a town of France, in the department of Escaut, and chief place of a canton in the district of L'Ecluse. The place contains 1843 and the canton 9508 inhabitants; the territory includes $187\frac{1}{2}$ kilometres and 10 communes. N. lat. $51^{\circ} 15'$. E. long. $3^{\circ} 45'$.

AXENS, a town of Germany, in the county of Tyrol; nine miles S. W. of Inspruck.

AXHOLM, an island of England, in the N. W. part of Lincolnshire, formed by the rivers Trent, Idel and Dan, about ten miles long and five broad; the lower part is marshy; the middle part fertile, and produces flax in abundance. The chief town, or rather village, thinly inhabited, is called *Axe*.

AXIA, in *Ancient Geography*, a town of Greece, in the country of the Locrian Ozolians.—Also, a town of Italy, in Etruria; and the inhabitants were called *Asiates*.

AXIACA, a town of Sarmatia, to the left of the river Sagaris, and north of Odesius (Oczakow).

AXIACES, a river of European Sarmatia, a little above Dacia: and the people who inhabited the district to the right of this river were called *Asiæci*.

AXICA, or **AZICA**, an ancient town of India, on this side of the Ganges. Ptolemy.

AXILLA, in *Anatomy*, or **ALA**, the cavity under the upper-part of the arm; commonly called the arm-pit.

The word is a diminutive of *axis*, q. d. *little axis*. Abscesses in the axillæ are usually dangerous on account of the many blood-vessels, lymphatics, nerves, &c. thereabout, which form several large plexus.—By the ancient laws, criminals were to be hanged by the axillæ if they were under the age of puberty.

AXILLA, in *Botany*, is the space comprehended between the stems of plants and their leaves.

Hence we say, those flowers grow in the axillæ of the leaves; i. e. at the base of the leaves or just within the angles of their pedicles.

AXILLARY, in *Anatomy*, something that belongs to the *axilla*, or lies near them.

AXILLARY Artery, a certain portion of the great artery which supplies the upper part of the trunk, and upper extremity. See **ARTERY**, *Distribution of these Vessels*.

AXILLARY Vein, a certain extent of the vein corresponding to the above-mentioned artery. See the account of the *Distribution of the VEINS*.

AXILLARY Nerves, are branches of the four lower cervical and first dorsal, which form a plexus in the axillæ. See **NERVE**, *Distribution of*.

AXILLARY Glands, the glands belonging to the absorbing vessels which are situated in the axillæ. See **ABSORBING VESSELS**, *Distribution of*.

AXILLARY Leaves, in *Botany*. See **LEAF**.

AXIM, in *Geography*, a small district or canton of Africa, on the Gold Coast, between cape Apollonia, and Tres Puntas. The climate is unhealthy, being so moist, that, according to the proverb of the country, it rains eleven months and twenty-nine days in the year. The maize, on account of the humidity of the soil, is neither plentiful nor excellent; but it produces a great quantity of rice, which is exported to all the kingdoms of the Coast, in exchange for millet, yams, potatoes, and palm-oil; and it yields also water-melons, ananas, bananas, cocoas, oranges, two kinds of lemons, and all sorts of fruits and vegetables. Axim also produces great numbers of black cattle, sheep, goats, and tame pigeons, as well as other fowls. The whole country is filled with populous villages; some on the sea-side, others farther up the country; and all of them rich and beautiful. The intermediate lands are well cultivated, and the soil is so fertile as richly to compensate the labour of the husbandman: besides which the natives are wealthy, from a constant traffic they maintain in gold with the Europeans. The capital of this district is Axim, or **ACHOMBENE**, standing under a Dutch fort, and screened behind by a thick wood, that covers the whole declivity of a neighbouring hill. The river Axim runs through the town, and the coast is defended

by

by a number of small-pointed rocks, which project from the shore, and render all access to it dangerous. The European settlements are, 1. The Dutch fort of St. Anthony, standing on a high rock, which projects into the sea in the form of a peninsula, and so environed by dangerous shoals and unperceived rocks, as to be inaccessible to an enemy except by land, on which side it is fortified by a parapet, draw-bridge, and battery of heavy cannon. The Portuguese were the first founders of this settlement; but they were driven from it by the Dutch, in 1642. Its form is triangular; and it has three batteries; one towards the sea, and two towards the land. The situation of the fort is east of the river Axim, called by the Portuguese Rio Manco, which is navigable only by canoes; but it is rich in gold dust, washed down by the stream from the inland countries. 2. Mount Manfore, three leagues distant from fort St. Anthony; near which is the large and populous town of Pockreso. Mount Manfore is well situated for a fort, being the first point of cape Tres Puntas. Here the Brandenburgers or Prussians had one principal factory, called FREDERICSBURG: but it was taken by the Dutch, and remained in their possession. 3. Cape TRES PUNTAS, so called from its being composed of three points or eminences, projecting into the sea; on which are the three villages, Akora, Akron, and De Juliamma or Dickscove. See the several articles.

The government of Axim is composed of two bodies of the natives: the caboceroes, or chief men; and the manceroes, or young men. To the former belongs the cognizance of civil affairs; but whatever is of general concern, and may properly be called national, appertains equally to both members of the state. The caboceroes are less wealthy in gold and slaves, and of course less regarded by the people, and they are often impeached before the bar of the manceroes; whereas no manceroe can be tried for crimes of a public nature, but by his own assembly. In the distribution of justice, there is a great degree of partiality and corruption: presents of gold or brandy, conveyed to the caboceroes, ensure a favourable verdict; and justice is frequently delayed as well as perverted by the influence of bribes. The defendant, in defect of sufficient testimony on either side, by witnesses or probable circumstances, clears himself by oath: and the oath of purgation is always preferred to that of accusation. As to penalties in criminal cases, murder is punished either by death or a pecuniary mulct. However, the fine for murdering a slave is very trifling in comparison to that exacted for the life of a free man: and execution seldom takes place, unless the criminal be poor, and unable to answer the demands of his judge. The only punishment for thefts is restitution, or a fine proportioned to the quality of the offender: and the creditor may seize on the property of the debtor to the amount of twice the value of what is due to him: but the usual method is to settle the account by arbitration, or restitution of the goods and chattels bought. *Mod. Un. Hist.* vol. xiii. p 391—401.

AXIMA, in *Ancient Geography*, a town of Asia, in Persia Proper, or Peris.—Also, a town of Italy, in the Alps, belonging to the Centaures. Ptolemy.

AXINAEÆ, AXINÆÆ, in *Natural History*, a genus of the MOLLUSCA tribe (*T. stacca*), established by Poli, in his history of the shells of the two Sicilies. The character is taken from the form of the animal; the shell it inhabits belongs in the Linæan arrangement to the ARCA genus.

AXINCES, in *Ancient Geography*, the Bog or Akson, a large river which traversed Sarmatia, leparated the Callipides Axiaci, to whom it gave name, and discharged itself into the Borysthenes.

AXINIA, the ancient name of a mountain of Peloponnesus, in Arcadia.

AXINIUM, the name given by Appian to an ancient city of Spain.

AXINOMANCY, AXINOMANTIA, from *αξιων*, *securus*, and *μαντις*, *divinatio*, an ancient species of divination, or a method of foretelling future events by means of an ax or hatchet.

This art was in considerable repute among the ancients; and was performed, according to some, by laying an agate-stone on a red-hot hatchet; and also by fixing a hatchet on a round stake, so as to be exactly poised; then certain formulæ of devotion were pronounced, and the names of suspected persons were repeated, and he at whose name the hatchet moved was pronounced guilty.

AXIOM, ΑΧΙΟΜΑ, from *αξιον*, *I am worthy*, a self-evident truth, or a proposition whose truth every person receives at first sight; and to which the term *dignity* is applied, on account of its importance in a process of reasoning. These axioms are self-evident truths that are necessary, and not limited to time and place, but must be true at all times and in all places.

Thus, that the whole is greater than a part; that a thing cannot be and not be at the same time; and that from nothing, nothing can arise, are axioms.

By axioms, called also *maxims*, are understood all common notions of the mind, whose evidence is so clear and forcible, that a man cannot deny them without renouncing common sense and natural reason.

Self-evident propositions furnish the first principles of reasoning; and it is certain, that if in our researches we merely employ such principles as these, and apply them properly, we shall be in no danger in advancing from one discovery to another. For this we may appeal to the writings of mathematicians, which being conducted agreeably to this standard, incontestibly prove the stability of human knowledge, when it is made to rest on so sure a foundation. The propositions of this kind of science have not only stood the test of ages, but they are found to be attended with that invincible evidence, which constrains the assent of all who consider the proofs by means of which they are established.

Lord Bacon proposes a new science, to consist of general axioms, under the denomination of *philosophia prima*. For an account of the origin and evidence of those truths called axioms, as well as of their importance and utility in the pursuit of knowledge and truth, see INTUITION, PRINCIPLES, and COMMON SENSE.

AXIOM is also an established principle in some art or science. Thus, it is an axiom in *Physics*, that nature does nothing in vain; that effects are proportional to their causes, &c. So it is an axiom in *Geometry*, that things equal to the same thing are also equal to one another; that if to equal things you add equals, the sums will be equal, &c. It is an axiom in *Optics*, that the angle of incidence is equal to the angle of reflection, &c. In this sense the general laws of motion are called axioms; as that all motion is rectilinear, that action and re-action are equal, &c. See *Laws of Motion*.

These particular axioms, it may be observed, do not immediately arise from any first notions or ideas, but are deduced from certain hypotheses; this is particularly observable in physical matters, wherein, as several experiments contribute to make one hypothesis, so several hypotheses contribute to one axiom.

The axioms of Euclid are very general propositions, and so are the axioms of the Newtonian philosophy; but these two kinds of axioms have very different origins. The former appear true upon a bare contemplation of our ideas; whereas the latter are the result of the most laborious induction.

Lord Bacon, therefore, strenuously contends, that they should never be admitted upon conjecture, or even upon the authority of the learned; but, as they are the general principles and grounds of all learning, they should be canvassed and examined with the most scrupulous attention, "ut axiomatum corrigatur iniquitas, quæ plerumque in exemplis vulgaris fundamentum habent," De Augm. Sc. l. ii. c. 2. "Atque illa ipsa putativa principia ad rationes reddendas compellere decrevimus, quousque planè constant. Distrib. Operis.

A late writer (see Tatham's Chart, and Scale of Truth) distinguishes between axioms *intuitive*, and *self-evident*. The former, he says, pass through the first inlets of knowledge, and flash direct conviction on the minds, as external objects do on the senses, of all men; in the formation of the latter, reason judges by single comparisons, without the aid of a third idea or middle term; so that they have their evidence in themselves, and though inductively framed, they cannot be syllogistically proved. If we admit this distinction, and its reasonableness must be allowed, the character of intuitive axioms will be restricted to particular truths. See INDUCTION, REASONING, and SYLLOGISM.

AXIOM, in *Rhetoric*, is used by Hermogenes to denote grandeur, dignity, and sublimity of style.

AXIOPOLIS, in *Ancient Geography*, a town of Lower Mæsia, according to Ptolemy, situated near the spot where the Danube assumed the name of Ister; north-east of Durostorus. It is now a town of European Turkey, in Bulgaria, called *Axiopoli*, on the right bank of the Danube. N. lat. $45^{\circ} 49'$. E. long. 34° .

AXIOS, a form of acclamation, anciently used by the people in the election of bishops. When they were all unanimous, they cried out $\alpha\chi\iota\sigma$, he is worthy, or $\alpha\alpha\chi\iota\sigma$, unworthy.

AXIOSIS, in *Rhetoric*, denotes a third part of an exordium; sometimes also called $\alpha\pi\omicron\delta\omicron\sigma\iota\varsigma$, and containing some new proposition more nearly relating to the matter in hand, than the $\pi\omicron\sigma\iota\lambda\omicron\sigma\iota\varsigma$.

Thus, in Cicero's oration pro Milone, the protasis is, "Non possum non timere, judices, visâ hâc nova judicii forma;" the $\kappa\alpha\lambda\iota\sigma\kappa\omicron\upsilon\nu$, "Nec enim ea corona confessus vester cinctus est qua solebat;" the $\alpha\chi\iota\omega\sigma\iota\varsigma$, "Sed me recreat Pompei consilium, cujus sapientie non fuerit, quem sententiis judicum tradidit, telis militum dedere;" the basis, $\beta\alpha\sigma\iota\varsigma$, "Quamobrem adeste animis, judices, & timorem, si quem habetis, deponite."

AXIOTHEA, in *Biography*, a female philosopher of Greece, who lived in the time of Plato. Such was her thirst for knowledge, that she disguised herself in man's clothes, in order to attend the Lectures of that philosopher. Menag. in Diog. Laert. l. iii. c. 48.

AXIS properly signifies a line, or long piece of iron or wood passing through the centre of a sphere, which is moveable upon the same. In this sense we say, the axis of a sphere or globe; the axis, or axle-tree of a wheel, &c.

AXIS, in *Anatomy*, is the second vertebra of the neck, reckoning from the skull.

It is thus called, because the first vertebra, with the head, move thereon, as an axis. See SKELETON.

AXIS, *Spiral*, in *Architecture*, is the axis of a twisted column drawn spirally, in order to trace the circumvolutions without. See COLUMN, *Twisted*.

AXIS of the Ionic capital is a line passing perpendicularly through the middle of the eye of the volute.

AXIS of the world, in *Astronomy*, is an imaginary right line, which is conceived to pass through the centre of the

earth, and to terminate at each end in the surface of the mundane sphere.

About this line as an axis, the sphere in the Ptolemaic system, is supposed daily to revolve.

This axis is represented by the line PQ, *Plate II. Astron. fig. 18*.—The two extreme points in the surface of the sphere, viz. P and Q, are called its poles.

AXIS of the earth, is a right line upon which the earth performs its diurnal rotation from west to east.

Such is the line PQ, *fig. 19*.—The two extreme points are also called poles.

The axis of the earth is a part of the axis of the world.—It always remains parallel to itself, and at right angles with the equator. See ANGLE, INCLINATION, and PARALLELISM.

AXIS of a planet, is a line drawn through its centre, about which the planet revolves.

The Sun, Earth, Moon, Jupiter, Mars, and Venus, are known, by observation, to move about their several axes; and the like motion is easily inferred of Mercury, Saturn, and the Georgian planet.

AXIS of the horizon, equator, ecliptic, zodiac, &c. are right lines drawn through the centres of those circles, perpendicular to their planes.

AXIS, in *Botany*, a taper column placed in the centre of some flowers or katkins, about which the other parts are disposed. It is synonymous with *columella*.

AXIS, in *Geometry*.—Axis of rotation or circumvolution, is an imaginary right line, about which any plane figure is conceived to revolve, in order to generate a solid.

Thus a sphere is conceived to be formed by the rotation of a semicircle about its diameter or axis, and a right cone by that of a right angled triangle about its perpendicular leg, which is here its axis.

AXIS is yet more generally used for a right line proceeding from the vertex of a figure to the middle of its base.

AXIS of a circle or sphere, is a line passing through the centre of the circle or sphere, and terminating at each end in its circumference.

The axis of a circle, &c. is otherwise called its diameter.

AXIS of a right or rectangular cylinder, is properly that quietest right line, about which the rectangular parallelogram turns, by whose revolution the cylinder is formed.

In general, the right line which joins the centres of the opposite bases of cylinders, whether they be right or oblique, is denominated their axis.

AXIS of a right cone, is the right line or side upon which the right-angled triangle forming the cone makes its motion. Hence it follows, that only a right cone can properly have an axis; because an oblique one cannot be generated by any motion of a plane figure about a right line at rest. But because the axis of a right cone is a right line drawn from the centre of its base to the vertex; the writers of conics, by way of analogy, likewise call the like line, drawn from the centre of the base of an oblique cone to the vertex, its axis.

AXIS of a conic section, is a right line passing through the middle of the figure, and bisecting all the ordinates at right angles.

Thus if AP (*Plate, Conics, fig. 31*.) be drawn perpendicularly to FF, so as to divide the section into two equal parts, it is called the axis of the section.

Or, the axis of a conic section is a line drawn from the principal vertex, or vertices, perpendicular to the tangent at that point.

AXIS, *transverse*, called also the *first* or *principal axis* of an ellipse,

ellipse, is the axis AP, last defined; being thus called in contradistinction to the *conjugate* or *secondary axis*.

Or, in the ellipse and hyperbola, it is the diameter that passes through the two foci, and the two principal vertices of the figure.

The transverse axis in the ellipse is the longest; and in the hyperbola it cuts the curve in the points A and P (fig. 32.) and is the shortest diameter.

Axis, *conjugate*, or *second axis*, of the ellipse and hyperbola, is the diameter passing through the centre and perpendicular to the transverse axis. Such is the line FF (fig. 31.) drawn through the centre of the ellipse C, parallel to the ordinate MN, and perpendicular to the transverse axis AP; being terminated at each extreme by the curve. And such, in the hyperbola, is the right line FE (fig. 32.) drawn through the centre parallel to the ordinates MN, MN, perpendicularly to the transverse axis AP. In the ellipse and hyperbola, the conjugate axis is the shortest of all the conjugate diameters. The axis of a parabola is of an indeterminate length; that is, is infinite. The axis of the ellipse is determinate. The parabola has only one axis; the ellipse and hyperbola have two.

Axis of a Curve Line, in general, denotes that diameter which has its ordinates at right angles to it, when that is possible. For, as in the conic sections, any diameter bisects all its parallel ordinates, making the two parts of them on both sides of it equal, and the diameter which is perpendicular to such ordinates is an axis; so in curves of the second order, if any two parallel lines meet with the curve in three points, the right line which cuts these two parallels so that the sum of the two parts on one side of the intersecting line, between it and the curve, is equal to the third part terminated by the curve on the other side, then the said line will in like manner cut all other parallels to the former two lines, so that with respect to every one of them, the sum of the two parts, or ordinates, on one side, will be equal to the third part, or ordinate, on the other side. Such intersecting line is then a diameter; and that diameter, whose parallel ordinates are at right angles to it, when that is possible, is an axis. The case is the same with regard to other curves of still higher orders. Newton, *Enumeratio Linearum Tertii Ordinis*, § 2. art. 1.

Axis of a Magnet, or *Magnetical Axis*, is a line passing through the middle of a magnet lengthwise; in such manner, as that however the magnet be divided, provided the division be made according to a plane, in which such line is found, the magnet will be cut or separated into two loadstones; and the extremes of such lines are called the poles of the stone. See MAGNET.

Axis, in *Mechanics*. The axis of a balance is the line upon which it moves or turns. See BALANCE.

Axis of Oscillation, is a right line parallel to the horizon, passing through the centre, about which a pendulum vibrates; and perpendicular to the plane in which it oscillates. See OSCILLATION, and PENDULUM.

Axis in *Peritrochio*, or *Wheel and Axle*, is one of the five mechanical powers, or simple machines, contrived chiefly for the raising of weights to a considerable height. It consists of a circle, represented AB (Plate I. *Mechanics*, fig. 5.) concentric with the base of a cylinder, and moveable together with it, about its axis EF. This cylinder is called the *axis*; and the circle, the *peritrochium*; and the radii, or spokes, which are sometimes fitted immediately into the cylinder, without any circle, the *scytale*. Round the axis winds a rope, or chain, by means of which the weights, &c. are to be raised, upon turning the wheel.

The axis in peritrochio takes place in the motion of every

machine, where a circle may be conceived as described about a fixed axis, concentric to the plane of a cylinder, about which it is placed; as in crane-wheels, mill-wheels, capstans, &c.; a gimblet and an augre to bore with may also be referred to the wheel and axis.

Axis in *Peritrochio*, *properties of the*. 1. If the power applied to the axis peritrochio, in the direction AL (fig. 6.), being a tangent to the periphery of the wheel, or perpendicular to the scytale or spoke, be to a weight W, as the radius of the axis CE is to the radius of the wheel CA, or the length of the spoke; the power will just sustain the weight, i. e. the weight and the power will be in equilibrium.

Dem. The same power is required to support W, whatever be the point of the axis to which it is applied, because the distance from the corresponding centre of motion is the same, and the wheel and axis may be reduced to a bent lever; and consequently there will be an equilibrium, when $P : W :: W's \text{ distance from the centre of motion, or radius of the axis} : \text{radius of the wheel}$. Or, since the directions of P and W are perpendicular to their respective distances from their centre of motion, they are wholly efficient; and P's velocity is to W's velocity, as the periphery of the wheel to the periphery of the axis; and consequently, when there is an equilibrium, $P : W :: \text{periphery of the axis} : \text{periphery of the wheel} :: \text{radius of the axis} : \text{radius of the wheel}$.

If the thickness of the rope, to which W is appended, be not inconsiderable, it ought not to be neglected; for when one or more coils or spires of the rope are folded about the axis, the distance of W's direction from the centre of motion is increased, and becomes equal to the sum of the semidiameters of the axis and ropes; and there is an equilibrium when $P : W :: \text{the whole distance of W's direction from the centre of motion} : \text{semidiameter of the wheel}$.

2. If a power applied in F, pull down the wheel according to the line of direction FD, which is oblique to the radius of the wheel, though parallel to the perpendicular direction; it will have the same proportion to a power which acts according to the perpendicular direction AL, which the whole sine has to the sine of the angle of direction DFC. For, since FD is perpendicular to AC, DC will be the distance of the power applied at F from the centre of motion; consequently the power at F : W :: EC : CD; and the power at A : W :: EC : CA; consequently the power at F : power at A :: CA : CD. But if CA or FC be taken for the whole sine or radius, CD will be the sine of the angle DFC; and the power at F will be to the power at A :: the whole sine is to the sine of the angle of the direction DFC, in case of an equilibrium between the power and weight.

Hence, since the distance of the power in A is the radius CA, the angle of direction DFC being given, the distance DC is easily found.

3. Powers applied to the wheel in several points, F and K, according to the directions FD and KI, parallel to the perpendicular one AL, are to each other as the distances from the centre of motion CD and CI, reciprocally. For the power at F : W :: EC : CD; and the power at K : W :: EC : IC; consequently the power at F : power at K :: IC : CD.

Hence, as the distance from the centre of motion increases, the power decreases, and *vice versa*, the weight being the same. Hence also, since the radius AC is the greatest distance, and corresponds to the power acting according to the line of direction; the perpendicular power will

will be the smallest of all those able to sustain the weight W, according to the several parallel lines of direction.

4. If a power acting according to the perpendicular AL, raise the weight W, the space passed through by the power will be to the space passed through by the weight, as the weight to the power which is able to sustain it.

For in each revolution of the wheel, the power passes through its whole periphery; and in the same time the weight is raised through an interval equal to the periphery of the axis; the space of the power therefore is to the space of the weight, as the periphery of the wheel to that of the axis; but the power is to the weight, as the radius of the axis to that of the wheel. Therefore, &c.

5. A power and a weight being given, to construct an axis in peritrochio, by which the weight shall be sustained and raised by the given power. Let the axis be large enough to support the weight without breaking. Then, as the weight is to the power, so make the radius of the wheel, or the length of the spoke, to the radius of the axis.

Hence, if the power be but a small part of the weight, the radius of the wheel must be vastly great.—E. gr. Suppose the weight 4050 and the power 50, the radius of the wheel will be to that of the axis as 81 to 1. But such a machine would be of an inconvenient size; and it may therefore be provided against by increasing the number of the wheels and axes; and making one to turn round another by means of teeth or pinions.

To find the effect of a number of wheels and axes, thus turning one another, multiply together all the radii of the axes, and all the radii of the wheels, and then it will be, as the product of the former is to the product of the latter, so is the power to the weight. Thus, if there be four wheels and axes, the radius of each axis being one foot, and the radius of each wheel being three feet; then the continual product of all the radii of the wheels is $3 \times 3 \times 3 \times 3$, or 81 feet, and that of the radii of the axis only 1; consequently the effect is as 81 to 1, or the weight may be 81 times the power. On the contrary, if it be required to find the diameter of each of four equal wheels, by which a weight of 4050 lb. shall be balanced by a power of 50 lb. the diameter of each axis being one foot; divide 4050 by 50, and the quotient is 81; extract the fourth root of 81, or twice the square root, and it will be 3, for the diameter of each of the four wheels sought. See *WHEELS*. See also *MECHANICAL POWERS*.

6. If P and W act in the same plane, and in the directions PD and WD (*fig. 7 and 8.*), meeting in D, and be in equilibrio, they are equivalent to a third force, or pressure upon the axis at A, whose direction meets PD and WD in D (see *MOTION*); and producing PD, WD, these three forces are to each other, as the sides DF, DE, and diagonal DG, of the parallelogram EF; consequently $P : W :: DF : DE$, or drawing AN, AM, perpendicular to WD and FDP respectively, $P : W :: AN : AM$. See *LEVER*.

7. The pressure upon the axis at A (i. e. Pr) : P :: DG : DF :: fin. $\angle DFG$ or PDW : fin. $\angle FGD$ or ADW : Pr; W :: DG : DE :: fin. $\angle DEG$ or PDW : fin. $\angle DGE$ or ADP; and P : W :: fin. $\angle ADW$: fin. $\angle ADP$. When the angle PDW is infinitely small, or PD and WD are parallel, the perpendiculars AN, AM, are to each other as AW : PA. Parkinson's System of Mechanics, &c. p. 137.

Axis of a Vessel, is that quiescent right line passing through the middle thereof, perpendicularly to its base, and equally distant from its sides.

Axis, in Optics. *Optic axis*, or *visual axis*, is a ray pas-

sing through the centre of the eye; or it is that ray, which, proceeding through the middle of the luminous cone, falls perpendicularly on the crystalline humour, and consequently passes through the centre of the eye.

Axis, Common, or Mean, is a right line drawn from the point of concurrence of the two optic nerves, through the middle of the right line which joins the extremity of the same optic nerves.

Axis of a Lens, or Glass, is a right line passing along the axis of that solid, of which the lens is a segment.

Thus, a spherical convex lens being a segment of some sphere, the axis of the lens is the same with the axis of the sphere; or it is a right line passing through the centre thereof. Or, the axis of a glass is a right line joining the middle points of the two opposite surfaces of the glass. See *LENS*.

Axis of Incidence, in *Dioptrics*, is a right line drawn through the point of incidence, perpendicularly to the refracting surface. See *INCIDENCE*.

Axis of Refraction, is a right line continued from the point of incidence or refraction perpendicularly to the refracting surface, along the farther medium. Or, it is that made by the incident ray, perpendicularly prolonged on the side of the second medium. See *REFRACTION*.

Axis, in Zoology, a species of the CERVUS, or STAG genus, with branched, round, erect horns, that are bifid at the summit; and the body spotted with white. Erxleb. Mamm. p. 312. Schreber, &c.

The axis, according to Sonnini and others, is an animal almost peculiar to the colder parts of Asia; it inhabits the wooded mountains of the Celbes, Java, and Ceylon, in great numbers, but it is still more abundant on the banks of the river Ganges, and for that reason is not unfrequently called the *Ganges stag*. The axis multiplies fast in the parks and menageries of England, France, and other parts of Europe; and being a most graceful animal, is no small ornament to the grounds of the nobility and gentry. It is said to propagate with the female of the common stag; and it is equally probable, that the female axis would produce with the male of the other kind.

This animal was known to the ancients by the name of axis. Pliny speaks of it as a native of India, and informs us likewise that it was consecrated to Bacchus. Its size is nearly that of the fallow deer; colour above pale rufous brown, elegantly spotted with white, beneath white; tail like that of the fallow deer, and rufous above, and white beneath. The axis is easily tamed; its smell is exquisite; and flesh very good when salted.

Gmelin, on the authority of Pennant, speaks of two varieties of this creature; the first, with a body uniformly of one colour, with the extremity of the horns trifurcated; and the other with horns that are also trifurcated, but larger, and whitish. These are the *middle axis* and *spotted axis* of Dr. Shaw; and are thus noticed in the Gen. Zool. of that author.—“*Middle axis*. Whether this be a variety of the former (*spotted axis*), or specifically distinct, does not appear perfectly clear. It is, according to Mr. Pennant, of a middle size between the *spotted axis* and the *great axis* or following kind. In the colour of its hair, it resembles the first sort; but is never spotted. It, however, is said to vary into white, in which state it is considered as a great rarity. It inhabits dry hilly forests in Ceylon, Borneo, Celebes, and Java, where it is found in very numerous herds. Its flesh is much esteemed by the natives, and is dried and salted for use.”—“*Great axis*. The existence of this species, or variety, is ascertained from a pair of horns in the British Museum, resembling the former kinds in shape, but of a larger size;

they measure two feet nine inches in length, are of a whitish colour, and are very strong, thick, and rugged. Mr. Pennant conjectures that they were brought from Ceylon or Borneo, having been informed by Mr. Loten, who had long resided in the former of these islands, that a very large kind of stag, as tall as a horse, of a reddish colour, and with trifurcated horns, existed there as well as at Borneo. In Borneo, they are said to frequent low marshy tracts, and to be called by the name of water stags."

AXIUS, now **VARDARI**, in *Ancient Geography*, the largest river in Macedonia, sprung from two fountains in the Scardian mountains, and after a course of eighty miles, spread itself into an extensive lake below the city of Edeffa. There receiving the Erigon, it fell into the bay of Thesalonica, almost opposite to that city.—Also, a river of Syria, which passed Apamea.

AXLE-TREE. See **AXIS**.

AXMINSTER, spelt in old writings **AXMYSTER**, in *Geography*, is the name of a market town in Devonshire, situated on the great leading road from London to the West of England. It is said to derive its name from the river Axe, on which it is seated, and a minster, founded here by king Athelstan, for seven priests, who were appointed to pray for the souls of some of his army that were slain in a dreadful conflict with the Danes. A place in the neighbourhood is still called *King's-field*, and another place bears the name of Kilmington, from *Kil-maen-ton*. A castle was formerly standing in the town; and the market, held on Saturday, is kept in a place still bearing that name. Whatever size or character the minster might originally possess, it has been nearly destroyed; and the parish church, though large, has scarcely any appearance of antiquity. A small Saxon arch, with zigzag mouldings and appropriate capitals, is preserved in the east end of the south aisle. Axminster is a healthy, clean town, pleasantly situated on rising ground, which slopes on the western side to the river. A considerable manufactory of carpets is carried on here, the peculiar make and character of which have obtained them the name of Axminster carpets. They are woven in one entire piece, and several persons are employed at the same time in working the coloured patterns. The manufactory was first established here in 1755, by the grandfather of the present proprietor. Since that time the trade has much increased, and now above one hundred hands are constantly employed in the different processes of making a carpet. (See **CARPET**.) Beside the persons engaged in this manufactory, Axminster is inhabited by several others, who carry on the making of broad and narrow cloths, cotton tapes, druggets, leather breeches, and gloves. Here are two meeting houses, one for Independents, and the other for Methodists; also a Roman Catholic chapel. Axminster has the advantage of a Sunday school, and also a free school. The neighbourhood is adorned with several respectable and handsome mansions, of which *Shute House* and *Ford Abbey* are the most considerable. The first belongs to the De La Pole family, and the second to Francis Gwynn, esq. This is a large respectable structure, many parts of which are the same as originally belonged to the ancient abbey. Polwhele's *History of Devon*, vol. ii. p. 288.; and *Beauties of England and Wales*, vol. iv.

AXOLOTL, in *Ichthyology*, a singular fish found in the lake of Mexico. It has four feet like the lizard, no scales, a matrix like a woman, and the menstrual flux. It has the taste of an eel.

AXON, in *Ancient Geography*, a river of Asia Minor, in Caria, formed by the re-union of two small streams, and running south from the town of Calydna, discharged itself

into the north-west part of the gulf of Glaucus, to the north-west of the promontory of Pedalium.

AXONA, a river of Belgic Gaul, now the **AISNE**.

AXUM, in *Geography*, once the large and populous capital of Abyssinia, in the province of Tigré, existed in a flourishing state so lately as about the beginning of the 16th century, but was ruined in that century by the Turkish invasion. It is now a village, or at least an inconsiderable town, exhibiting in its ruins traces of its ancient magnificence and importance. The ancient city of Axum was built, according to Mr. Bruce, by a colony of Cushites, and he cites an Abyssinian tradition, which says, that it was built by them early in the days of Abraham. See **ABYSSINIA**. As the Abyssinians never built any city, and no ruins of any exist at this day in the whole country, this traveller conceives, that Axum was the magnificent metropolis of the trading people, or Troglodyte Ethiopians, called Cushites, who constructed, in many places, buildings of great strength, magnitude, and expense, especially at Azab, suitable to the magnificence and riches of a state, which was from the first ages the emporium of the Indian and African trade. As Axum is situated about midway between Azab and Meroe, it points out the road taken by the caravans that carried on the intercourse between the Ganges and the Mediterranean. The ruins of Axum are very extensive; but like those of the cities of ancient times, they consist altogether of public buildings. In one square, supposed by Mr. Bruce to have been the centre of the town, there are forty obelisks, none of which have any hieroglyphics upon them. One of these, which is still standing, is larger than the rest; and there are two of a larger size that are fallen. They consist in one piece of granite; and on the top of that which is standing, there is a patera exceedingly well carved in the Greek taste. The structure of this obelisk, and of the two larger that are fallen, is ascribed by Mr. Bruce to Ptolemy Euergetes. Upon the face of the obelisk, there is a great deal of carving in the Gothic taste, somewhat like metopes, triglyphs, and guttæ, disposed rudely and without order; but there are no characters, or figures. The face of this pyramid, of which Mr. Bruce has given a geometrical elevation, looks due south; it has been placed with great exactness, and has preserved its perpendicular position to the present time. On the face, fronting the south, is the representation of a door, with a lock and bolt, such as are used at this day in Egypt and Palestine. This obelisk is supposed to have been erected by Ptolemy Euergetes, who conquered this city and the neighbouring kingdom, and who was the patron of Eratosthenes, for the use of this astronomer in ascertaining the latitude. Its top was first cut into a narrow neck, then spread out like a fan in a semicircular form, with a pavement curiously levelled to receive the shade, and to mark the separation of the true shadow from the penumbra as distinctly as possible. The edifice, thus constructed, was probably intended for verifying the experiments of Eratosthenes with a larger radius, and not for observing the obliquity of the ecliptic at Axum. For though Axum, by its situation, was a very proper place, the sun passing over that city and obelisk twice a year; yet he could not make use of the sun's being twice vertical to this city, because it is vertical about the 25th of April and about the 20th of August; and at both these seasons, the heavens are so overcast with clouds, and the rain so continual, especially at noon, that it must have been very extraordinary if Ptolemy had once seen the sun during the months of his residence in this place. Beyond the convent of Abba Pantaleon, and a small obelisk situated on a rock above,

above, there is to the south a road cut in a mountain of red marble, having on the left a parapet wall about five feet high, solid, and of the same materials. In this wall, at equal distances, are hewn solid pedestals, bearing on their tops the marks where stood the colossal statues of Sirius, the Iatator anubis, or dog-star. Of these pedestals, with the marks of the statues just mentioned, there are 133 still in their places; but there remained only figures of the dog, which were much mutilated, and evidently in the Egyptian taste. These are composed of granite; but some of them appeared to Mr. Bruce to have been metal. There are also pedestals, on which the figures of the sphinx have been placed. Two magnificent flights of steps several hundred feet long, all of granite, exceedingly well fashioned, and still in their places, are the only remains of a magnificent temple. In the angle of this platform, where the temple stood, is the present small church of Axum, substituted for one destroyed by Mahomet Gragné in the reign of king David III., and which was probably the remains of a temple built by Ptolemy Euergetes, if not the work of more remote times. The church is a mean, small building, and very negligently kept. Mr. Bruce apprehends, that some ancient copy of the O. T. was deposited here, probably that from which the first version was made; but whatever it might be, it was destroyed, together with the church itself, by Mahomet Gragné; though the superstitious people have a tradition that it still subsists there. Another relic, preserved in this place, is a picture of Christ's head crowned with thorns, said to have been painted by St. Luke, which, upon occasions of singular importance, is brought out and carried with the army, especially in a war with Mahometans and Pagans. Within the outer gate of the church are three small square inclosures, all of granite, with small octagon pillars in the angles, apparently Egyptian; on the top of which were formerly small images of the dog-star, probably of metal. Upon a stone, in the middle of one of these, the king sits and is crowned, and this ceremony has always subsisted since the days of Paganism; and below it, where he places his feet, is a large oblong slab of free stone; bearing the following inscription, much defaced,

“ΙΤΘΑΕΜΑΙΟΥ ΕΥΕΡΓΕΤΟΥ ΒΑΣΙΛΕΟΥ.”

Adjoining to Axum is a road, formed by large stones standing edgewise, or heaped upon one another, which is apparently the remains of an old causeway, part of the magnificent works about this city.

The present town of Axum stands at the foot of a hill, and contains about 600 houses. It is watered by a small stream, which flows constantly from a fountain in the narrow valley, where the rows of obelisks stand. The spring is received into a magnificent basin, 150 feet square, and thence it is carried, at pleasure, to water the neighbouring gardens, where there is little fruit, except pomegranates, which are not very excellent. In the town are several manufactures of coarse cotton cloth; and here also the best parchment is made of goats' skins, which is the ordinary employment of the monks. Every kind of vegetation seemed later at Axum, and its vicinity, than at Adowa. N. lat. 14° 6' 36". E. long. 38° 39'. Bruce's Travels, vol. iii. p. 128, &c.

AXUNGIA, a kind of fat, the hardest and driest of any in the bodies of animals.

The word is supposed to be formed *ab axe rotarum quæ unguntur*, from its being used as the grease of wheels.

The Latins distinguish fat into *pinguedo*, and *adeps*, or *sebum*; which last, when old, is particularly called *axungia*: but many of our modern writers confound them. *Physicians* make use of the *axungia* of the goose, the

viper, and some others, which is held by some to be of extraordinary service in the drawing and ripening of tumours, &c.

AXUNGIA of Glass, called also the *gall*, and *salt of glass*, is a scum taken from the top of the matter of glass before it be thoroughly vitrified. It is used in cleansing the teeth, and by farriers for clearing the eyes of horses.

AXYLON, in *Ancient Geography*, a country of Asia, towards Bithynia and Cappadocia. Livy.

AXYRIS, in *Botany*. Lin. g. 1047. Schreb. 1409. Juss. 86. Gærtn. t. 128. Class, *monœcia triandria*. Nat. Order, *holoracea*.—*Atriplices*, Juss. Gen. Char. * Male flowers in an ament. *Cal.* perianth three-parted, spreading, obtuse. *Cor.* none. *Stam.* filaments three, capillary, spreading. Anthers roundish, * Female flowers scattered. *Cal.* perianth five-leaved (two-leaved, *Syst.*), concave, obtuse, converging, permanent; the two outer leaflets shorter. *Cor.* none. *Pist.* germ roundish; styles two, capillary; stigmas acuminate. *Per.* none. *Calyx*, closely involving the seed with its three leaflets. *Seed* one, ovate, compressed, obtuse.

Eff. Gen. Char. *Male.* *Calyx* three parted. *Cor.* none. *Fem. Cal.* two-leaved. *Cor.* none. *Styles* two. *Seed* one.

Species, 1. *A. amarantoides*, simple spiked axyris. Gmel. lib. 3. 21. t. 2. f. 2. and t. 3. “Leaves ovate, stem erect, spikes simple.” Leaves rough, with stellate hairs: fruit-bearing branches, naked at the base; spike very small, subsessile, quite simple, terminal. It is observed by Gmelin, that the calyx of the female flower is two or three-leaved. Cultivated by Miller in 1758. 2. *A. hybrida*. Gmel. l. c. “Leaves ovate; stem erect; spikes conglomerate.” This differs from the first, in the spike of flowers being on long peduncles, conglomerate, or directed the same way, twisted, with the fruit-bearing branches crowded close to the stem, and the leaves more rough. Pallas supposes this to be only a variety of the former plant. According to Gmelin, the calyx is three-leaved, and there is but one style in the female flower. 3. *A. prostrata*. Gmel. l. c. “Leaves obovate; stem subdivided; flowers headed.” Stem much branched, six or seven inches high; leaves on stalks; flowers at the ends of the branches, conglomerate, with numerous leaflets among them. The female calyx as also three leaflets according to Gmelin. All these are annual plants, and natives of Siberia.

AXYRIS *Ceratoides* now constitutes a new genus, under the name *DIOTIS*; which see.

AY, in *Geography*, a town of France, in the department of the Marne, and chief place of a canton in the district of Rheims, seated on the Marne; famous for its good wines; four leagues south of Rheims, and one N. E. of Epernay. The place contains 2585 and the canton 11,550 inhabitants; the territory includes 180 kilometres and 20 communes. N. lat. 49° 4'. E. long. 2° 15'.

AY, **PULO**, one of the Banda islands, in the Indian sea, about three leagues in circumference, where the Dutch have erected a fort.

AYAG, or **KAYACHU**, one of the Andreanofskie islands, in the Eastern or Pacific Ocean, about 150 versts in circumference, and consisting of several high and rocky mountains, the intervals of which are bare heath and moor ground; but in the whole island, there is not one forest tree. The vegetables resemble those of Kamtschatka. It furnishes small quantities of crow or crane-berries, and the larger sort of bilberries; but of the roots of burnet and all kind of snake-weed, such abundance as to afford, in case of necessity, a plentiful provision for the inhabitants. There is one small rivulet; and there are many good bays and anchoring places. The population cannot be precisely ascertained, as the natives are continually emigrating from island to island in their baidars.

AYAMONTE,

AYAMONTE, a sea-port town of Spain, situate at the mouth of the Guadiana, on the frontiers of Portugal, with a good haven in the gulf of Cadiz; small, but well fortified, and defended by a castle on a rock; $3\frac{1}{2}$ miles W. S. W. of Seville. The adjacent vineyards are fruitful, and the wine excellent. N. lat. $37^{\circ} 13'$. W. long. $8^{\circ} 5'$. See AIMONTE.

AYAMS, derived from an Arabic word which signifies *eye*, a name given to a class of officers in the provinces of the Ottoman empire, whose business it is to watch over the safety and the fortune of individuals, and also over the good order and defence of a town; to restrain the unjust enterprises of the pachas, and the exactions of the military, and to concur in the just assessment of the taxes.—Appointed by the people, those who undertake this honourable function, are generally men reputed the most virtuous; there are several of them in the great towns, and a single person superintends several villages in the plains. They receive no other reward for their trouble and zeal, than the respect with which they are treated, and the satisfaction of being useful. The Ayams call to their divan the notables of the town and the lawyers, in order to discuss the more important subjects, to digest the remonstrances that are proper to be made to the pacha, and to establish the grounds of those complaints which they judge necessary to be presented against him to the Porte. Olivier's Trav. in the Ottom. Emp. p. 200.

AYBAR, in *Geography*, a town of Spain, in Navarre, on the river Arragon; one league from Sanguesa.

AYBED, a place of Egypt, on the gulf of the Red Sea, where the merchandises of Asia were landed.

AYBLENG, a town of Germany, in Upper Bavaria, twenty-six miles S. E. of Munich.

AYCHA, a town of Bohemia, in the circle of Bolelaw; sixteen miles north of Jung-Bantzel.

AYDHAB, a place of Africa, in Egypt, on the coast of the Red Sea. N. lat. $21^{\circ} 53'$. E. long. $36^{\circ} 26'$. See AIDHAB.

AYE, a town of Norway, in the island of Shierney.

AYE-AYE, in *Zoology*, a singular quadruped discovered by Sonnerat, in the island of Madagascar; and described in his voyage to the East Indies (tom. ii. p. 137). The name appears to have no precise meaning; it is an exclamation of the people in Madagascar, and which M. Sonnerat applied to this animal. It is found chiefly, if not exclusively, on the western side of the island.

In size the creature is equal to a rabbit, measuring in a right line from the muzzle to the origin of the tail, fourteen or fifteen inches, and the tail being rather longer than the body. The head is formed like that of a squirrel; the incisive teeth are very contiguous, and so placed as to resemble in some manner, the beak of a parrot; but the two in the lower jaw are much stronger than those in the upper one. The ears are naked, large, and rounded at the tip, as in several of the bat tribe. The toes on each foot are five in number; and the first or innermost one, which serves as a thumb to the hind feet, has a large and flat nail as in the *makis* tribe (*macauro*, or *lemur*). A very distinguished character of this animal is the length of the toes on the fore-feet; the two last joints of the middle toe above all are very long, slender, and destitute of hair, and the nails are hooked. The fur is as coarse as horse-hair; and is of a purplish, or musky-brown colour, intermixed with black and griseous ash; upon the head, and back, about the eyes, legs, and thighs, is a deep musk-colour; on the eyelids, and several parts of the body and limbs, black however predominates, and the tail is of this latter colour; that of the face, throat, and belly is greyish white, or slightly tinged with rufous in some

places; it does not carry the tail elevated like a squirrel. The female has two teats on the lower part of the belly.

M. Sonnerat, who saw both the male and female, speaks of them as being very slothful and gentle animals; and which, like the owls, are scarcely able to discern objects in the day time. They live chiefly under ground, feeding on worms and insects which they find in the earth, or in crevices in the trunks of trees, from whence they extract them with the greatest facility, by means of their long slender toe before mentioned. Those which Sonnerat kept alive, were served with rice, and he observed that they fed themselves with the two long toes of their forefeet, in the same manner as the Chinese do with their chop-sticks when eating rice at their meals.

Sonnini forms a new genus of this animal, under the name of *CHIEROMYS* (or *rat à main*), observing that it is the only species of its genus known. The generic character, according to this author, consists in the toes being very long, and the thumb of the hinder pair being bent aside, or turning rather backwards. He censures Gmelin for calling it *sciurus Madagascariensis* or Madagascar squirrel, because a quadruped of that genus really exists in Madagascar.—Gmelin thus specifically describes his *S. Madagascariensis*; middle toe of the fore-feet naked, and very long; thumb nail of the hind-pair rounded.

AYEL, Fr. or AYLE, in *Law*, a writ which lies where the grandfather was seized in his demesne on the day he died, a stranger enters the same day and dispossesses the heir. See *ASSISE de Mort*, &c.

AYEN, in *Geography*, a town of France, in the department of the Correze, and chief place of a canton in the district of Brive; fourteen miles S. S. W. of Uzerches. The place contains 935 and the canton 8592 inhabitants; the territory includes $137\frac{1}{2}$ kilometres and 12 communes.

AYENIA, in *Botany*, (named in honour of the duke D'Ayen, duke and marechalle de Noailles). Linn. g. 1020. Schreb. 367. Gært. 79. Juss. 278. Class, *gynandria pentandria*; or, according to Schreber, *pentandria monogynia*. Nat. Order of *columifera*.—*Malvacea*, Juss. Gen. Char. *Cal.* perianth one-leaved, five parted; parts ovate, oblong, acute, coloured in the middle, reflex, withering. *Cor.* five-leaved, united at the top to the nectary into a flat star; claws of the petals capillary, very long, bowed outwardly; borders obovate, reflex, with clubbed tips turned upward; nectary bell-shaped, sitting on a cylindric, erect column, shorter than the calyx; border five-lobed, lobes elevated; above flattish, with a longitudinal furrow, excavated underneath, sharp. *Stam.* filaments five, very short, inserted into the margin of the nectary, on the top of the ribs, between the divisions of the border, each bent downwards through a notch at the end of each petal; anthers roundish, under the borders of the petals. *Pist.* germ roundish, five-cornered, at the bottom of the nectary; style cylindric; stigma obtuse, five-lobed. *Per.* capsule five-grained, roundish, muricate, five-celled, ten-valved, elastic. *Seeds* solitary, rather oblong, gibbous on one side, angular on the other.

Ess. Gen. Char. Monogynous. *Cal.* five-leaved. *Pet.* united into a star, with long claws; anthers five, under the star; caps. five-celled.

Species, 1. *A. pusilla*; smooth ayenia. Mill. Dict. fig. t. 18. "Leaves cordate, smooth." Stem weak, woody, from nine inches to a foot high; leaves alternate, indented, pointed, stalked; flowers at the base of the petioles, two, three, or four, from the same point, on separate peduncles; corolla purple, tubulous, spreading at the top into five segments, each terminated by a slender tail. A native of Peru. Cultivated by Miller, in 1756. Its flowers appear in succession from July till winter. 2. *A. tomentosa*. "Leaves ovate,

ovate, roundish, tomentose." Leaflets of the caylx lanceolate, acute, permanent; corolla without petals, but composed of a one-leafed bell-shaped nectary, with a five-cleft margin; filaments on the outside of the nectary, longer than the caylx, bowed, bent in, and fixed by a broad membranous tip, to the edge of the nectary; anthers three. A native of South America. 3. *A. magna*. Jacqu. Amer. Pict. p. 112. "Leaves cordate pubescent; germ of the flowers sessile." An upright shrub five feet high; leaves acuminate, serrate, alternate, on tomentose footstalks; peduncles short, axillary, mostly in fours; three-flowered; flowers small, herbaceous, not gynandrous. A native of Carthage and other places of South America. 4. *A. levigata*. Swartz. Prod. 97. "Leaves ovate, entire, very smooth, germ pedicelled, nectary ten-cleft, radiated." A native of Jamaica.

Propagation and Culture. These plants are to be propagated by seeds sown on a temperate hot-bed, early in the spring, and when they have four leaves, they should be transplanted in another hot-bed to bring them forward, or in pots, and plunged into a hot-bed of tanner's bark. They must be shaded till they have taken new root, and afterwards have free air admitted to them every day in proportion to the warmth of the season; they also require frequent watering. In winter they may be preserved in a moderate stove, but as they perfect their seeds the first year, it is not necessary to continue the old plants. See Martyn's Miller's Dict.

AYENNIS, in *Geography*, the name of an Indian tribe of America, in Florida.

AYERBA, a town of Spain, in Arragon, on the Gallego, between Saragosa and Jaca.

AYERBENGAI, a town of the island of Sumatra.

AYERSTOWN. See **AYRSTOWN**.

AYESHA, in *Biography*, the favourite wife of Mahomet, was the daughter of Abubeker, and the only one of Mahomet's numerous wives who was a virgin when he came to his bed. With this view, he married her at seven years of age, and cohabited with her at nine. He had no children by her; but so affectionate and constant was his attachment to her, that in his last illness he was conveyed to her house, and expired in her arms. Her enemies charged her with adultery on a particular occasion; and though the prophet had suspicions of her infidelity, he thought it most prudent, for preserving the dignity of his own character, to produce a seasonable revelation from heaven, attesting her innocence; and he punished her accusers as calumniators. After the death of Mahomet, Ayesha was held in great veneration by the Mussulmans, denominated "the mother of the faithful," and consulted on important occasions. Against the caliph Othman she conceived, for some reason that is not known, an invincible prejudice, and formed a plot for de-throning him. When Othman was assassinated by another enemy, she vigorously opposed the succession of Ali, because he had concurred in the accusation of her infidelity. Unit-ing with her favourites Telha and Zobeir at Mecca, and under a pretence of avenging the murder of Othman, she marched in a litter borne by a very strong camel, at the head of an army, towards Bassora, and on approaching the town, after some ineffectual resistance on the part of the inhabitants, she was met by a deputation sent to know her intentions, whom she harangued with great passion, and in a loud shrill voice, in a long speech. To her speech one of the Arabs replied, "O mother of the faithful, the murder of Othman was a circumstance of less moment than thy leaving home upon this cursed camel. God has bestowed on thee a veil and a protection; but thou hast rent the veil,

and set at nought the protection." After some contest, the troops of Ayesha gained possession of Bassora. But Ali advanced, and as Ayesha obstinately rejected all pacific counsels, a fierce battle ensued at a place called Horaiba, in which both Telha and Zobeir were slain. The combat closed with hamstringing the camel on which Ayesha was carried, and taking her prisoner. After some mutual reproaches between her and Ali, she was civilly dismissed, and sent to Medina with an injunction to live peaceably at home, and to concern herself no more in affairs of state. This restriction she afterwards resented by refusing to suffer Hasan, the son of Ali, to be buried near the tomb of the prophet, which was her property. Having regained some degree of influence in the reign of the caliph Moawiyah, she was consulted by him concerning the succession of his son Yezid. Soon after, she died, in the 58th year of the Hegira, A. D. 677, at the age of 67 years. Mod. Un. Hist. vol. i. Her-delot Bib. Or. p. 75.

AYGULA, in *Zoology*, a species of **SIMIA**, characterised by Linnæus as the long-tailed, beardless, grey monkey, with a rising longitudinal tuft on the crown; the simia nigra magnitudinis medicæ of Edwards; aigrette of Buffon; and egret monkey of Pennant. Linnæus mentions an animal, apprehended to be a variety, with a roundish head, the face less black, and the colour of the body less ferruginous. Mr. Pennant describes the egret as having a long face, and an upright pointed tuft of hair on the top of the head, hair on the forehead black; colour of the upper part of the body olivaceous; of the lower, cinereous; eye-brows large; beard very small; size of a small cat. It is said to inhabit India, and particularly the island of Java, and to be a very sportive and lively species; gamboling on the trees, and making a continual noise during the night. M. Cèpede surmises, that the bonneted monkey may perhaps be a variety of this species. Shaw.

AYGULUS, in *Entomology*, a species of **SCARABÆUS**, that inhabits India. Thorax with four dots; head tuberculated; wing-cases testaceous; and no fore-tarsi. Fabricius.

AYLAH. See **AILAH**.

AYLESBURY, in *Geography*, is a large market and borough town in Buckinghamshire, in England; and may be considered the most considerable town in the county. It consists of several streets and lanes, which are irregularly disposed over an extensive surface of ground that rises in the midst of the rich vale of Aylesbury. Leland describes the town as being principally built with timber when he visited it, but since that time it has been considerably enlarged and improved, and most of the houses constructed with brick. The improvements originated with sir John Baldwin, who erected some considerable buildings, and raised a causeway three miles in length to facilitate the approach to the town through a road that was often miry and dangerous. This gentleman, in the time of Henry the eighth, also procured the assizes to be held here which had been before kept at Buckingham. In consequence of this, a county gaol, and also a handsome county hall, were erected. About the year 600, Aylesbury became famous as the burial place of St. Osyth, who was born at Quarendon in this neighbourhood, and beheaded in Essex by the Pagans. The burial place of a saint, in the dark ages of superstition, caused it to be much more frequented by sanctified enthusiasts, and Aylesbury became highly celebrated from this circumstance. Besides, the sisters Editha and Eadburga became possessed of the manor, which after the conquest was given by the king to some of his favourites. The singular tenure, by which it was now held, serves to explain the customs of the times. This enjoined the lord of the manor to provide straw for the king's

King's bed and chamber, three eels for his use in winter; and in summer, straw, rushes, and two green geese, thrice every year, if he visited Aylebury so many times. The church is a spacious and ancient structure, built in the shape of a cross, with a low tower rising at the intersection of the nave and transepts. It contains a few ancient monuments, and on the south side is a room appropriated for a free-school. The church-yard is large, and disposed into several walks, which are planted with double rows of trees. This town was made a borough by charter, and empowered to send members to parliament on the 14th of January, 1553-4. The right of voting is vested in all the householders who do not receive alms, and these commonly amount to about 350. Here are six annual fairs, and a market held on Saturday: at the latter, great numbers of calves and ducks are sold to dealers from London. Many people in this town and its neighbourhood derive support from their peculiar skill in breeding and rearing of ducks. To gratify fashionable luxury they contrive to prevent the ducks laying till the months of October and November; when by heating and stimulating food they are endued to drop their eggs; these are collected and put under different hens, which are also impelled to sit at an unseasonable time, and often made to continue in the nest for two or three broods. By this treatment the poor bird is often exhausted, and dies under her compulsive duty. When the young ducks are hatched, they are placed near the fire and nursed with particular care. By these methods, many ducklings are sent to the metropolis at Christmas, and have been known to sell at fifteen shillings and a guinea per couple. The parish of Aylebury, including the hamlet of Walton, occupies a large space of ground, and comprehends 697 houses and about 3082 inhabitants, the lower class of whom are usually employed in making of lace.

The *vale of Aylebury* is particularly celebrated among agriculturists, for its richness and fertility of soil. It extends for many miles east and west, nearly from Tame in Oxfordshire to Leighton-Buzzard in Bedfordshire, and is mostly appropriated to the grazing and fattening of cattle and sheep. About five miles from Aylebury, is Eythorpe, a seat of the Earl of Chesterfield; and at ten miles distance is Wotton-under-Bernwood, an ancient seat of the Grenville family, and now occupied by the earl of Temple. Britton and Brayley's *Beauties of England and Wales*, vol. i. p. 343, &c.

AYLESFORD, a considerable village of England, in the county of Kent, seated on the northern bank of the river Medway, over which there is a handsome stone bridge of six arches. It is four miles from Maidstone, and thirty from London. The ancient name of this place is found to have been *Saissenaignabail*; but in consequence of a bloody battle which was fought here between the Britons and Saxons in 455, the name was changed to *Angles-ford*, and that afterwards contracted to *Aylesford*. This battle is rendered memorable in the annals of English history, as being the first great conflict between the invading Saxons under Hengist, and the harassed Britons under Gwrtheyrn. Concerning the issue of this battle our historians are very contradictory: some have described the Britons as completely victorious; but the learned Mr. Turner observes, that as Hengist and his son Esca possessed Kent after this event, we may presume that the engagement was unfavourable to the natives. In this sharp battle, Horsa, brother to Hengist, and Catigern, brother to Vortimer, are said to have fought hand to hand, and were both killed on the spot. The former was interred on the eastern side of the Medway, at a place which still retains the name of *Horsted*; and Catigern was buried at a place nearer the scene of battle, where it

is stated a large Cromlech was erected to his memory. This monument is still existing at the place, and consists of three large upright stones, about eight feet high, with another lying on the top, measuring eleven feet by eight, and two feet in thickness. It is called *Kitscety-house*. (See *CROMLECH*.) At the distance of about two fields are other stones erect and some lying down in a circular arrangement. In the reign of Henry the third, a monastery of Carmelites was founded at Aylesford, by lord Grey of Codnor. It was granted by Henry the eighth to sir Thomas Wyat, and has at length devolved to the earl of Aylesford. Here is an hospital for six poor people, each of whom is allowed ten pounds a year. Hausted's *History of Kent*, 8vo. edition. Turner's *History of the Anglo-Saxons*.

AYLETS, or SEA-SWALLOWS. In *Heraldry*, they are often called *Cornish Choughs*, and are painted fable beaked, and legged gules.

AYLMER, or ÆLMER, JOHN, in *Biography*, an English Divine and bishop, was descended from an ancient family at Aylmer-hall, in the county of Norfolk, and born in the year 1521. Being a younger son, he was educated at Cambridge under the patronage and at the charge of Henry Grey, marquis of Dorset, and afterwards duke of Suffolk; who, when his studies were finished, took him into his house, as preceptor to his children, one of whom was lady Jane Grey. Under his tuition, this lady became an excellent proficient in the Latin and Greek languages, so that she could not only read them with ease, but write them with elegance. Aylmer, as a preacher, zealously inculcated the principles of the reformers; and having, in consequence of his preferment to the archdeaconry of Stow, in the diocese of Lincoln, a seat in the convocation, held in the first year of queen Mary, he resolutely opposed that return to popery to which the clergy in general seemed to be inclined; and he was one of the six persons who offered to debate all the controverted points of religion with the most learned champions of the Papists. His zeal for the reformation rendered him obnoxious to the government, so that he found it necessary to withdraw from the country, and as he was of a diminutive size, he made his escape by being concealed in a pipe of wine which had a false bottom, the wine being drawn from the lower half, whilst Aylmer lay hid in the upper. During the time of his exile, he resided first at Straßburg, and afterwards at Zurich in Switzerland, pursuing his studies, and improving himself by travelling, in the course of which he visited most of the universities in Italy and Germany. Towards the close of his exile, he wrote an answer to John Knox's book against the government of women, intitled, "The first Blast against the monstrous Regiment and Empire of Women." His piece was intitled, "An Harborowe for faithful and trewe Subjects against the late blowne Blaste, &c." printed at Straßburg, in 1559. This book was written with vivacity and learning; but it contained some passages which seemed to indicate a tendency towards puritanism, and particularly one in which he exhorted the bishops to content themselves with moderate incomes, and with a portion "priest-like, and not prince-like." However, when this passage was afterwards objected to him by his enemies, he vindicated himself by saying, "When I was a child, I spoke as a child, and thought like a child, &c." After the accession of queen Elizabeth, Aylmer returned home, and was one of the eight divines appointed to dispute with as many popish bishops at Westminster, in the presence of a great assembly. In 1562, he obtained the archdeaconry of Lincoln; and in right of this dignity, he sat in the famous synod held this year for examining and settling the doctrine and discipline of the reformed

reformed church. In this situation he continued for several years, attending to his duties as a justice of the peace, and one of the ecclesiastical commissioners, and entering very little into those disputes that would have subjected him to the notice of either of the two parties by whom he was suspected. In 1573, he accumulated the degrees of bachelor and doctor in divinity, in the university of Oxford; and in 1576, he succeeded his intimate friend and fellow exile in the see of London; but he incurred censure by commencing, and prosecuting for some years, a suit against him for dilapidations. Indeed, a prudent attention to his own interest was a discriminating feature in the bishop's character. In his clerical and episcopal capacity, he was assiduous in public preaching, occasionally rousing, as it is said, the languid attention of his audience by reciting Hebrew verses from a pocket bible; and in his efforts for guarding the church against the attacks both of papists and puritans. Persons of both these descriptions, and particularly the latter, were treated by him with a degree of severity, which was not only unwarrantable in itself, but which incurred occasional admonition from the ruling powers. His virulent abuse of some puritan ministers exposed him to the no less acrimonious assault of their sarcastic writers, so that he became the hero of the celebrated Martin Marprelate. See Fuller's Church History, b. ix. p. 223, 224. He was involved in a variety of disputes with respect both to the temporalities of his see, and his exercise of its spiritual jurisdiction; so that his life was far from being tranquil, though his spirit was bold and resolute, and enabled him to surmount the difficulties with which he had to encounter. Of his resolution and personal courage the two following instances are recorded: one was his submitting to the extraction of a tooth, in order to encourage queen Elizabeth to undergo the same operation; and the other was his cudgelling his son-in-law for misconduct towards his wife, who was a favourite daughter. Bishop Aylmer died at Fulham, in 1594, at the age of 73 years, and was buried in St. Paul's cathedral. He left seven sons and two or three daughters, to all of whom he left large legacies, which he was enabled to do by his economy and avarice. The character of Aylmer deservedly ranks high with respect to talents and learning, but his temper was irritable and violent; he was immoderately fond both of power and money; and he undoubtedly possessed an arbitrary and persecuting spirit. Biogr. Brit. Andrews's Hist. of Gr. Brit. vol. i. p. 524.

AYLSHAM, or ALESHAM, in *Geography*, is a respectable market town in Norfolk, in England, situated in a flat and fertile country on the banks of the river Bure. In 1773, an act of parliament was obtained for making this river navigable hence to Coltishall in its course to Yarmouth, a distance of about ten miles, in which space there are five locks: the undertaking was completed in 1779. This town is the capital of the manor of the duchy of Lancaster, in consequence of which the duchy court is always held here. The manor was granted by Edward III. to the famous John of Gaunt, duke of Lancaster, who built a handsome church in the town, and dedicated it to St. Michael. A free-school was founded here in 1577, by Robert Jannys, who was then mayor of Norwich. Aylsham is about eleven miles from Norwich, and 120 from London. It has two annual fairs, and a weekly market on Tuesday: this was formerly held on Saturdays, but has been altered to the former day. History and Antiquities of Norfolk, 10 vols. 8vo.

AYMARAES, a jurisdiction of South America, in the diocese of Cusco, about 40 leagues south-west from Cusco. This territory abounds in fugar, cattle, and grain, and also in mines of gold and silver, which formerly produced large

quantities of these valuable metals; but at present few of them are wrought, the country being too thinly inhabited.

AYMARGUES. See AIMARGUES.

AYMOUTH. See EYMOUTH.

AYNAC, a town of France, in the department of the Lot, and chief place of a canton in the district of Figeac, twelve miles N. N. W. of Figeac.

AYOQUANTOTOTL, or AVIS AYOQUANTOTOTL, in *Ornithology*, the name under which the *Oriolus Xanthornus* of Gmelin is described by some old writers. Vide Hern. Mex. Seba, &c.

AYORA, in *Geography*, a small place of Spain, in the province of Valencia, upon the river Xucar, at the foot of a mountain, one league from the frontiers of New Castile; the inhabitants of which are said to speak Castilian in its purity.

AYOTECOS, high mountains of America, in Mexico, in the province of Tlascala, towards the coast of the South Sea.

AYRSHIRE, a county in the south-western part of Scotland, bounded on the north by the county of Renfrew, on the east by the shires of Lanark and Dumfries, on the south by Galloway, and on the west by the frith of Clyde. Its extent is about sixty-five miles in length by thirty-six in breadth, and it is divided into three great bailliages or shewartries, which bear the names of Kyle, Cunningham, and Carrick. These districts are extremely different from each other in appearance, as Carrick and the interior parts of Kyle are mountainous, and only fitted for pasture; while the coast of Kyle, and the greater part of Cunningham, present a fine, level, cultivated country, interspersed with numerous towns and villages. Its rivers are the Tweed, the Ayr, the Esk, the Annan, the Urr, the Gurvan, the Doon, and the Lugar. This county includes two royal burghs, Ayr and Irvine, and several towns, among which are Beith, Ballantrae, Girvan, Kilmarnock, Kilwilling, Largs, and Salcoats. Ayrshire possesses many valuable seams of coal, also some quarries of freestone, limestone, ironstone, and several rich lodes of lead and copper ore. A few curious specimens of agates, porphyries, and calcareous petrifications are often found in the hills of Carrick; and a species of whetstone, known by the name of *Ayr-stone*, is obtained from this county. The population of it, as returned to the house of commons in 1800, was 84,306, of which 39,666 were males, and 44,640 females.

AYR, the principal town in the above county, is a royal borough of considerable antiquity, and the seat of a judicatory court. It was nominated a royal borough by William the Lion, in 1180, and the privileges by charter then granted are still enjoyed by the town. It is pleasantly seated on a point of land which projects into the sea, between the influx of the rivers Doon and Ayr, and the principal street is broad and ornamented with a row of good houses on each side. Ayr has been a town of considerable trade, but the rising opulence of Glasgow has attracted the merchants from this place. The inconvenient entrance to the harbour proved detrimental to the commerce of the town, but the inhabitants are carrying on extensive works to remove all obstructions at the mouth of the river, and render it more commodious for trading vessels; and two new reflecting light-houses are now erecting near the entrance to the harbour. The salmon fishery of the two rivers furnishes employ for many of the inhabitants, and the sand-banks of the coast abound with all kinds of white fish. Its population is 5492, and it has 735 houses.

AYR, *New Town of*, is the name of another town, seated on the north side of the river Ayr. It has baronial jurisdiction, and a distinct magistracy from the other town. This place seems to have arisen under the influence of Robert Bruce, who

retired here upon being attacked with a leprosy, established a lazaret-house, and conferred considerable favours on the town, and the neighbouring village of Priestwich. Its population is 1724.

AYR, a river of Scotland, rises in the parish of Muirkirk, in the above county, and after a course of about eighteen miles due west, falls into the frith of Clyde, at the town just described. Its banks are steep and romantic in some places, but in others it often overflows its shores, and does considerable damage.—Also, a river of France, which runs into the Aisne near Grandpré.

AYRAINES, a town of France, in the department of the Somme, and chief place of a canton in the district of Amiens, nine miles S. S. E. of Abbeville.

AYRSTOWN, or AYERSTOWN, a town of America, in Burlington county, New Jersey, situate on the middle branch of Ancocus creek, sixteen miles from the mouth of the creek in the Delaware, and thirteen south-east from Burlington.

AYRY See AERY.

AYSCUE, AYSCOUGH, or ASKEW, *Sir George*, in *Biography*, an eminent English admiral of the seventeenth century, was descended from a good family in Lincolnshire; and entering into the sea-service in his youth, acquired the reputation of an able and experienced officer, and obtained the honour of knighthood from king Charles I. Adhering, however, to the parliament in the civil war, he was constituted admiral of the Irish seas, where he is said to have rendered great service to the protestant interest, and to have contributed much to the reduction of the whole island. In 1651, he reduced the islands of Scilly, and also Barbadoes and Virginia, to the obedience of the parliament; and he afterwards behaved with great honour in the war with the Dutch. In 1666, whilst he was engaged with the Dutch fleet, his ship was driven upon the Galloperland; and being surrounded with enemies, and despairing of help from friends, he was obliged to surrender. After this disaster, he went no more to sea; but spent the remainder of his days in retirement. *Biog. Brit.*

AYSIAMENTA, or AYZIAMENTA. See EASEMENT.

AYSLINGEN, in *Geography*, a market town of Germany, in a prefecture of the same name, in the diocese of Augsburg, situate on the Danube.

AYST, a river of Austria, in the Blach quarter, on which is seated the market town of Waldhausen.

AYTON, or AITON, a small town of Greece, in Livadia, five leagues north of the Dardanelles of Lepanto. This is thought to be the ancient town of Ætolia, called *Calydon Aquile*.

AYUD, AUDIN, or HAWD, a province of Hindostan, containing the most northern countries belonging to the Moguls, such as Kakares, Bankish, Nagarkat, Siba, and others. It is situated to the northwest of the Ganges, and watered by rivers which fall into it; so that, notwithstanding its mountains, it is exceedingly fertile; and its trade with the countries to the north-east renders it very rich. In this province there are many independent rajahs, and two remarkable pagodas, one at Nagarkat, dedicated to the idol Matta, and the other at Kalamak, which is venerated, because the Indians regard it as miraculous, that the water of the town should be very cold, and yet spring from a rock that continually throws out flames.

AZA, in *Ancient Geography*, a town of Asia, in Syria, seated on an eminence to the west of one of the branches of the river Chalus, south-west of Chaonia.—Also, an ancient town of the Lesser Armenia, placed by the Antonine Itinerary in the route from Cæsarea to Sangala, 26 miles from the latter place.—Also, a name given in the time of Steph.

Byz. to the town of Gaza.—Also, a town of Palestine, in the tribe of Ephraim.

AZAB, USSAB, or SABA, in *Geography*, a territory on the Abyssinian coast of the Arabian gulf, near the straits of Babelmandeb, which has been, from time immemorial, the mart of frankincense, myrrh, and balsam. Behind Saba, upon the Indian ocean, is the “Regio Cinnamonifera,” where a considerable quantity of that wild cinnamon grows, which the Italian druggists call “canella.” Azab, or Saba, was formerly a principal station of the caravans, which traded to Arabia. It lies in N. lat. 13° 5′. E. long. 43° 5′, and though it is not a port, it affords a very tolerable road, where is very safe riding, under the shelter of a low desert island, called “Crab Island,” with a few rocks at the end of it. The people, however, says Mr. Bruce, are Galla, the most treacherous and villanous wretches upon the earth. They are “Shepherds,” who sometimes resort to the coasts in great numbers, and sometimes traverse the hinder part of the hills that run close along the shore, and occupy miserable villages composed of huts, that run nearly in an east and west direction from Azab to Raheeta, the largest of all their villages. At Azab may be had plenty of water, sheep, and goats, and also some myrrh and incense at the proper season. But no confidence is to be had in the people. Those of Mocha, who are absolutely necessary to them in their commercial transactions, cannot trust them without surety or hostages. Near Azab there are large ruins, which seem to indicate its former magnitude and importance. There is especially an aqueduct, which, in remote times, furnished a very considerable supply of water from a fountain in the mountains, which must have greatly contributed to the beauty, health, and pleasure of the place. This is constructed with large massy blocks of marble, brought from the neighbouring mountains, placed upon one another without lime or cement, but joined with thick cramps, or bars of brass. There is likewise a number of wells, not six feet wide, composed of pieces of marble hewn to parts of a circle, and joined with similar bars of brass. This circumstance is somewhat surprising, as we are informed by Agatharides (p. 60), that the Alileans and Cassandrins, in the southern parts of Arabia, just opposite to Azab, had among them gold in such plenty, that they would give double the weight of gold for iron, triple its weight for brass, and ten times its weight for silver; and that in digging the earth, pieces of gold were found as big as olive-stones, and some much larger. However this be, the inhabitants of the continent, and of the peninsula of Arabia opposite to it, agree, that this was the royal seat of the queen of Saba, famous in ecclesiastical history for her journey to Jerusalem; that these works belonged to her, and were erected at the place of her residence; and that all the gold, silver, and perfumes came from her kingdom of Sofala, which was Ophir, and which reached from thence to Azab, upon the borders of the Red Sea, along the coast of the Indian ocean. See ABYSSINIA.

The ruins at Azab, as well as those at Axum (See AXUM), appear to be those of public buildings, and not of private dwellings; and from this circumstance it has been inferred, that these were not cities of constant residence, but rather places of resort, where the adventurous traders and their attendants lived, as usual, in their tents, but where their religious rites were celebrated with the greatest solemnity, and in a manner becoming the dispositions of men, who ventured in expeditions across the deserts, far more difficult and dangerous than across the Atlantic; whence, we may also imagine, was derived the great influence, or rather power, of the order of priests, who perhaps were the only constant inhabitants of these spots, which they wished

wished to be considered as the favourite abodes of their divinities. It appears, however, from the best authorities, that Mercè, Axum, and Azab, were places that had a common origin, and were most probably, as we have already observed, the principal stations of the caravans that traded to Arabia, while Thebes and Ammonium continued the communication toward Carthage. Whether from Azab there was an intercourse with the Ethiopians of the more southern parts of Africa, toward cape Gardafan, and the present Zanzibar, is a question that deserves particular investigation. On this subject, see professor Heeren's "Idée über die Politik, &c." or "Ideas on the Policy, Intercourse, and Commerce, of the principal Nations of Antiquity." Gottingen, 1793.

AZAB, in the *Military Order of the Turks*, signifies a particular body of the soldiery taken in, or added first to the janizaries, but now become a separate body from them.

The word, in the Oriental languages, signifies an unmarried person, and the original order of these was, that they should be single men.

The azabs in Egypt have been great rivals to the janizaries, and sometimes they have got the better. Their institution and officers are the same with those of the janizaries; but with this difference, that from odo-bashees they are made serbajees, and from that office cajas, and come into the divan. On the contrary, among the janizaries, when any one is made a serbajee, it is laying him aside, and he is no farther advanced. Pococke's Egypt.

AZABE-KABERI, from *kaber*, sepulchre, and *azab*, torment, denotes a temporary punishment, which, as the Mahometans say, the wicked must suffer after death. Their crimes are hereby expiated, and Mahomet opens the gate of paradise to all who believe in him.

AZADARICHTA, in *Botany*. See MELIA.

AZADKAR, in *Geography*, a large town of Persia, called also *Tevin*, and placed by Tavernier in an extensive plain, watered by 400 subterranean canals.

AZAGARIUM, in *Ancient Geography*, a town of the European Sarmatia, in the vicinity of the Borysthenes. Ptolemy.

AZAGRA, in *Geography*, a town of Spain, in Navarre, on the Ebro; two leagues from Calahorra.

AZAIZY, a poor and inconsiderable tribe of Arabs, inhabiting a village of Egypt, called Bir Ambar, between the Nile and the Red Sea, about N. lat. 26°, and E. long. 33°; who subsist by letting out their cattle for hire to the caravans that go to Cossair. The village probably derived its name Bir Ambar, or the well of spices, from its having been formerly a station of the caravans from the Red Sea, loaded with this kind of merchandise from India. The habitations of the Azaizy are constructed of potter's clay, in one piece, in shape of a bee-hive: the largest not above ten feet high, and the greatest diameter six. Bruce's Trav. vol. i. p. 170.

AZALEA, in *Botany*, (*αζαλεα*, dry; from its growing in a dry soil) Lin. g. 212. Schreb. 277. Gært. 63. Juss. 158. Class, *pentandria monogynia*. Nat. Ord. *bicornes*.—*Rhododendra*, Juss. Gen. Char. *Cal.* perianth five-parted, acute, erect, small, coloured, permanent. *Cor.* monopetalous, bell-shaped, femiinquiesid; the sides of the divisions bent in. *Stam.* filaments five, filiform, inserted into the receptacle, free; anthers simple. *Pist.* germ roundish; style filiform, the length of the corolla, permanent; stigma obtuse. *Per.* capsule roundish, five-celled, five-valved. *Seeds* many, roundish. *Obs.* In some species the corolla is funnel-shaped.

Eff. Gen. Char. *Cor.* bell-shaped; stamina inserted into the receptacle; capsule five-celled.

Species, 1. *A. pontica*, Pontic azalea. "Leaves shining, lanceolate, smooth on both sides, racemes terminal." This species much resembles *rhododendron ponticum*; but its flowers are yellow, its leaves smaller, ovate and ciliate. A native of Pontus. 2. *A. indica*, Indian Azalea. Thunb. Jap. 84. "Flowers sub-solitary; calyxes hairy." A shrub three feet high, with a rough cinereous-brown bark. Branches short, twisted, irregular. Leaves stiff, villose, close, ever-green. Flowers cover the whole upper part of the shrub, and are of a beautiful bright red colour. A native of the East Indies. It is much cultivated in Japan for the elegance of its flowers, and variety in their size and colours. 3. *A. nudiflora*, naked-flowered azalea. The varieties are as follow: *A. coccinea*, deep scarlet azalea, Curt. Mag. 180. *A. rutilans*, deep red azalea. "Calyxes minute." *A. carnea*, pale red azalea. "Tube red at the base, calyxes leafy." *A. alba*, early white azalea. "Calyxes of a middling length." *A. bicolor*, red and white azalea. "Limb of the corolla pale; tube red; calyx small; branchlets hairy." *A. papilionacea*, variegated azalea. "Corolla red, the lowest segment white; calyxes leafy." *A. partita*, downy azalea. "Corolla pale red, divided to the base into five parts." Sp. Char. "Leaves ovate, corollas hairy, stamens very long." In its native country this frequently exceeds fourteen feet in height, but in England, we never see it half this height. Several stems arise from the root. Leaves oblong, smooth, alternate, stalked. Peduncles axillary, long, naked, supporting a cluster of red flowers, which are tubulous, and swelling at the base, like those of the hyacinth, and contracted at the neck; they are divided at the top into five unequal segments, which spread open. The filaments and styles are much longer than the petals, and stand erect. A native of North America; and introduced here by Peter Collinson, esquire, in 1734. 4. *A. viscosa*, viscid azalea. "Leaves scabrous at the edge; corollas with glutinous hairs." Its varieties are, *A. odorata*, common white azalea. "Branches diffused; leaves deep green, shining." *A. vittata*, white-striped flowered azalea. "Corolla white, with pale red keels; styles elongated; red at the end; leaves pale, ovate, oblong." *A. fissa*, narrow-petalled white azalea. "Corolla divided to the very base; leaves deep green, shining." *A. floribunda*, cluster-flowered white azalea. "Styles longer than the corolla; leaves glaucous underneath." *A. glauca*, glaucous azalea. "Corolla white; leaves glaucous on both sides, the younger with scattered hairs on the upper surface." This shrub rises with several stems near four feet high. Leaves spear-shaped, narrow at the base, beset at the edges with short rough teeth, and stand in clusters at the ends of the shoots. Flowers in clusters at the extremities of the branches, white, with a mixture of dirty yellow on the outside; tube an inch long; the two upper segments at the top reflex; the two side ones bent inwards; and the lower one turned downwards. These flowers have the appearance of those of honey-suckle, and are as agreeably scented; they appear in July. This is nearly allied to the foregoing; but does not flower till after the leaves are expanded. It is a native of North America, and was introduced here by P. Collinson, esquire. 5. *A. lapponica*, Lapland azalea. "Leaves with excavated dots sprinkled over them." A shrub six or seven inches high. It is to be distinguished from *rhododendron dauricum* only by its having five stamens, whereas that has ten. 6. *A. procumbens*, trailing azalea. Flor. Lapp. ed. 2. 60. t. 6. Eng. Bot. vol. 13. Hudf. 88. With. 239. Lightf. 139. Flor. Pan. t. 9. "Branches procumbent, diffuse; leaves opposite, revolute, very smooth." Stem woody, much branched; branches leafy, round, smooth; leaves opposite, stalked, spread much, elliptic, obtuse, revolute, entire, smooth; pe-

tiolos channelled, ciliate; peduncles in pairs, commonly one-flowered, reddish, with bractes at the base; flowers erect, of a deep rose colour, bell-shaped, regular; capsule subrotund-ovate, acute, five-celled, margins of the valves inflex. It grows on most of the high mountains of Scotland. 7. *A. punctata*, dotted azalea. Lour. Cochinch. 113. "Leaves rugged about the edge; flowers dotted, heaped." Five feet high, erect, branched; leaves lanceolate, entire, smooth, alternate; corolla white; calyx whitish, dotted with red, as are also the corollas, anthers, and germ. A native of the woods of Cochinchina.

Propagation and Culture. 1, 2. the Pontic and Indian species have not yet been cultivated in Europe. 3, 4. grow naturally in shade, and in moist ground; many of the plants have been sent of late years from North America to England, and produced beautiful flowers in this country. They must have a moist soil and shady situation; and can only be propagated by shoots from their roots, or by laying down their branches, for they do not produce seeds here. When any of them are laid down, it should be only the young shoots of the same year, for the old branches will not put out roots. The best time for this is at Michaelmas, and if they are covered with some old tan, to keep out the frost, it will be of use to them. The autumn is the best time to remove the plants, but the ground about the roots should be covered in winter; a practice necessary for the old plants to preserve them in vigour, and cause them to flower well. 5, 6. are low plants, of little beauty, and will only thrive on boggy ground upon mountains. See Martyn's Miller's Dict.

AZAMA, in *Ancient Geography*, a town of Africa, placed by Ptolemy fifteen days journey distant from Carthage bay; south-east of Cirta. It is supposed to be the preient *Zamora*.

AZAMBUJA, in *Geography*, a small town of Portugal, containing from seven to eight hundred houses, seated in a well-cultivated plain on the banks of the Tagus, not far from Lisbon.

AZAMOGLANS. See AGEMOGLANS.

AZAMOR, in *Geography*, a small sea-port town of Africa, in the kingdom of Morocco, and province of Duquella. It is seated on the river Morbeya, at some distance from its mouth. This town is not adapted to maritime commerce, because the entrance of the river is dangerous. It was unsuccessfully besieged by the Portuguese in 1508; but taken in 1513 by the duke of Braganza, and abandoned about the end of the sixteenth century. At a little distance from Azamor, facing a spacious bay, are the ruins of the ancient city of Titus, supposed by Chenier (Present State, &c. of Morocco, vol. i. p. 37.) to have been one of the cities founded by order of the senate of Carthage. Near the same place are the ruins of Almedina, a town built by the Moors. The cape of Azamor stretches out to the west. See MAZAGAN. N. lat. 33° 20'. W. long. 8° 20'.

AZAMORA, in *Ancient Geography*, a strong place of the Lesser Armenia, in Cataonia. Strabo.

AZANAGHIS, in *Geography*, a people on the coast of Africa, near cape Blanco. They inhabit the adjacent deserts, and are not far from the Arabs of Hoden. Their food is dates, barley, and the milk of their camels. They acknowledge no master, but the more wealthy among them are treated with some tokens of respect. Their general character is that of being perfidious and fraudulent; they are poor and wretched, and live in hordes dispersed in several places along the coast.

AZANI, in *Ancient Geography*, a people of Asia, in Phrygia, to which they were annexed. Strabo.

AZANIA, one of the three grand divisions of Arcadia,

according to Strabo. Steph. Byz. says, that it contained seventeen towns.—Also, a part of the maritime coast of Ethiopia. Pliny.

AZANITIS, a country of Asia Minor, in Phrygia, in which was the source of the river Rhyndacus. Strabo.

AZAOTON, or AZOAL, a sandy desert of Africa, in Libya, almost destitute of water, and which is traversed by the compass, like the sea.

AZAPES. See ASAPPES.

AZAR, in *Ancient Geography*, a mountain in Egypt. Ptolemy.

AZAR, in *Geography*, a town of Arabia, seventy-six miles south-east of Amanzimifdin.

AZARA, in *Ancient Geography*, a town of Asia, in Armenia Major, seated on the river Araxes. Strabo.—Also, an ancient town of Asiatic Sarmatia. Ptolemy.—Also, a temple of Diana, in Assyria. Strabo.

AZARABA, a town of Asia, in Sarmatia. Ptolemy.

AZARECAH, or AZARAKITES, in *History*, the denomination of a sect of heretical Mussulmans, so called from Nafe Ebn al Azarak their founder, who acknowledged no power or government, temporal or spiritual. They consisted of a combination or assemblage of all who rejected and opposed the Mahometan faith; they were sworn enemies of the house of Ommiyah; and committed dreadful ravages in all the Moslem territories through which they passed. In the sixty-eighth year of the Hegira, they made an irruption into Irak, and carried their barbarous excesses to such a height, that they murdered all persons whom they met with, ripped open women with child, and committed every species of cruelty that could be invented on people of every description, without discrimination. During this period their founder died, and was succeeded by Katri Ebn al Fojat, under whose conduct they continued their depredations. Musab, the governor of Mosul and Mesopotamia, sent a body of troops against them, commanded by Omar Ebn Abdallah Temimi, who completely routed them at Naifabur, in Chorasan, slew many of them, and pursued the rest as far as Ispahan and the province of Kerman. See MAHOMETANS.

AZAREDO, in *Geography*, a sea-port town of South America, in the bay of Spirito Santo, on the coast of Brasil. This is a famous port for fugars. S. lat. 20° 18' W. long. 40° 10'.

AZARIAH, or UZZIAH, in *Biography*, one of the kings of Judah, succeeded his father Amaziah in the year 809 before Christ. The early part of his reign, in which he was pious and virtuous, was prosperous and happy; and he obtained great advantages over the Philistines, Ammonites, and Arabians. He was devoted to agriculture, though he had a standing army of 307,500 men, with large magazines, well furnished with arms both offensive and defensive; he employed many husbandmen in the plains, vine-dressers in the mountains, and shepherds in the valleys. Towards the close of his life, and of his reign, which lasted fifty-two years, he became an idolater, died of a leprosy, and was buried, not in the royal sepulchre, but in an adjacent field. 2 Kings, xv. 2 Chron. xxvi. There are many high-priests and others, mentioned in scripture, and in the Jewish history, who bore the name of Azariah.

AZARIAS, a learned Italian rabbi, lived in the sixteenth century, and published at Mantua, in 1574, a Hebrew treatise, entitled, "Meor en Ajim," or "The light of the eyes;" in which are discussed, with considerable learning and knowledge of the Christian scriptures, several points of chronology and criticism. The work contains a Hebrew translation of the book of Aristas on the LXX. Nouv. Dict. Hist.

AZAROLUS, or AZAROLE, in *Botany*. See CRATÆGUS.

AZARUM,

AZARUM, a small, dry, blackish, stringy, medicinal root, much used in France as a specific for the farcy in horses. The azarum, called also *nardus sylvestris*, grows in the Levant, Canada, and about Lyons in France. The first is reputed the best. It is given in powder, from the quantity of an ounce to two.

AZATA, in *Ancient Geography*, a town of Asia, in Media. Ptolemy.

AZATHA, a town of Asia, in Armenia Major. Ptol.

AZAY LE FERON, in *Geography*, a town of France, in the department of the Indre, and chief place of a canton in the district of Chatillon sur Indre; 9 miles S.S.E. of Chatillon.

AZAY le Rideau, a town of France, in the department of the Indre and Loire, and chief place of a canton in the district of Chinon, four leagues south-west of Tours, and four north-east of Chinon. The place contains 1708 and the canton 11,244 inhabitants; the territory includes 275 kilometres and 12 communes.

AZAZEL, in *Jewish Antiquity*. See *SCAPE-GOAT*.

AZED, in the *Materia Medica*, a name given by the Arabian writers to a kind of camphor, which they make the third in value, placing it after the *aleansuri* and *abriagi*. The first of these was the finest of all the kinds of camphor, and was collected tolerably pure from the tree, as it grew in Camfur, the place whence it was named. The *abriagi* was the same camphor, rendered yet more pure by sublimation; this was a discovery of one of the kings of that country, and the camphor was named from him. The third kind, or *azed*, was the same with what we now receive from the Indies, under the name of crude or rough camphor. The word *azed* signifies only *large*, and was used to express the camphor formed into such large cakes, as it is also at this time. Avicenna says, this camphor was gross, of a dusky colour, and much less bright and pellucid than the other kinds. See *CAMPHOR*.

AZEDARACH, in *Botany*. See *MELIA*.

AZEKAH, or **AZECHA**, in *Ancient Geography*, a city of Judæa, strong both by situation and its walls; in the tribe of Judah, and seated in the same north-west corner with Lebna and Makkedah, in the valley of Terebinth, where David slew Goliath. Josh. xv. 35. 1 Sam. xvii. 1. Eusebius and St. Jerom inform us, that, in their time, there was a city of this name between Jerusalem and Eleutheropolis.

AZELFOGE, in *Astronomy*, a fixed star of the second magnitude, in the tail of Cygnus.

AZEM, in *Geography*. See *ASAM*, and *ASSEM*.

AZARAILLES, a town of France, in the department of the Meurthe, and chief place of a canton in the district of Luneville, three leagues south-east of Luneville.

AZETENE, sometimes called *Anzitené*, in *Ancient Geography*, a country of Asia, in Armenia Major, between the sources of the Tigris and Euphrates, to the South of Saphena. Ptolemy.

AZEVEDO, **IGNATIUS**, in *Biography*, a Portuguese Jesuit, was born at Oporto, in 1527, and resigning an ample fortune of which he was heir to a younger brother, he devoted himself to religion in the society of the Jesuits at Coimbra. In process of time he became a missionary, and was deputed as such to the Indies and Brasil, under the title of procurator-general for those countries. Having given an account of his first voyage to the general at Rome, he set out on a second mission with a great number of attendants; but whilst the ship was sailing, in 1570, towards the island of Palma, it was taken by corsairs, and all the missionaries were put to death. On this account, Azevedo and his thirty-nine companions have been honoured as martyrs in the church of Rome; and the history of their mission and martyrdom was published by Beauvais, a Jesuit, in 1744. Moreri.

AZEYTAO, in *Geography*, a small town of Portugal, in Estremadura, consisting of 552 houses, and 2342 inhabitants. It has a manufactory of cottons, and carries on a considerable trade in wine and oil, for which its situation, between the two harbours of Lisbon and St. Ubes, is convenient.

AZIALCOLLAR, a town of Spain, in the country of Seville, nineteen miles north-west of Seville.

AZIBINTA, in *Ancient Geography*, an island of the Mediterranean. Pliny.

AZILAR, in *Geography*, a town of Asiatic Turkey, in the road between Constantinople and Tocat.

AZILLE, a town of France, in the department of the Aude, and chief place of a canton in the district of Carcassonne; thirteen miles E.N.E. of Carcassonne. N. lat. 43° 15'. E. long. 2° 33'.

AZIMGUR, a town of Hindostan, in the country of Allahabad; 108 miles W.N.W. of Patna, and 50 N. of Benares.

AZIMUS, or **AZIMUNTUM**, in *Ancient Geography*, a small city of Thrace, on the Illyrian borders. This city, scarcely mentioned by geographers, has been distinguished in the annals of history by the martial spirit of its youth, the skill and reputation of the leaders whom they had chosen, and their daring exploits against the innumerable host of the northern barbarians. Instead of tamely expecting their approach, the Azimuntines attacked, in frequent and successful sallies, the troops of the Huns, rescued from their hands the spoil of the captives, and recruited their domestic force by the voluntary association of fugitives and deserters. After the treaty of peace between Attila and the eastern empire, A.D. 446, the Barbarian conqueror still menaced the empire with implacable war, unless the Azimuntines were persuaded, or compelled, to comply with the humiliating conditions which their sovereign had accepted. Theodosius, disdaining authority over a society of men who so bravely asserted their natural independence, the king of the Huns condescended to negotiate an exchange with the citizens of Azimus. They demanded the restitution of some shepherds, who, with their cattle, had been accidentally surprised. After diligent, but fruitless inquiry, the Huns were obliged to swear, that they did not detain any prisoner belonging to the city, before they could recover two surviving countrymen, whom the Azimuntines had detained as pledges for the safety of their lost companions. Attila was satisfied, and deceived by their solemn asseveration, that the rest of the captives had been put to the sword; and that it was their constant practice immediately to dismiss the Romans and the deserters, who had obtained the security of the public faith. If the race of the Azimuntines, whether this dissimulation on their part be excused or condemned by political casuists, had been encouraged and multiplied, the Barbarians would have ceased to trample on the majesty of the empire. At a subsequent period, in the war of the emperor Maurice against the Avars, A.D. 595—602, the Azimuntines manifested a considerable degree of the invincible spirit of their ancestors. See Gibbon's Hist. vol. vi. p. 63, &c. vol. viii. p. 201, &c.

AZIMUTH, in *Astronomy*. The azimuth of the sun, or of a star, is an arc of the horizon, comprehended between the meridian of the place, and any vertical circle passing through the sun or star: and it is equal to the angle at the zenith formed by the said meridian and vertical circle, which is measured by the fore-mentioned arc.

The word is pure Arabic, which signifies the same thing. The azimuth is reckoned eastward in the morning, and westward in the afternoon; and it is usually estimated from the south, or from the north, as it is nearer to the one or to the other of those points. Thus if it be found by observation, that the vertical circle which passes through the zenith and a star intersects the horizon just in the midway between the

the east and the south, then the star's azimuth is said to be 45° eastward of the south. It is the complement of the eastern or western amplitude to a quadrant.

The azimuth is found trigonometrically, by this proportion; as radius is to the tangent of the latitude, so is the tangent of the sun's altitude to the cosine of the azimuth from the south at the time of the equinox. Otherwise,—suppose the latitude of the place, and the sun's declination to be given, and let it be required to find the sun's altitude and azimuth at 6 o'clock. E. G. Let London be the place in N. lat. $51^\circ 32'$, and let his declination be $23^\circ 28'$, as it is on the longest day; then to find his altitude and azimuth at 6 o'clock in the morning and evening, construct a figure in the following manner. Describe the meridian (Plate II. *Astronomy*, fig. 20.), draw the horizon HR, and prime vertical ZN; make RP = latitude $51^\circ 32'$, N.; draw the 6 o'clock semicircle PS, the equator EQ, the $23^\circ 28'$ N. parallel of declination nm, intersecting the 6 o'clock semicircle PS in \odot ; and through Z, \odot , N, describe the azimuth circle Z \odot N, intersecting the horizon in A; then the triangles Z \odot P and $\gamma\odot A$ are supplemental triangles to one another. In the spherical triangle Z \odot P, right-angled at P, we have

Given the co-lat. ZP = $38^\circ 28'$
 the co-declin. $\odot P$ = $66^\circ 32'$
 Required the co-altitude Z \odot
 the azimuth $\angle\odot ZP$.

Or, in the spherical triangle $\gamma A\odot$, right-angled at A,

Given the lat. A $\gamma\odot$ = $51^\circ 32'$
 the declin. $\gamma\odot$ = $23^\circ 28'$
 Required the altitude A \odot
 the co-azimuth γA

To find the altitude A \odot .

As Radius	-	-	10.00000
To fin. declin. = $23^\circ 28'$	-	-	9.60012
So fin. lat. = $51^\circ 32'$	-	-	9.89375
To fin. alt. = $18^\circ 10'$	-	-	9.49387

To find the azimuth AR.

As Radius	-	-	10.00000
To Co. lat. = $51^\circ 32'$	-	-	9.79383
So tang. declin. = $23^\circ 28'$	-	-	9.63761
To co. tang. azimuth = $74^\circ 53'$	-	-	9.43144

For the arc AR measures the $\angle RZA$, the azimuth.

On the shortest day at London the parallel of south declination cuts the 6 o'clock hour-circle below the horizon; and as the triangles $\gamma A\odot$ and $\gamma a\odot$ are congruous, the depression below the horizon, on the shortest day at 6 o'clock, will be equal to the altitude at the same hour on the longest day; and the azimuth will also be equal, if estimated from the south. Thus, on the 21st of June, the sun will bear N. $74^\circ 53'$ E. at 6 o'clock in the morning, and N. $74^\circ 53'$ W. at 6 in the evening; but on the 21st of December, at the same hours, it will bear S. $74^\circ 53'$ E., and S. $74^\circ 53'$ W. From this problem, it appears, that as the declination increases, the altitude increases and the azimuth lessens, and the contrary happens while the declination is decreasing; so that on the days of the equinoxes, when the sun has no declination, the altitude at 6 o'clock will be nothing, or the sun will be in the horizon; and the azimuth being then 90° , the sun will be due east in the morning, and west in the evening; that is, on the days of the equinoxes, the sun rises and sets at fix, in the east and west points of the horizon.

Again. Given the latitude of a place, the sun's declina-

tion and altitude; required the hour from noon, and the sun's azimuth. E. G. In the latitude of $51^\circ 32'$ N. the sun's altitude was observed to be $46^\circ 20'$, when his declination was $23^\circ 28'$ N.; what was the sun's azimuth, and the hour when the observation was made?

Let the primitive circle ZRNH (fig. 21.) represent the meridian of London, HR the horizon, and ZN the prime vertical; make RP = $51^\circ 32'$ the height of the pole at London; draw the axis PS, and the equator EQ; lay off the declination En, Qm, $23^\circ 28'$ N. the altitude Hr, Rs, $46^\circ 20'$; and describe the parallel of declination nm, and the parallel of altitude rs, intersecting one another in \odot , the place of the sun at that time: through Z, \odot , N, describe an azimuth circle Z \odot N, and through P, \odot , S, describe an hour circle P \odot S; then the angles $\odot ZP$, $\odot PZ$, being measured, will give the azimuth and hour from noon required; or, they may be computed in the following manner.

In the oblique-angled spherical triangle P \odot Z,

Given the co-lat. ZP = $38^\circ 28'$
 the co-alt. or zenith distance Z \odot = $43^\circ 40'$
 the co-declin. or polar distance $\odot P$ = $66^\circ 32'$
 Required the azimuth, $\angle\odot ZP$.
 and the hour from noon $\angle\odot PZ$.

To find the azimuth, or angle $\odot ZP$.

Here Z \odot = $43^\circ 40'$
 ZP = $38^\circ 28'$

$\odot Z - ZP = 5^\circ 12' = D$
 $P\odot = 66^\circ 32'$

$$2) \begin{array}{r} 71^\circ 44' \\ 61^\circ 20' \end{array} \left| \begin{array}{r} 35^\circ 52' \\ 30^\circ 40' \end{array} \right.$$

Then co-arith. fin. co-lat. = $38^\circ 28'$ - 0.20617
 co-arith. fin. co-alt. = $43^\circ 40'$ - 0.16086
 fin. $\frac{1}{2}$ sum. co-declin. and D = $35^\circ 52'$ 9.76782
 fin. $\frac{1}{2}$ diff. co-declin. and D = $30^\circ 40'$ 9.70761

The sum of the four logs - - - 19.84246

The $\frac{1}{2}$ sum gives $56^\circ 31\frac{1}{2}'$ - - - 9.92123
 And $59^\circ 31\frac{1}{2}'$ doubled gives $113^\circ 3'$ for the azimuth sought, reckoning from the north.

To find the hour from noon, or $\angle\odot PZ$.

Here P \odot = $66^\circ 32'$
 PZ = $38^\circ 28'$

P $\odot - PZ = 28^\circ 4' = D$
 $\odot Z = 43^\circ 40'$

$$2) \begin{array}{r} 71^\circ 44' \\ 15^\circ 36' \end{array} \left| \begin{array}{r} 35^\circ 52' \\ 7^\circ 48' \end{array} \right.$$

Then co-arith. fin. co-declin. = $66^\circ 32'$ - 0.03749
 co-arith. fin. co-lat. = $38^\circ 28'$ - 0.20617
 fin. $\frac{1}{2}$ sum. co-alt. and D = $35^\circ 52'$ - 1.76782
 fin. $\frac{1}{2}$ diff. co-alt. and D = $7^\circ 48'$ - 9.13263

The sum of the four logs - - - 19.14411

The $\frac{1}{2}$ sum gives $21^\circ 55'$ - - - 9.57206

This $21^\circ 55'$ doubled gives $43^\circ 50'$ for the measure of the hour from noon, which is $2^h 55^m 20^s$.

Hence it appears that the observation was made either at $9^h 4^m$

9^h 4^m 40^s in the morning, or at 2^h 55^m 20^s in the afternoon.

The azimuth being first found, the hour from noon might have been found by the proportion between opposite sides and angles. If the declination and latitude had been of contrary names, the same kind of process would have served for finding the things required, except that the side $\odot P$ would have been obtuse; by adding the declination to 90°, instead of subtracting it, as in the case of the latitude and declination having like names.

To find the azimuth by the Globe, see **GLOBE**.

AZIMUTH, *Magnetical*, is an arc of the horizon contained between the azimuth circle of the celestial object, and the magnetical meridian; or it is the apparent distance of the object from the north or south point of the compass. This is found by observing the object with an azimuth compass, when it is about ten or fifteen degrees high, either in the forenoon or afternoon. See **COMPASS**.

AZIMUTH Compass, is an instrument used at sea for finding the sun's magnetical azimuth.

The description and use of the azimuth compass, see under *Azimuth COMPASS*.

AZIMUTH Dial, is a dial whose style or gnomon is at right angles to the plane of the horizon.

AZIMUTHS, called also *Vertical Circles*, are great circles of the sphere intersecting each other in the zenith and nadir, and cutting the horizon at right angles. The horizon being divided into 360, there are usually reckoned 360 azimuths. The azimuths are represented by the rhombs on common sea-charts; and on the globe these circles are represented by the quadrant of altitude, when screwed in the zenith.

On these azimuths is reckoned the height of the stars, and of the sun, when he is not in the meridian; that is, the azimuths shew what distance these are from the horizon.

AZINCOURT, in *Geography*. See **AGINCOURT**.

AZIO, a town of European Turkey, in the province of L'vadia, sixty-four miles north-east of Lepanto.

AZIRIS, in *Ancient Geography*, an ancient town of Armenia Minor. Ptol.—Also, a place of Africa, in Libya, where, as Herodotus says, the Cyrenæans established themselves.

AZIRISTUM, an agreeable place in Armenia Minor, over against Thera, surrounded by hills, and watered by a river. Herodotus.

AZIZUS, in *Mythology*, derived from the Syrian *aziz*, force, an epithet given to Mars, adored at Edessa. Bryant says (*Anal. Anc. Myth.* vol. i. p. 27.), that *Az* or *As* was one of the titles of the sun, and that *Azizus*, formed by a reduplication of the same term, denoted the deity of Edessa and Syria, and was the same as *Anis* and *Isis*, made feminine in Egypt, who was supposed to be the sister of Osiris, the sun.

AZMAVETH, **AZMOTH**, or **BETHESMOTH**, in *Ancient Geography*, a city probably in the tribe of Juda, adjacent to Jerusalem and Anathoth. Nehem. vii. 28. xii. 29.

AZMERE, in *Geography*. See **AGIMERE**.

AZMON, in *Ancient Geography*. See **ASSEMOM**.

AZNALCA'AR, in *Geography*, a town of Spain, in the province of Andalusia; seven leagues from Seville.

AZNOTH-TABOR, or **AZNOTH**, in *Ancient Geography*, is placed by Eusebius in the plain, not far from Damascus. Josh. xix. 34.

AZOCHIS, a town of Palestine, in Galilee. It was situated near Sephoris, and taken by Ptolemy.—Also, an ancient town of Asia, in Mesopotamia. Pliny.

AZOF, in *Geography*, a town and fortrefs on the Don, containing about 3800 inhabitants; distant from St Peterburg 1998, and from Mosco 1268 versts. It is well known

that the Don is the Tanais of antiquity. Now, in this region, many ages ago, stood a town of the same name with the river, which had been built by the Greeks. Chardin pretends that Azof is situate fifteen Italian miles inland from the river; whereas the old town of Tanais is only three such miles distant from the river. What reasons Chardin had for giving this statement, concerning one or the other, it is difficult to discover. Though we cannot absolutely prove that the town Tanais stood precisely on the site of the present Azof, yet it is manifest that it was in this district. The more ancient a town is, the more likely it is to have undergone considerable and frequent alterations; and the less reason there is for imagining that it stands exactly on the old primitive spot, of which Rome alone may afford an example. Concerning Tanais, however, Claudius Ptolemæus affirms it to have been situate near the present Azof. For admitting, as he does, the Don to be the boundary between Europe and Asia, he gives the town Tanais to the Asiatic division. Strabo likewise (p. 215. 340. ed. Casaub.), placing the town on the same side, at the same time informs us that it was built by the Bosphorian Greeks. Greece, in its earlier periods, was extremely populous; and some parts of it, from the nature of their soil, were not productive enough for the nourishment and support of their prolific inhabitants. Hence they were necessitated to construct numerous towns on the sea-coast and on several islands, in order to devise means for remedying so great a defect. The commerce, to which the sea gave them all necessary accommodations, furnished this people at the same time with other means of freeing themselves from poverty. For, at one time, particular towns, at another whole tribes, united to send colonies to different places out of Greece. These new settlers gradually formed colonies on the shores of Natolia, Sicily, the inferior parts of Italy, in France, and several other countries; so that the commerce of almost the whole world then known was imperceptibly drawn into their hands. In like manner they planted their colonies round the whole coast of the Euxine, where, on the coasts of the peninsula of the Crimea, Theodosia, Cherson, Panticapæum, and other towns, became particularly famous.—At what time the town Tana, or the present Azof, fell into the possession of the Genoese, is not now to be ascertained. It may however be surmised, that they obtained it from the Polovtzes before the incursion of the Tartars, and therefore prior to the year 1237, as they would not have been able to cope with the Tartarian forces. The Genoese were still in possession of the Crimea, and at the same time of Tana or Azof, in 1474, though the Turks had conquered Constantinople in the year 1453. In 1637, Azof was captured from the Turks by the Kozaks; and in 1642, after being reduced to ashes, it was reconquered by the Turks. On the twenty-eighth of July 1696, it surrendered to the arms of czar Peter the Great; who in 1711, in consequence of the unfortunate affair at the Pruth, restored it to the Turks at the treaty of Bender; from the Turks it was again captured by the Russians, in 1739; but by the treaty of Belgrade they were obliged to raze it to the foundations. It remained in an abandoned state during thirty years. But in the last war against the Turks, Catharine II. caused it to be re-edified, and it is now in the best state of defence. Coins of Azof have been found, bearing on them the name of khan Taktamysh.

Azof is situate in the government of Ekatarinossaf; which belonging partly to Little Russia and partly to the Zaporogian Kozaks, till the year 1752, when it began to be occupied by colonists from all nations, was one continued waste steppe, entirely void of inhabitants, but has since proved a great acquisition to the industry and trade of the country, under the name of New Servia. The ecclesiastical affairs of the

the Russians are under the archbishop of Ekatarinossaf and Chersonesotaurida; and in his absence under his vicar the bishop of Feodosia and Mariupol. The other religious communions are governed by their own spiritual prefects.

AZOF, *Sea of*, called by the ancients Palus Mæotis, formerly by the Russians the Putrid sea, and in some maps Zabache sea, is a gulf in the Euxine, to which it is joined by a strait. It is situate in the dominions of Russia. Long. 52° to 57° east Ferro; lat. $45^{\circ} 20'$ to $47^{\circ} 20'$ N. It is about 210 miles in length, and from 40 to 60 in breadth. It has six harbours: Taganrok, Mariupole, and the little fort of Petrofsk close to the shore, Azof, Nakhitshewan, and fort St. Dmitri near the mouth of the Don. Of all these, Taganrok has the greatest trade in exports; being next to that of Cherson in the Euxine. Azof at present is not by far so much consequence as it formerly was, Russia having now so many harbours on the Turkish waters, and as that arm of the Don, on which Azof lies, is gradually filling with sand from year to year. The other harbours are for the most part of little significance as to foreign commerce. From Taganrok, in 1793, were exported bariron, tallow and tallow-candles, butter, wheat, and wheat-meal, linen, peltry, tow and cordage, wax and wax-candles, fish, caviar, leather, morrh bones and teeth, honey, soap, sailcloth, sheeps wool, &c. to the amount of 428,087 rubles. It is mostly inhabited by Armenians, who fled hither from the Crimea, in 1780; and at present contains several excellent manufactories of silk, cotton, &c. The amount of the exports from the other ports is not known: probably it is but small. The importation consists in raw and wrought silk and cotton, muslins, Turkish stuffs and carpets, wool and angora goats hair, Greek wines, oil, various kinds of fruit, tobacco and snuff, spices, saffron, opium, medicinal drugs, pearls, precious stones, gold and silver, &c. The whole northern coast of the sea of Azof, from the Don to Perekop, is laid out in fisheries, to which occupation these districts are extremely favourable. They fish with nets that have in the middle a conical bag, in which the fish assemble; and one single draught, which generally lasts only six hours, yields 60,000 fish; among which, however, are found but few sturgeons, shads, and other large kinds of fish. The salted and smoked mackerel, called by the Turks skumri, are an important article of trade in the Crimea, and are frequently sent from Feodosia and Balaklava to Constantinople, and to all the maritime towns of Naxos and Romelia. These fish are transported in barrels, and a thousand of them are sold on the spot for three and a half or four piastres. Tooke's View of the Russian Empire; iii. 72.

AZOGA SHIPS, in *Commerce*, are those Spanish ships commonly called the *quicksilver ships*, from their carrying quicksilver to the Spanish West Indies, in order to extract the silver out of the mines in Peru and Mexico. But it is a great mistake to imagine that these ships are absolutely laden with quicksilver only; for though strictly speaking, they are to carry no goods unless on the king of Spain's account, they are usually full laden, notwithstanding this regulation, by reason that the merchants procure special licences of the king to load, upon paying a consideration for such licences.

AZONI, derived from the privative *z*, and *ζων*, *zone*, or *country*, in *Mythology*, a term anciently applied to such of the gods as were not the peculiar divinities of any particular country or people, but were acknowledged as gods in every country, and worshipped by every nation. See *GOD*.

These azoni were a degree above the visible and sensible gods, which were called *zonai*, who inhabited some particular part of the world, and never stirred out of the district or zone that was assigned them. Such in Egypt were Se-

rapis, Osiris, and Bacchus; and in Greece, the Sun, Mars, the Moon, and Pluto. They were called by the Romans *dii communes*.

AZOOPHAGUS, from *α*, *ζων*, *animal*, and *φαγω*, *I eat*, in *Natural History*, a term used by authors to express such insects or animals as feed on herbs, never eating the flesh of any living creature.

AZOR, or *Azon*, in *Ancient Geography*, a town of the northern part of Palestine, to the south of Dan.

AZORES, in *Geography*, called also *Western Islands*, from their situation, and *Terceras* from the name of the principal island, are a group of islands lying in the Atlantic ocean, between 36° and 40° N. lat. and 25° and 33° W. long. Geographers have frequently classed them among the African islands; but they more properly belong to Europe, as they are about 13° distant from Cape St. Vincent, in Portugal, and about one degree more remote from the African shore. Besides, their latitude connects them more naturally with Europe than with Africa, and they were first peopled by Europeans. They are seven in number, viz. St. Michael, Sta. Maria, Tercera, Gratiofa, St. George, Pico, and Fayal, besides the smaller ones of Flores and Corvo, which lie at a considerable distance to the west, but as they all belong to the government of Portugal, they are all now included under the same general appellation. These isles were all discovered by the Portuguese, but the precise period is a subject of dispute. According to the account inscribed on his globe by the celebrated geographer Behaim, or Behem, they were discovered in 1431; but Murr says, that they were explored successively from 1432 to 1449. It is certain, however, that they were first discovered by the Portuguese, before the year 1449; and they are said to have given them the name of Azores, from *azor*, a *falcon*, on account of the number of goshawks, which were here remarkably tame, there being neither man nor quadruped to disturb them. In 1466, they were given by the king of Portugal to his sister the duchess of Burgundy. They were colonized by Flemings and Germans, among whom was Job de Huerter, the father-in-law of the geographer Behaim, and lord of Moikirchen, being driven from Flanders by war and famine. Huerter afterwards resided at Fayal, and appears to have had a grant of the arms from the duchess of Burgundy. Although the subsequent history of these islands is rather obscure, the Flemish inhabitants seem always to have acknowledged the king of Portugal. The Azores are discovered at a great distance from the sea, on account of a high mountain called the Pico, or Peak (see *PICO*), of a conical form, resembling the peak of Teneriffe. They are generally mountainous, and exposed to earthquakes and eruptions of volcanos, one of which occurred July 9th, 1757, when St. George's, Pico, and Fayal, which form a closer group than the others, being scarcely five leagues asunder, and Tercera, though at twice that distance from St. George's, were suddenly disturbed at the same instant, and shaken to their foundation by terrible convulsions of the earth. The first shock lasted two minutes. On this occasion the ocean overflowed, many persons lost their lives, and these islands were covered with ruins. The consequence of this dreadful convulsion of nature was the production of eighteen little islands, that rose insensibly from beneath the sea, at the distance of about ten yards from the north coast of St. George's. They disappeared in a few months, as those produced by the volcano of St. Michael had done before. It was observed, that Flores, Corvo, St. Michael, and St. Mary's, were not at all affected by this eruption of St. George's, and that Gratiofa suffered very little. They are subject also to violent winds, and the fury of the waves, which are frequently very injurious, by overflowing the low grounds, sweeping off whole fields

fields of grain and folds of cattle, breaking down their fences, and overwhelming their houses. Nevertheless they produce wheat, wine, fruits, and abundance of wood; and they have many quadrupeds both wild and tame. One of the latest accounts we have of these islands is that of Mr. Adanson, who visited them in 1753, on his return from Senegal; but it is to be regretted, that these interesting islands, like all the other Portuguese settlements, are almost unknown.

AZORIUM, or **AZORUS**, in *Ancient Geography*, a town of Greece, in Pelagonia Tripolitidis, according to Strabo and Livy. It was situated among the Perhæberians, at the confluence of two rivers which formed the river Curatius.

AZOT, in *Agriculture*, a substance which is only distinguishable in its different states of combination with other matters. Its effects on vegetation, when in the state of gas, are probably not yet fully ascertained. According to the observations of Humboldt and Scopoli, some sorts of plants when exposed in it soon drop and die, while others, as lichens, continue to increase and grow in a perfect manner.

AZOT, in *Chemistry*, is one of the most important of the substances hitherto considered as elementary, existing very abundantly in nature, forming the greater part of the atmosphere, the peculiar and almost characteristic ingredient of animal matter, the basis of the nitric acid, and one of the constituents of the volatile alkali.

Pure or uncombined azot is only known in the form of a gas; it is then synonymous with the *phlogisticated air* of Scheele and Priestley, the *atmosphærical mephitic* of Lavoisier, and the *nitrogen gas* of Chaptal and some other French chemists.

It was by experiments on the various substances which alter, corrupt, and deteriorate common air, that the properties of azotic gas became first familiar to chemists. In all these, and in the direct *eudiometrical* experiments, or such as decompose the air in order to ascertain its purity, it is the oxygen, together with the carbonic acid, and other casual ingredients, which is subtracted by the chemical re-agents; whilst the azotic gas alone remains unaltered and unabsorbed. Hence, chemists had at first no other knowledge of azot than as a residue untouched in chemical operations, and its properties could only be described by negatives, till the important discoveries of the composition of nitric acid, of ammonia, and of animal matter, gave a new interest to azot as a chemical element.

Azotic gas may be obtained in various methods. In every eudiometric process, as we have just mentioned, the residue is azotic gas of greater or less purity. Thus, if phosphorus be burned in a confined quantity of common air, after the combustion has ceased, the residue is azotic gas in considerable purity, generally however holding some of the phosphorus in solution.

Another method of obtaining this gas, first employed by Scheele, is to moisten a quantity of iron filings and sulphur, inclose them in a glass vessel full of common air inverted over water, and in a few days by the absorption of all the oxygen of the air, the azotic gas will be left pure.

Another, and a very speedy method of procuring this gas in great purity, is by agitating common air in contact with a solution of sulphat of iron saturated with nitrous gas.

These methods, with the precautions to be observed, will be further noticed under the article *EUDIOMETRY*, in which it will be seen that the proportion of azotic gas in the atmosphere is, with little variation, about 73 per cent.

Azotic gas may also be readily procured in large quantities by the decomposition of animal matter by means of nitric acid.

If very dilute nitric acid be poured on any animal matter, particularly muscular flesh or the coagulum of blood, and a gentle heat be used, azotic gas is given out in great purity. This experiment is one of a series of excellent observations on *ANIMAL MATTER* made by Berthollet, which we have already noticed under that article. The azot in this instance proceeds from the animal matter, and not from the acid.

In the decomposition of *AMMONIA* by the oxymuriatic acid, and in the reduction of some metallic oxyds by this alkali, azotic gas is also given out in great purity.

In a single instance, azotic gas may be said to be *mineral*, for a very considerable quantity of this air rises up in bubbles through the springs of several of the native hot springs, such as those of Bath and Buxton. The nature of the air thus obtained was first observed by Dr. Priestley.

Azotic gas is absolutely incapable of supporting combustion. When a lighted taper is dipped in a jar of this air, it becomes instantly extinguished without any noise or explosion. It is equally destructive to animal life (whence its derivation, from *α*, and *ζωω*, *depriving of life*); and the fatal effects to an animal immersed in it come on so speedily, that it has been thought by some to possess a positively noxious power independent of the mere absence of oxygen.

Azotic gas is somewhat lighter than common air. Its specific gravity, when obtained from common air by iron filings and sulphur, is stated by Kirwan to be 0.0012, or in the proportion of 985 : 1000 compared with atmospheric air. Lavoisier makes it only 0.00115, or to common air, as 941.6 : 1000.

With oxygen, azot forms a variety of combinations. That of atmospheric air has already been mentioned. A simple admixture of oxygen with a small proportion of azotic gas produces no particular effect, but when the combination is assisted by the electric spark, a true combustion of azot takes place, and the product is the *NITRIC ACID*. This beautiful discovery we owe to Mr. Cavendish.

When azot and hydrogen are mixed together, both in the gaseous form, no union appears to take place; but under different circumstances *AMMONIA* is produced.

Azotic gas, when heated with *CHARCOAL*, with *SULPHUR*, or with *PHOSPHORUS*, dissolves a small portion of these simple substances, and holds them in suspension for a considerable time.

Very little is known concerning the action of azot in its simple form upon metallic or saline substances; and in the state of gas, it appears to be more inactive and unwilling to enter into combination than any other substance in nature.

Azot has not hitherto been decomposed, so that it must be considered as a chemical element. Several attempts, however, have been made for this purpose, but none of them have proved satisfactory. The latest of these, which excited much attention in Germany, was that of Weigleb, a justly eminent chemist, an account of which he published in *Crell's Annals* for 1796. The chief experiment on which this philosopher grounds his theory of the composition of azot is the following: if an earthen tube of small diameter (the stem of a tobacco-pipe for instance), be heated quite red-hot, and the steam of water be sent through the tube in this state without any obvious connection with the external air, a considerable quantity of a gas is generated, which consists almost entirely of azotic gas, mixed with a small quantity of carbonic acid. Hence, this chemist would infer, that as nothing but water and heat are present, the azotic gas here produced is formed by the union of the vapour of water with caloric at a very high temperature. A second experiment is to pass the vapour of water over the oxyd of manganese,

manganese, enclosed in an earthen tube, and already heated for a considerable time, so as to expel all the oxygen which it will yield: in this case also, there will be a very considerable production of azotic gas. A third experiment is to pass the vapour of water through heated glass tubes, of no more than two lines in diameter, when azotic gas will be equally produced. The inference of the composition of azotic gas derived from these experiments, would be very legitimate, if no cause of error could be detected; but the society of Dutch chemists, who have enriched the science with so many valuable observations, on repeating the experiments, fully explained the reason of this singular phenomenon, in demonstrating the permeability of every kind of earthen-ware not glazed, when exposed to a considerable heat. Therefore in these experiments, the vapour of water in passing through the tube, is found partly to make its way through its pores into the surrounding coals; and at the same time the air circulating through the furnace, partly enters the tube, and is collected at the further extremity; and this air being vitiated by the burning fuel, is principally azotic gas, mixed with a certain portion of carbonic acid. This permeability of heated earthen-ware (which had been before observed by Dr. Priestley), should always be kept in mind by chemists; as many of the most important experiments of research are performed by the ingenious apparatus of a heated tube. With regard to the production of azotic gas, when the vapour of water was sent through a red-hot glass tube, it was fully ascertained by the above-mentioned chemists, that no gas of whatever kind appears whilst the tube remains perfect, but that the least crack or fissure is sufficient to give admittance to the air of the furnace with as much ease as the pores of the earthen tube. As an additional proof that the gas in these instances came from without, we may add, that on removing the fire from the earthen tube, and continuing the transmission of the aqueous vapour, some gas still continued to be given out whilst it remained red-hot, and this latter portion was atmospheric air, or that which now surrounded the heated tube.

Several other circumstances relating to azotic gas, are connected with the theory of PHLOGISTON, to which we shall further refer the reader. Ann. de Chem. tom. 26 and 29.

AZOT, *Gaseous Oxid of*. See NITROUS OXYD.

AZOTH, among the *Ancient Chemists*, signified the first matter of metals; or the mercury of the metal, more particularly that which they call the *mercury of the philosophers*, which they pretend to draw from all sorts of metallic bodies.

Paracelsus's azoth, which he boasted of as an universal remedy, is pretended to have been a preparation of gold, silver, and mercury: a quantity of this he is said to have always carried with him in the pommel of his sword.

AZOTUS, AZOTH, or ASHDOD, in *Ancient Geography*, one of the five Philistine satrapies, was a celebrated sea-port of Phœnicia, on the Mediterranean, situate about fourteen or fifteen miles south of Ekron or Accaron, between that and Ascalon, and about thirty miles distant from Gaza, towards Joppa. It fell at first to the lot of Judah, but continued for a considerable time in the hands of its ancient owners. It was in this city that the ark of God triumphed over the idol Dagon, which fell down and was crushed before it (1 Sam. v. 2.); and it was to this place that Philip was conveyed, after he had baptized the Ethiopian eunuch. Acts, viii. 40. This place was fortified by the Egyptians as a barrier against the Assyrians; and it was so strong, if we may believe Herodotus, that it sustained a blockade and siege of twenty-nine years, under Psammeticus, king of Egypt, about 631 years before the Christian era. It was

again re-established, but taken, and its fortresses and towers burned, by the Maccabees, in the year 137 B. C. Afterwards Gabinius, the Roman president of Syria, ordered it to be rebuilt. It was again captured by Vespasian, in the Jewish war, under the reign of Nero, A. D. 67. The ruins of that once famous city are now called "Ezdoud;" it is distinguished, says Volney (*Travels in Egypt and Syria*, vol. ii. p. 338.), at present by its scorpions, but exhibits no proofs of its ancient importance. Three leagues from Ezdoud, is the village of El-Majdal, where they spin the finest cottons in Palestine, which, however, are very coarse. This traveller reports, that the whole coast is daily accumulating sands, inasmuch, that many places which were known to be anciently sea-ports, are now 4 or 500 paces within land. Imperial Greek medals were struck at Azotus, in honour of Septimius Severus, and of Domitian.

AZPILCUETA, MARTIN, surnamed NAVARRE, in *Biography*, a Spanish lawyer, esteemed one of the most learned lawyers of his time, was born in 1494, at Verafoa near Pampeluna. He was successively professor of jurisprudence at Toulouse, Salamanca, and Coimbra, and consulted by persons from all parts as an oracle of law. When his friend Bartholomew Caranza, archbishop of Toledo, was summoned to Rome by the inquisition on a charge of heresy, Aspilcueta, though eighty years of age, went thither to plead for him; and at this advanced age he retained his faculties in their full vigour. Such was his charity to the poor, that he seldom passed a beggar without giving him alms; and it is said, that the mule on which he usually rode would stop of its own accord when he saw a beggar. He died at Rome, in 1586, at the great age of ninety-two years. A collection of his works was printed at Lyons, in 6 volumes fol. in 1597; and at Venice, in 1602. *Nouv. Dict. Histor.*

AZRAIL, in the *Mahometan Theology*, the angel of death, whose office it is, according to the Mahometans (who relate many ridiculous stories concerning this angel), to separate the souls of men from their bodies.

AZTATL, in *Ornithology*, a name by which a kind of white heron is known in Mexico.

AZUA DE COMPOSTELLA, or AZUCA, in *Geography*, a sea-port town on the sea-coast of St. Domingo; twelve leagues S.S.E. of cape Salinas.

AZUAGA, a town of Spain, in the province of Estremadura; three leagues south-east of Llerana.

AZUIS, in *Ancient Geography*, an ancient town of Africa Propria. Ptolemy.

AZUMAR, in *Geography*, a town of Portugal, in the province of Alentejo.

AZUN, a valley in that part of the department of the Upper Pyrenées, formerly called Bigore, in France, distinguished by the number of its valuable mines of silver, copper, iron, lead, and tin. Those that are already known amount to no fewer than twenty; but lead chiefly abounds throughout the whole of this mountainous country.

AZURE, the blue colour of the sky. See BLUE, CLOUD, and SKY.

AZURE, in *Heraldry*, signifies blue; in heraldic engravings it is expressed by horizontal lines.

AZURE. See ULTRAMARINE.

AZURE, or SMALT. See COBALT.

AZUREA, in *Entomology*, a species of PHRYGANEA, with black wings, violet behind. Linn. The lower wings are obliquely violet. It inhabits the north of Europe.

AZUREA, in *Zoology*, a species of LACERTA that inhabits Africa, and is distinguished by having the tail verticillated, short, with mucronated scales. Linn. Gmelin speaks of

two varieties of this creature; one, a native of Africa, is rather larger than the preceding, and is described under the name of *cordylus brasiliensis*; Laur. Amp.: the other has a deep chestnut coloured stripe on the shoulders.

The colour of this species in its natural state, Dr. Shaw imagines to be an elegant pale blue, fasciated on the body and tail with several transverse and somewhat alternate bands either of black, or very deep blue. The kind figured in the Gen. Zool. of that writer to illustrate the species, appears to be the second variety mentioned by Gmelin, having a dark band on the shoulders. Dr. Shaw observes that the head is rather obtuse; the body moderately thick, and covered as well as the limbs with very small smooth scales; and the tail on the contrary, which is of a moderate length, is very distinctly and strongly verticillated by rows of large carinated scales, the extremities of which project considerably so as to form so many shining points.

AZURENSIS, or AJURENSIS, in *Ancient Geography*, an episcopal see of Africa, in Numidia.

AZUREUS, in *Entomology*, a species of CARABUS, of an azure colour, with red legs and antennæ. Inhabits Leipzig. Fabricius.

AZUREUS, a species of CIMEX, of a middle size; dull green colour; and yellowish mouth and legs. This kind inhabits Guinea. *Obs.* The abdomen is yellowish, with black dots in the middle.

AZURIN, in *Ornithology*, a name assigned by Buffon Hist. Ois. to the species of TURDUS, since called specifically *cyanurus* by Gmelin, which see.

AZUROUX, a name given by Buffon to the *emberiza cerulea* of Gmelin. See EMBERIZA CÆRULEA.

AZYGOS, in *Anatomy*, a vein arising out of the cava, otherwise called vena sine pari, because single, whence its name. See VEINS, *Description of the*.

AZYMITES, in *Ecclesiastical History*, Christians who communicate in bread not leavened or fermented. See AZYMUS. This appellation is given by Cæciliarius to those of the Latin church, upon his excommunicating them in the eleventh century. Du-Cange. The Armenians and Maronites also use azymus, or unleavened bread, in their office; on which account some Greeks call them azymites.

AZYMUS, composed of the privative α and ζυμν, *ferment*, something not fermented, or that is made without leaven.

The term azymus is much used in the disputes betwixt those of the Greek and Roman church; the latter of whom contend that the bread in the mass ought to be *azymus*, *unleavened*, in imitation of the paschal bread of the Jews, and of our Saviour, who instituted the sacrament on the day of

the passover; and the former strenuously maintaining the contrary, from tradition and the constant usage of the church. This dispute was not the occasion of the rupture between the Greek and Latin churches; Photius having broken with the popes 200 years before; though it is urged that before the time of Photius, A.D. 866, azymus was used in the Romish church; and that it was more generally used through the West, for which the authority of Alcuin, who died in 794, is alleged. St. Thomas, in 4 Sent. dist. 2. q. 11. art. 2. quæstiunc. 3. relates, that during the first ages of the church, none but unleavened bread was used in the eucharist, till such time as the Ebionites arose, who held that all the observances prescribed by Moses were still in force; upon which both the eastern and western churches took to the use of leavened bread; and, after the extinction of that heresy, the western church returned to the *azymus*; the eastern pertinaciously adhering to the former usage.

This account is controverted by father Simond, in a dissertation on the subject; wherein he shews, that the Latins had constantly communicated in leavened bread, till the tenth century, and cardinal Bona, *Rerum Liturgic.* c. 23. p. 185. greatly distrusts what St. Thomas alleges.—In the council of Florence it was decreed, that the point lay at the discretion of the church; and that either leavened or unleavened bread might be used; the western church has preferred the latter.

AZZALUM, in the *Ancient Physiology*, a species of iron, reputed the most excellent of all, supposed to have been brought from India, whence it was called *Indicum*, but in reality, according to some, brought from China. Plin. Hist. Nat. lib. xxxiv. c. 14.

AZZO, PORTIUS, in *Biography*, an eminent Italian lawyer, who held the professorship of jurisprudence at Bologna, from the year 1190, till his death, which probably happened not long after 1220, and at thistime the university was attended by 10,000 students. Such was his assiduity as a lecturer, that he said he never was ill but in the vacations. He was the author of a "Summary of the Code and the Institutes," which has passed through several editions. Of this work, Gravina says, (*De Orig. Jur.* v. i. p. 93.) that it is so ingenious and profound, that although written in a barbarous age, we cannot, with all our present erudition, be safely without it. One of his scholars collected the "Introduction to the Code" of this author, which has been printed; and several of his writings remain in manuscript. *Nouv. Dict. Histor.*

AZZOGLIO, in *Geography*, a town of Italy, in the principality of Masserano; six miles N. N. E. of Masserano.

B.

B

B, The second letter of our alphabet, and of most others.

This observation fails in the ancient Irish alphabet; where B is the first, and A the seventeenth; and in the Abyssinian, where A is the thirteenth.

B is the first consonant, and first mute, and in its pronunciation is supposed to resemble the bleating of a sheep; upon which account Pierius tells us, in his Hieroglyphics, that the Egyptians represented the sound of this letter by the figure of that animal.

B is also one of those letters which the eastern grammarians call *labial*, because the principal organs employed in its pronunciation are the lips. It has a near affinity with the other *labials* P and V, and is often used for P, both by the Armenians, and other orientals; as in *Betrus* for *Petrus*, *apsens* for *absens*, &c.; and by the Romans for V, as in *amabit* for *amavit*, *berna* for *verna*, &c.; whence arose that jest of Aurelian on the emperor Bonosus, *Non ut vivat natus est, sed ut bibat*. See V.

The final B was also sometimes changed into L in the ancient languages, as *Beelzebul* for *Beelzebub*. Bochart (Hieroz. p. ii. l. iv. c. 9. p. 501.) and Grotius (in Matth. x. 25.), have given instances of such changes.

B and C, or the K of the Greeks, are often substituted for one another. Thus, the Greeks say, Βορβορυγγη for Κορβορυγγη; and the Latins *Bufo* for *Cufo*. B and D are also used interchangeably, as in *Bellum* and *Duellum*. See Quint. de Orat. c. 45.

Plutarch observes that the Macedonians changed Φ into B, and pronounced *Bilip*, *Berenice*, &c. for *Philip*, *Pherenice*, &c.; and that those of Delphos used B, instead of Π; as βαλιν for παθεις, βικρον for πικρον, &c. See P.—

The Æolians change the B into Γ, as Γλεφασον for Βλεφασον.

The modern Greeks call the *beta*, *vita*.

The Latins said *suppono*, *oppono*, for *subpono*, *obpono*, and pronounced *optinuit*, though they wrote *obtinuit*, as Quintilian has observed. They also used B for F or Ph; thus in an ancient inscription mentioned by Gruter, OBRENDARIO is used for OFFRENDARIO. See F, &c.

B requires an entire closure and pressure of the lips, and is pronounced by forcing them open with a strong breath. This letter also, if it pass through the nose, becomes an M; as appears by those who have the nostrils stopped by a cold or otherwise, when they endeavour to pronounce the letter M; for instance, *many men*, is by such a one sounded *bany ben*. See M.

With the ancients, B, as a numeral, stood for 300, as appears by this verse:

“Et B trecentum per se retinere videtur.”

B A A

When a line was drawn above it, \overline{B} , it stood for 3000: and with a kind of accent below it, for 200; but among the Greeks as well as Hebrews, this letter signified only 2.

B. F. in the preface to the Decrees, or Senatus-consulta of the old Romans, signified *bonum factum*. It is often found on medals, to mark the epocha or year.

B, in the chemical alphabet, denotes *mercury*, according to Raymond Lully.

B on some French coins denotes that they were struck at Rouen.

B is also used as a contraction for *Bachelor*; as B. A. *Bachelor of Arts*; B. L. L. and B. D. *bachelor of laws*, and *bachelor of divinity*.

B, in *Music*, is a contraction of *B-mi*, the third sound of the Guido scale or gammut. B is the second line in the base; the third in the treble; and the note below the tenor or C clef, on whatever line it is placed. It likewise stands for basso, base, in vocal music; and in the instrumental tenor part, if C is placed before it in a score, thus, C. B. it implies *col basso*, meaning that the alto viola is to play with, or rather an octave above, the base. B. C. in old sonatas, implies *basso continuo*, or a constant accompaniment for the organ or harpsichord, figured for thorough-base. *B-fa*, and *B-mi*, in the scale of Guido, imply B flat, and B natural.

B molle implies B b.

B quadro, B ♮.

If there are flats at the clef, they stand in the following order: $\overline{B} \overline{E} \overline{A} \overline{D} \overline{G}$. See GAMMUT, FLAT, SHARP, and NATURAL.

BA, in *Geography*, a town of Africa, in Ardrah, on the Slave coast. See ARDRAH.

BAADEN. See BADEN.

BAADSTED, BADSTED, or BATSTED, or BASTAD, a sea-port of Sweden, in South Gothland, with a bay, in which are several small ports; ten miles north of Engelholm. N. lat. 56° 28'. E. long. 12° 40'.

BAAL, BEL, or BELUS, denoting *Lord*, in *Ancient Mythology*, a divinity among several ancient nations, as the Canaanites, Phœnicians, Sidonians, Carthaginians, Babylonians, Chaldeans, and Assyrians.

The term *Baal*, which is itself an appellative, served at first to denote the true God, among those who adhered to the true religion. Accordingly the Phœnicians, being originally Canaanites, having once had, as well as the rest of their kindred, some notion of the true God, probably called him *Baal*, or Lord. But they, as well as other nations, gradually degenerating into idolatry, applied this appellation

pellation to their respective idols; and thus were introduced a variety of divinities under the denomination of Baal, called *Baalim*, or Baal, with some epithet annexed to it, as Baal-Berith, Baal-Gad, Baal-Moloch, Baal-Peor, Baal-Zebub, &c. Some have supposed that the descendants of Ham first worshipped the sun under the title of Baal (see 2 Kings, xx.ii. 5. 11.), and that they afterwards ascribed it to the patriarch who was the head of their line; making the sun only an emblem of his influence or power. It is certain, however, that when the custom prevailed of deifying and worshipping those who were in any respect distinguished amongst mankind, the appellation of Baal was not restricted to the sun, but extended to those eminent persons who were deified, and who became objects of worship in different nations. The Phœnicians had several divinities of this kind, who were not intended to represent the sun. It is probable that Baal, Belus, or Bel, the great god of the Carthaginians, and also of the Sidonians, Babylonians, and Assyrians, who from the testimony of scripture appears to have been delighted with human sacrifices, was the Moloch of the Ammonites, the Chronus of the Greeks, who was the chief object of adoration in Italy, Crete, Cyprus, and Rhodes, and all other countries where divine honours were paid him, and the Saturn of the Latins. In process of time, many other deities, besides the principal ones just mentioned, were distinguished by the title of Baal among the Phœnicians, particularly those of Tyre, and of course among the Carthaginians, and other nations. Such were Jupiter, Mars, Bacchus, and Apollo or the sun.

The term Baal, as we have already observed, denoted *God* or *Lord* among the orientals; and the *Zeus* of the Greeks had the same meaning. Servius (in *Æn.* i.), who is followed by Vossius (*Theol. Gent.* l. ii. c. 4.), observes, that Baal in the Punic language had two significations, either denoting Saturn, or being equivalent to the Latin *deus* or god. Accordingly, if Baal and Zeus, or Jupiter, be words of the same import in different languages, we may apply to the former what Varro, cited by Tertullian, says of the latter, that the number of those divinities who passed under this denomination amounted to 300. Some, however, are of opinion, that there were originally only two gods of the Phœnicians, and consequently of the Carthaginians; and that all the other deities were comprehended under two; viz. Baal and Ashtaro, or Belus and Astarte. See Seld. de Diis Syr. Synt. 2. c. 2. p. 145. Shuckford's Connect. b. v.

The temples and altars of Baal were generally placed on eminences; they were places inclosed with walls, wherein was maintained a perpetual fire; and some of them had statues or images, called in scripture "*Chamanim*." Maundrell, in his journey from Aleppo to Jerusalem, observed some remains of these inclosures in Syria. Baal had his prophets and his priests in great numbers; accordingly we read of 450 of them that were fed at the table of Jezebel only; and they conducted the worship of this deity, by offering sacrifices, by dancing round his altar with violent gesticulations and exclamations, by cutting their bodies with knives and lancets, and by raving and pretending to prophecy, as if they were possessed by some invisible power. Several of these practices, and particularly that of cutting the body, were, according to Mede (vol. ii. p. 774), funeral rites, as appears from Lev. xxi. 5. xix. 28. Deut. xiv. 1. Jerem. xlviii. 37. xvi. 6.; and they were retained, says this learned author, in the funeral worship of those that were deified after their death. Hence, and from other circumstances, he infers, that Baal was a *dæmon-god*. See BAALIM, *DÆMON*, and *IDOLATRY*.

BAALBEC, in *Geography*. See BALBEC.

BAAL-BERITH, in *Ancient Mythology*, derived from

baal, *sovereign*, and *berith*, *covenant*; a deity acknowledged under this title by the Carthaginians and Phœnicians in their alliances.

Jupiter was worshipped by these people under the denomination of Belus or Baal; to him they addressed their oaths, and they placed them at the head of their treaties. Hence some have not scrupled to affirm, that he was the Baal-Berith of the Phœnicians (see Banier, in *Mythol.* vol. i.); but Cumberland (see Sanchoniatho's Phœn. Hist. p. 152.) supposes that Baal-Berith was Cronus, or Ham, worshipped anciently at Berytus. See Judg. viii. 33. ix. 4. According to Bryant (*Anal. Anc. Mythol.* vol. ii. p. 356.), the Baal-Berith of the Canaanites was no other than the Arkite god; with whose idolatry the Israelites in general were infected, soon after they were settled in the land of Canaan. (See BERYTUS.) The Greeks, however, had their *Zeus oregon*, or Jupiter, the witness and arbitrator of oaths; and the Latins their *Deus Fidius*, or Jupiter Pistius, whom they regarded as the god of honesty and integrity, and who presided at treaties and alliances.

BAAL-GAD, BAGAD, or BEGAD, an idol of the Syrians, whose name was composed of *baal*, *lord*, and *gad*, *chance* or *fortune*; the god of chance or fortune. After the god of thunder, the god of chance was one of the first worshipped by mankind. See Phil. Transf. vol. lvi. N. 2. an. 1766.

BAAL-GAD, in *Ancient Geography*, a city of Palestine, at the foot of mount Hermon, so called from the deity Baal-Gad, who was worshipped in this place. Josh. xi. 17.

BAAL-HAMMON. See BOCAT.

BAAL-HAZOR, a city of Ephraim, where Absalom kept his flocks. 2 Sam. xii. 23.

BAAL-HERMON, a town of Palestine, generally placed north of the tribe of Issachar. 1 Chron. v. 23.

The temple of Baal-Hermon in mount Libanus (*Judges*, iii. 1, 3.), was probably founded, says Bryant (*Anal. Anc. Myth.* vol. ii. p. 163.), by the Cadmians, who formed one of the Hivite nations in those parts.

BAALIM, in *Ancient Mythology*, inferior deities among the Phœnicians.

The learned Joseph Mede (vol. ii. p. 776.) having suggested that Baal, or in the Chaldee dialect Bel, was the first king of Babel after Nimrod, and the first that was deified and reputed a god after his death, apprehends that this gave occasion for denominating all other *dæmons* Baalim. These Baalim, he conceives, were the deified souls of the dead. Bryant also (vol. ii. p. 529.) is of opinion that the most early defection to idolatry consisted in the worship of the sun, and that of *dæmons*, called Baalim. See *DÆMON*.

BAAL-MEON, in *Ancient Geography*, a city of Canaan, in the tribe of Reuben, taken by the Moabites, and possessed by them in the time of Ezekiel. Numb. xxxii. 38. 1 Chron. v. 8. Ezek. xxv. 9. Eusebius and Jerom place it nine miles from Elbus or Efebon, at the foot of mount Baaru or Abarim.

BAAL-PEOR, or BAAL-PHEGOR, in *Mythology*, an idol deity of the Moabites and Midianites, supposed by some to have been PRIAPUS, whose worship was conducted with great impurity; by others to have been Adonis; and by others to have been Saturn, adored under this appellation in Arabia. The learned Mede, supposing Peor to be the name of a mountain in Moab, upon which a temple of Baal was erected, concludes that Baal-Peor was only another name of Baal, derived from the situation of his temple; and to add no more, Selden (*De Diis Syris*, Syntag. 1. c. 5.) suggests that Baal-Peor is Pluto, founding his conjecture on Ps. cvi. 28. where it is said, "They joined themselves unto Baal-Peor, and ate the offerings of the dead." The sacrifices to which these words refer, says this author, were offered

offered to appease the manes of the dead. But these sacrifices or offerings of the dead may mean no more than the sacrifices or offerings made to idols, or false gods, who are properly called "The dead," in contradistinction to 'the true God, called in scripture "The living God."

BAAL-PERAZIM, in *Ancient Geography*, a place of Palestine, in the valley of Rephaim, not far from Jerusalem, where David put to flight the Philistines. 2 Sam. v. 20.

BAAL-SAMEN, or BAAL-Shemaim, according to the Hebrew mode of expression, q. d. *the Lord of heaven*, in *Mythology*, a deity of the Phœnicians, which was probably the sun, to whom they and the Carthaginians paid divine honours, addressing him with their arms extended. Belisama, or the queen of heaven, was the moon.

BAAL-TAMAR, in *Ancient Geography*, a place of Judæa, in the tribe of Benjamin, situate, according to Eusebius, near Gibeah, where the children of Israel engaged the tribe of Benjamin. Judg. xx. 33.

BAALTIS, in *Mythology*, a goddess among the Phœnicians, chiefly worshipped at Byblos; supposed by some to have been the same with Diana of the Greeks.

BAAL-ZEBUB. See BEELZEBUB.

BAAL-ZEPHON, or BAAL-TSEPHON, q. d. *the god or idol of the north*, in *Mythology*, a deity of the ancient Egyptians, so called, according to Dr. Shaw, (Trav. p. 399.) in contradistinction, perhaps, to others of the Lower Thebais, whose places of worship were to the south or east. But if Tzepon be derived from צפון *to spy out*, or *observe*, then Baal-tzepon will probably signify the "god of the watch-tower," or "the guardian god," such as the Hermes or Terminus of the Romans, the Εφωρος of the Greeks, &c. At the temple of this deity, according to the Jerusalem Targum, Pharaoh, when he was pursuing the Israelites in their exodus, offered sacrifice, waiting till the next day for an attack upon Israel, whom he believed his god had delivered into his hands; but, in the mean time, they passed the Red sea, and escaped.

BAAL-ZEPHON, in *Ancient Geography*, a place thought by some to be a city, opposite to Pihahiroth, where the Israelites encamped before they passed the Red sea. It was distinguished either by its northern situation, צפון, signifying the north, in Exod. xxvi. 20. Josh. viii. 11. and in other places of scripture; or by some watch-tower or idol temple that was erected upon it. Dr. Shaw supposes, that this place was at the eastern extremity of the mountains of Suez, or Attakah, the most conspicuous of these deserts; inasmuch as it overlooks a great part of the lower Thebais, as well as the wilderness that reaches towards, or which rather makes a part of, the land of the Philistines. Accordingly Migdol might lie to the south, and Baal-tzepon to the north of Pihahiroth. For the march of the Israelites from the edge of the wilderness being towards the sea, or the south-east, their encampments betwixt Migdol and the sea, or before Migdol, could not well have any other situation. See Exod. xiv. 2. xiz. 2. 9. Numb. xxxiii. 7. Eusebius reports, from ancient traditions, that the Israelites passed at Clyfma, the Kolsoum of the Arabs, both of the terms signifying destruction, which was a very expressive appellation, if it was deduced from the destruction of the Egyptian army. The situation of Kolsoum, it has been said, is near Suez; and hence it has been thought, that Baal-zephon was at Suez, though Pococke, Shaw, and Bruce, place it farther to the south. In support of this opinion it has been further alleged, that the appellation Baal-zephon, the god of the north, implies, that the temple of this deity stood either on the northern extremity of the Red sea itself, or on the northern extremity of the gullet called Pihahiroth. "Baal-zephon," says Bruce (Travels, vol. i. p. 233.) "was probably some

idol's temple, which served for a signal-house upon the cape which forms the north entrance of the bay, opposite to Jibbel Attakah, where there is still a mosque, or saint's tomb. It was probably a light-house, for the direction of ships going to the bottom of the gulf, to prevent mistaking it for another foul bay, under the high land, where is also a tomb of a saint, called Abou Derage." See PIHAHIROTH.

BAAL'S RIVER, and BAY, in *Geography*, lie in West Greenland, between Bear Sound on the south-east, and Delft's Point on the north-west, and opposite to the mouth of Hudson's Strait.

BAAN, JOHN DE, in *Biography*, an eminent portrait-painter, was born at Haerlem, in 1633, and after receiving instructions in the art of painting from his uncle Piemans, pursued his studies with singular assiduity under Bakker, at Amsterdam. Having determined to form himself upon the model of Vandyck, his merit was soon universally known; and he was invited by Charles I. to London, where he painted the portraits of the king, queen, and chief nobility at court, and was much admired for the elegance of his attitudes, and also for his clean, natural, and lively tone of colouring. Upon his return to the Hague, he painted a noble portrait of the duke of Zell, for which he received a sum amounting nearly to 500l. The best of De Baan's performances is the portrait of prince Maurice of Nassau, in the execution of which he exerted the utmost efforts of his pencil. He died in 1702. Pilkington.

BAAN, Jacob de, the son of the former, was born at the Hague in 1673; and having acquired eminence as a painter under the instruction and by the example of his father, he came over to England about the age of twenty, among the attendants of William III., where he was favourably received. From England, where he gained by his performances in portrait-painting distinguished reputation, he travelled through Tuscany to Rome, and he there devoted himself to the prosecution of his studies. However, though he gained a considerable sum of money by painting several portraits and conversations, during his residence at Rome, he squandered it away by various modes of profusion and expence. His premature death, at the age of twenty-seven, A. D. 1700, and the previous intermission of his assiduity, prevented his arriving at that excellence of which his talents were capable. Pilkington.

BAANITES, in *Ecclesiastical History*, the followers of Baanes, who adopted and disseminated the Manichean notions in the ninth century, about the year 810.

BAAR, in *Geography*, a landgraviate of Germany, in the circle of Swabia, belonging to Furstenberg, situate to the east of Brisgau. The source of the Danube is in this territory.

BAARAS, BAHARAS, or BACHARAS, in *Botany*, an extraordinary kind of root, said to grow on mount Lebanon, in a valley called Baaras, whence the name, near the city Macheron.

By the account which Josephus gives of it, it seems to be a sort of vegetable phosphorus, for he represents it as of a flame colour, emitting rays of light in the night, and disappearing by day.

BAARIOU, in *Geography*, a river of Asia, in Kamtschatka, which runs in a valley between two mountains.

BAAT, in the language of the Siamese, answering to *ticul* in that of the Chinese, denotes a weight and coin current in those kingdoms. It weighs about half an ounce.

BABA, in *Biography*, a Turcoman impostor, and pretender to prophecy, who appeared among the Mahometans, in the city of Amasia in Nætolia, in the year of the Hegira 638, A. D. 1240, and who seduced a great multitude of followers. One of his disciples, named Isaac, published his commission, and gained a number of adherents. Baba and Isaac concurred in commencing acts of hostility against all

all who would not adopt their profession of faith, viz. "There is but one God, and Baba is his apostle:" and they put several Mahometans and Christians, who resisted them, to death. At length, the Mahometans and Christians uniting together, raised an army, which entirely routed their followers, destroyed many of them, and took their two chiefs captives, who were afterwards beheaded; and thus their sect was totally annihilated. Herbelot. Bib. Orient. Sale's Koran. Introd. p. 187.

BABA, in *Geography*, a territory in the jurisdiction of Guayaquil, in South America, extending to the skirts of the Cordilleras, or the mountains of Anga Marca, belonging to the jurisdiction of Latacunga. Besides the principal town of the same name, at some distance from a river of the same appellation, there are two other places called San Lorenzo and Palenque, far from the capital, and near the Cordilleras, whose inhabitants are little civilized. The cacao-trees, which abound in this district, produce fruit twice in the year.

BABA, or *Temiswar*, a town of European Turkey, in Bulgaria, 64 miles east of Silistria.

BABA, *Cape*, a cape of Natolia, in Asia Minor, between the islands of Tenedos and Lesbos, and near the gulf of Adramytti, on the coast of the Archipelago. N. lat. 39° 33'. E. long. 26° 22'. It was formerly the promontory *Leptos*. A small town of the same name, situated to the east of the cape, on a sloping ground, has a small harbour for boats; and is famous in Turkey for the knife and sword blades which are manufactured there for the use of the orientals. It is peopled by Turks and Greeks; the adjacent soil is tolerably good, and furnishes the same productions as that of Troas. Olivier's Trav. vol. ii. p. 56.

BABA, in *Ornithology*, the Russian name of the PELICAN.

BABACHOKA, in *Geography*, one of the Bissagos islands.

BABAHoyo, a territory and town of the jurisdiction of Guayaquil, in South America. The town is the site of the grand custom-house, where account is taken of the various commodities that are conveyed to or from the Cordilleras and adjacent countries. Besides the principal town, this district contains Ujiba, Caracol, Quilea, and Mangaches; the two last border on the Cordilleras, and are at a considerable distance from Ujiba, where the priest resides during winter, and whence he removes to Babahoyo in the summer. The capital, besides its settled inhabitants, has always a great number of traders from other ports. This country, being level and low, is overflowed by the swellings of the rivers Caluma, Ujiba, and Caracol; so that at Babahoyo the water rises to the first story of the houses; and during winter it is entirely deserted. In this district cacaos are abundant. It also produces cotton, rice, Guinea pepper, and a great variety of fruits. It has likewise large droves of black cattle, horses, and mules, which, in winter, are kept in the mountains, and in summer are removed to the low lands to feed on the gamalote, a plant so luxuriant as to cover the ground, and rising to the height of two and a half yards.

BABAIN, a town of Persia, in the province of Kerman, ninety miles south-east of Serghian.

BABAIN, a village or burgh of Egypt, built on the ruins of an ancient town, about six miles west of ACHMOUNAIN.

BAB-BAHA, one of the richest countries of Abyssinia, about twelve miles from the river Baha, and near the lake Tzana. This on the south, and Woggora on the north, are the two granaries that supply the rest of the kingdom. It contains a number of small villages; in which the queen and many of her relations have their houses and possessions. These villages are all surrounded with Kolquall tree, as large in the trunk as those of the province of Tigré, but

less beautiful, and furnished with fewer branches. Bruce's Travels, vol. iii. p. 504.

BABBI, GREGORIO, in *Biography*, a tenor singer in the Italian opera, with the sweetest, most flexible, and most powerful voice of its kind, that his country could boast at the time. He flourished from 1730 to 1740; never was in England; but we have seen the principal songs that were composed for him, and conversed with many good judges that heard him sing them, and have no doubt but that he was a dignified, splendid, and powerful performer.

BABBIN, in *Geography*, a town of Pomerania, in the island of Rugen, twelve miles north of Bergen.

BABBINI, MATTEO, in *Biography*, so named from being the scholar or imitator of Babbì, arrived in England in 1786, at the same time as Rubinelli. He had a tenor voice that was sweet, though not powerful, had an elegant and pleasing style of singing; but it was easy to imagine that his voice had been better; and not difficult to discover, though his taste was modern, and many of his *riffioramenti* refined and judicious, that his graces were sometimes redundant, and his manner affected. His importance was very much diminished, when he sung with the Mara; and after the arrival of Rubinelli, he sunk into insignificance.

BABBLING, among *Hunters*, is when the hounds are too busy after they have found a good scent.

BABEL, WILLIAM, in *Biography*, organist of All-hallows, Bread-street, seems to have been the first, in this country at least, who thinned, simplified, and divested the music of keyed-instruments of the crowded and complicated harmony, with which, from the convenience of the clavier, and passion for full and elaborate music, it had been embarrassed from its earliest cultivation. This author acquired great celebrity by wire-drawing the favourite songs of the opera of Rinaldo, and others of the same period, into showy and brilliant lessons, which, by mere rapidity of finger in playing single sounds, without the assistance of taste, expression, harmony, or modulation, enabled the performer to astonish ignorance, and acquire the reputation of a great player, at a small expence. There is no instrument so favourable to such frothy and unmeaning music as the harpsichord. Arpeggios, which lie under the fingers, and running up and down the scales of easy keys with velocity, are not difficult, on an instrument of which neither the tone nor tuning depends on the player; as neither his breath nor bow-hand is requisite to give existence or sweetness to its sounds. And Mr. Babel, by avoiding its chief difficulties of full harmony, and dissimilar motion of the parts, at once gratified idleness and vanity. We remember well, in the early part of our life, being duped to the glare and glitter of this kind of trifle; this *poussière dans les yeux*, which Mr. Felton continued, and other dealers in *notes, et rien que des notes*, till Jozzi, the finger, by his neat and elegant manner of executing the brilliant, graceful, and pleasing lessons of Alberti, rendered them the objects of imitation. At length, on the arrival of the late Mr. Bach, and construction of pianofortes in this country, the performers on keyed-instruments were obliged wholly to change their ground; and instead of surprising by the *seeming* labour and dexterity of execution, had the real and more useful difficulties of taste, expression, and light and shade, to encounter. Babel, who was one of his Majesty George the First's private music, died about the year 1722.

BABEL, in *Ancient Geography*, a city and tower built by Noah's posterity in the plain of Shinar, Gen. xi. 1-9. Its precise situation is not ascertained; nor is it of any great importance to determine it. It was within the province of Shinar, and probably the ancient Babylon was erected on or near its ruins. (See SHINAR, and BABYLON.) Some travellers

tellers, led by a tradition of the inhabitants, have judged a place about eight or nine miles to the west, or north-west of Bagdad, to be the tower of Babel. This is called the tower of Nimrod, and is conspicuous at a great distance, being insulated in an extensive plain between the Euphrates and Tigris, and resembling by its ruins a shapeless mountain more than a tower. Rauwolf supposes he found the ruins of Babylon upon the Euphrates, near Felusia, about 36 miles to the south-west of Bagdad; and Della Valle was directed, by another tradition, to seek it about two days journey lower, near an ancient city called Hella, seated on the same river. After all, there is no end of conjectures; the ruins described by many authors seeming to be rather the remains of some later structures raised by the Arabs, than those of the original tower of Babel. The time of this enterprise is generally allowed to have been before the birth of Peleg, about the year 2247 B. C. in the year of the flood 101 according to the Hebrew calculation; in the year 401, according to the Samaritan; and, according to the Septuagint, in 531. The persons concerned in this undertaking were, according to the history, the posterity of Noah; who journeying from the east, found the plain of Shinar, where they dwelt, and concurred in this enterprise. There is no reason, therefore, for excluding the family of Shem, as some have done, from any share in this memorable transaction. Bryant, however, maintains that Shem and his posterity had no concern in it; and that the chief agents were the sons of Chus, or Chuthites; and that they were the ancient Titans, or worshippers of fire. *Anal. Anc. Myth.* vol. iii. p. 31. 91. The motives which induced them all to unite and co-operate in the execution of this design have been differently assigned. Accordingly, the meaning of the passage which announces it, has been differently interpreted. It is as follows; "And they said, go to, let us build us a city and a tower, whose top may reach unto heaven; and let us make us a name, lest we be scattered abroad upon the face of the whole earth." Some have supposed, that they apprehended a second deluge, and in order to secure for themselves a refuge in case of danger, they determined to erect this lofty building. Others, who imagine, that if this had been their purpose, they should have selected an eminence, and not a plain, for the site of their proposed edifice, suppose that they engaged in this undertaking in order to prevent that separation and dispersion of which they had been previously admonished. The scripture, say these persons, expressly assign the reason of their conduct, which was "to make for themselves a name," or establish a memorial of themselves, "lest they should be scattered," or, as the words are otherwise rendered, "before they should be scattered abroad." Other interpreters allege, that the word שם, *shem*, should be translated "a sign," and not "a name;" and they render the passage "let us make us a sign, lest we be scattered;" and thus as Perizonius (*Orig. Babyl.* c. 10. p. 168. c. 11. p. 193. c. 12. p. 223.) explains it, the tower was to serve them as a beacon, or mark, by the sight of which, or of a signal from the top of it, they might avoid straying in the open plains with their flocks (the first men being shepherds), and be brought back again into the city, which they had built for a place of abode, as they were unwilling to be dispersed. As to the expression "of its top reaching unto heaven," it is a Hebrew phraseology; merely denoting its great height; and for this purpose we read of cities walled up to heaven. Some, however, have supposed, that the phrase was intended to denote the use to which this tower was to be appropriated, or that it was to be consecrated to the heavens, or to the worship of the sun, moon, and stars, of

the fire and air, and other natural powers, as deities; and as it indicated a tendency towards idolatry, the true God interposed to prevent a total and irreclaimable defection. Whatever was the design with which this edifice was constructed, Almighty God thought proper to restrain the execution of it (*Gen. xi. 6.*), by the confusion of language and dispersion which ensued. See *CONFUSION of Languages*, and *DISPERSION of Mankind*. From this confusion, the city and tower were denominated *Babel*. By altering in the word *Babel* the second *beth* into a *lamed*, the passage (*Gen. xi. 9.*) might be thus rendered, "the name of it was called Ballel, because there the Lord did *ballel*, that is, confound the lip of all the earth;" or thus, "the name of it was called *confusion*, because there did the Lord confound the lip of all the earth." Some have supposed, deviating indeed too far from the literal history (*vid. Bocharti Oper. t. i. p. 36.*), that Moses did not mean any particular tower, but that he spoke in general of a turreted city, or a city with turrets on its walls. Such a city, compared with the caverns in which the first men unquestionably lodged, might well appear a tower with a heavenly or very elevated top, like the habitations of the Anakims; these being surmounted with natural rocks or peaks, and that with artificial elevations. See *Gen. xi. 4. Deut. i. 28.*

The materials of which this tower were constructed were, as the scripture informs us (*Gen. xi. 3.*), burnt bricks instead of stone, and slime instead of water. According to an eastern tradition, three years were employed in making and burning these bricks, and each of them was 13 cubits long, 10 broad, and 5 thick. The slime was of a pitchy substance, or bitumen, brought from a city in the neighbourhood of Babylon, called Is or Hit. Oriental writers, on whose report we can repose little confidence, pretend that the city was 313 fathoms in length, and 151 in breadth; that the walls were 5533 fathoms high, and 33 broad; and that the tower itself was no less than 10,000 fathoms or 12 miles high. St. Jerome affirms, from the testimony of eye-witnesses, who, as he says, had examined the remains of the tower, that it was four miles high. But it is needless to recount more of these fables. See *BABYLON*.

BABEL-MANDEB, sometimes called *BABEL-MANDEL*, in *Geography*, a narrow strait at the entrance into the Red sea, which connects it with the Indian ocean, lying between the south-western coast of Yemen or Arabia Felix, and the coast of Adel in Africa, and formed by the projecting land of Arabia on the east, and that of Abyssinia on the west. N. lat. 12° 50'. E. long. 43° 50'. The whole breadth of this strait is about 30 geographical miles; and within it, about a league from the coast of Yemen, is the small barren island of Perim, sometimes called *Babel-mandel*, which has a good port, but is without fresh water. This island is called by Arrian the isle of Diodorus. Near the African coast are several small islands, and on the continent is the town of Zeila, which is subject to the Imam of Yemen. Vessels that navigate this strait most commonly pass between the isle of Perim and Arabia, though the passage is narrow, on account of the number of small islands on the African coast. The currents are strong, and the swell high, so that it is difficult to pass without a fair wind; hence this navigation has been dreaded by the unskilful mariners of the adjoining countries. In ancient times the navigation was considered by nations around it to be so extremely perilous, that it led them to give such names to several of its promontories, bays, and harbours, as convey a striking idea of the impression which the dread of this danger had made upon their imagination. Accordingly, the entry into the gulf, they called *Babel-mandeb*, which signifies *the gate or port* of

of *destruction*; to a harbour not far distant, they gave the name of *Mete*, or *death*; and an adjacent headland they called *Gardefan*, or *the cape of burial*. Near this strait Ptolemy places a town, which he calls in the Greek Mandaeth, probably a corruption of Mandeb; and the promontory on the south side of the strait, and the city upon it, is *Diræ*, which means the Hades, or Hell, by Ptolemy called *Διρα*. A cluster of islands met with in the canal, after passing Mocha, is called Jibbel Zekir, or the islands of prayer for the remembrance of the dead. And in the same course up the gulf, others are called Sebaat Gzier, praise or glory be to God, as we may suppose, for the return from this dangerous navigation. Niebuhr and Bruce.

In the "Periplus of the Erythræan sea," by Dr. Vincent, the straits of Babel-mandeb are contracted to 23 miles, and divided into two channels, by the intervention of Perim and other isles; and they open in an easterly direction to Cana or Cape Fartaque on the Arabian side, and to Aromata or Gardefan, on the coast of Africa; which two promontories form the proper entrance to the straits from the Indian ocean, and are about 250 geographical miles asunder.

BABENHAUSEN, a town of Germany in the circle of Swabia, to which belongs a lordship of the counts of Fugger, seated on the Gunz; 26 miles W. S. W. of Augs-
burgh, and 16 S. E. of Ulm. N. lat. 48° 11'. E. long. 9° 16'.

BABENSKOI, a town of Russia, in the government of Archangel, 90 miles S. S. W. of Kola.

BABIA, a river of Russian Lapland, which runs into the White sea, six miles south of Pialtza.

BABIA, in *Mythology*, a goddess of Syria, worshipped particularly at Damas. She was supposed to be the goddess of youth, and to have been their Venus, who presided over love and marriage. Selden, de Diis Syris, Syntag. 11. c. 4.

BABIBA, in *Ancient Geography*, a town of Africa, in Libya interior, on the Western coast, between the rivers Aradus and Stachir.

BABICA, in *Geography*, a town of Poland, in the palatinate of Minsk, eight miles east of Mozyr.

BABIN, FRANCIS, in *Biography*, a theologian and canonist of France, was born at Angers in 1651, and elected professor of divinity in the university of his native city. Here he read lectures to numerous classes for 20 years. In 1706, he was appointed by the bishop of Angers one of his grand vicars, and employed to collect and regulate the minutes of the conferences of the diocese. This work was published in 18 volumes 12mo, and is much esteemed for its method and style. In 1697, Babin published in 4to. a work, intitled "A Narrative of what passed in the university of Angers, on the subject of Janfenism and Cartesianism." Louis XIV. allowed him a pension of 2000 livres, and appointed him to several lucrative and honourable offices, which he enjoyed till his death in 1734, at the age of 83. He retained his faculties to the last, and was often consulted on ecclesiastical questions and cases of conscience. *Nouv. Dict. Hist.*

BABIN, in *Geography*, a town of Poland, in the palatinate of Lublin; eight miles south-west of Lublin.—Also, a town of Poland, in the palatinate of Braclaw; twenty-eight miles north-east of Braclaw.—Also, a town of Poland, in the palatinate of Belez, thirty-six miles east of Belez.

BABINGTON, GERVASE, in *Biography*, an English bishop, was born about the middle of the sixteenth century, in Nottinghamshire, as some say, but according to others, in Devonshire, and educated in Trinity college, Cambridge. Whilst he was domestic chaplain to Henry earl of Pembroke,

president of the council in the marches of Wales, he is said to have assisted lady Mary Sidney, the countess of Pembroke, in her English metrical version of the Psalms of David. By the interest of his patron, he was appointed treasurer of the church of Landaff, and in 1591 became bishop of that see, from which he was translated first to Exeter, and afterwards to Worcester, where he remained for thirteen years, till the time of his death in 1610. Notwithstanding his liberality in repairing the cathedral of the diocese, and bequeathing to it his library, no monument was erected on his grave. For learning and piety, and as a pathetic and popular preacher, Dr. Babington has been highly extolled. He was also humble and diligent, and with the exception of having alienated from the bishopric of Exeter the rich manor of Crediton in Devonshire, he has been deemed unobnoxious to the charge of avarice. His works, published in 1615 and 1637, contain "Comfortable Notes on the Pentateuch;" an "Exposition of the Creed, Commandments, and Lord's Prayer;" a "Conference between Man's Frailty and Faith;" and three sermons. They are written in the quaint stile of the times, and are distinguished by their piety more than by their literary merit. *Biog. Brit.*

BABINOVITCHI, in *Geography*, a district of the government of Mohilef, in Russia, on the river Lutchossa, falling into the Duna. N. lat. 54° 52'. E. long. 30° 14'.

BABIROSA, BARBIROUSSA, and BARBIROESSA. See BABYROSSA.

BABITZ, in *Geography*, a town of Bohemia, in the circle of Czaflau; five miles W. N. W. of Teutsch Brod.

BABOEUF, a town of France, in the department of the Oise, and chief place of a canton in the district of Noyon; two miles E. N. E. of Noyon.

BABOLZA, a town of Lower Hungary, in Sclavonia, between Posség and Zigeth, towards the Drave; supposed by some to have been the ancient *Manfuctinium*, or *Pons Manfuctinus*.

BABOON, in *Zoology*, the name of that tribe of APES (*Simia* Linn.) which have short tails;—cauda abbreviata: *papiones* *κρυοζάλα* *veterum*, Gmel. Linn. Syst. Nat.; and comprehending the species nemestrina, apedia, sphinx, mormon, maimon, and porcaria. The baboons of Dr. Shaw are such of the *Simia* genus as have very muscular bodies, and whose tails are commonly short. *Baboon* in the English language has the same application as *babouin* in the French, and of which many accounts have been given by Buffon, Sonnini, and others. Virey observes, that the *babouins* are a ferocious and very lascivious kind of ape, found in many parts of the old world, and especially in Africa. Their muzzle, he remarks, is a little lengthened in the same manner as that of a dog, and on that account they have sometimes been called *singes cyanocephales*, and also *magots*. They live on fruits, feeds, roots, leaves, insects, &c. like the other kinds of apes; and are observed to be a mischievous and thievish race. In a state of captivity they are altogether untameable, are fond of wine and spirituous liquors; and the females it is asserted, have an antipathy to the fair sex, as the males have against men. See *SIMIA*.

BABOPAS, in *Geography*, a town in the interior part of New Albion, east of the long range of mountains which extend northward from the head of the peninsula of California. N. lat. 37° 45'. W. long. 114° 25'.

BABORA, a town of Poland, in the palatinate of Lemberg; twelve miles south of Lemberg.

BABOUCARD, in *Ornithology*, the name given by Buffon to the Senegal variety of *Alcedo Ispida* (*β* Gmelin), or common king-fisher; and which Brisson calls *Ispida Senegalensis*.

BABOUIN A MUSEAU DE CHIEN, in Sonnini (edit. Buffon), in *Zoology*, the *Simia hymadryas*, Linn.; and dog-faced ape, Penn. See *SIMIA HAMADRYAS*.

BABRA, in *Geography*, a town of North America, in the country of New Navarre; 205 miles south of Casa Grand.

BABUCO, a small town of Italy, in the Campagna of Rome.

BABUL, a town of the East Indies, in an island of the river Indus, supposed by some to be Cambaya, and by others Patan, stretching out towards the islands Formosa and Lequios.

BABUYANES, a cluster of six or seven small islands, about nineteen leagues north of the isle of Luçon, in the Pacific ocean; one of them contains about 500 inhabitants; and the chief produce is wax, ebony, bananas, cocoas, and plantains.

BABUYEA, a town of North America, in the province of Culiacan; 65 miles north-east of Culiacan.

BABYLAS, in *Biography*, a celebrated martyr of the Christian church, was chosen bishop of the see of Antioch, A. D. 238, under the emperor Gordian; and after governing this church for thirteen years, he either died in prison, or was put to death in the persecution of Decius. Chrysostom applauds his courage for refusing admission into the church to an emperor who had killed the son of a king, whom he had received as an hostage; and this emperor is supposed to have been Philip, who put his colleague, the young Gordian, to death. This is said to have been the cause of the bishop's death. But there are several circumstances that invalidate the truth of this story. However this be, the remains of Babylas were transported about one hundred years after his death, by order of the Cæsar Gallus, into the midst of the grove of Daphne, where was a temple of Apollo; a magnificent church was erected over them; a portion of the sacred lands was appropriated to the maintenance of the clergy, and the burial of the Christians at Antioch; and the heathen oracle was silenced, as it was supposed by the presence of the saint's dust, but more probably, as Van Dale suggests (*De Oraculis*, p. 392.), by an apprehension of the priests, that the Christians, who daily visited the tomb of the martyr, would detect their imposture. Julian soon after demolished this church; and the Christians removed the relics of St. Babylas, with acclamations of triumph, to their former habitation within the walls of Antioch. On this occasion, Julian exerted his pride to dissemble his resentment; but during the night which terminated this procession, the temple of Daphne was in flames, the statue of Apollo was consumed, and the walls of the edifice were left a naked and awful monument of ruin. The Christians of Antioch confidently asserted, that the powerful intercession of St. Babylas had pointed the lightnings of heaven against the devoted roof. Julian, however, could disguise and restrain his indignation no longer. Imputing the fire of Daphne to the revenge of the Christians, whom he opprobriously denominated Galileans, he ordered the doors of the cathedral at Antioch to be shut, and its wealth to be confiscated. For the purpose of discovering the criminals several ecclesiastics were tortured, and a presbyter of the name of Theodoret was beheaded. Euseb. E. H. l. vi. c. 29. c. 39. Julian in Misopogon, p. 361. Ammianus Marc. l. xxii. c. 13. Gen. Dict. Gibbon's Hist. vol. iv. p. 121, &c.

BABYLON, in *Ancient Geography*, the capital of the ancient Babylonia, or Chaldaea, supposed to have been situated in N. lat. 33°. E. long. 42° 46' 30"; or according to the observations of M. Beauchamp (*Mém. Ac. Sc. Paris*,

1787), N. lat. 32° 34', and E. long. 44° 12' 30". This ancient city, reckoned for many ages one of the wonders of the world, was situated on the Euphrates; and its ruins, of which few vestiges now remain, are placed by geographical writers at a town called Hilla, or Elugo, about fifteen leagues to the south-west of Bagdad. It was seated on a plain, and surrounded by water; and hence appears the propriety of the scripture expression (Is. xxi. 1.) "the burden of the desert of the sea," or rather "of the plain of the sea;" and besides, the places about Babylon, as Abydenus informs us from Megasthenes (Euseb. Præp. Evang. l. ix. c. 41. p. 457.) are said from the beginning to have been overwhelmed with waters, and to have been called "the sea." Nevertheless it is no less properly denominated "a mountain" (Jer. li. 25.) on account of the great height of its walls and towers, its palaces and temples; and accordingly Berofus cited by Josephus (*ubi infra*), says of some of the buildings, that they resembled mountains. It was founded, as some say, by Semiramis, and according to others, by Belus, who is thought by many to be the same with Nimrod. But whoever was the first founder of it, it was in process of time much improved; and Nebuchadnezzar, in particular, repaired, enlarged, and beautified it to such a degree, that he may be said to have built it, according to his own vain-glorious boast (Dan. iv. 30.); "Is not this great Babylon, that I have built for the house of the kingdom, by the might of my power, and for the honour of my majesty?" Nor is this asserted only in scripture, but it is likewise attested by heathen authors, Megasthenes, Berofus, and Abydenus, whose words are quoted by Josephus (*An. tiq. l. x. c. 11. § 1. t. i. p. 536. ed. Haverc.*) and Eusebius (*Præp. Evangel. l. ix. c. 41. p. 457. ed. Vigeri*). By one means or other Babylon became a city so great and famous, that it gave name to a very large empire; and it is denominated by a variety of just and appropriate terms in scripture, such as "great Babylon" (Dan. iv. 40.); "the glory of kingdoms," and "the beauty of the Chaldees excellency" (Is. xiii. 19.); "the golden city" (Is. xiv. 4.); "the lady of kingdoms" (Is. xlvii. 5.); "abundant in treasures" (Jer. li. 13.); and "the praise of the whole earth" (Jer. li. 41.).

The most famous works in and about this ancient city, as they are enumerated and described by Prideaux from ancient authors, were the walls, the temple of Belus, the palace of Nebuchadnezzar, the hanging gardens, the banks of the river, the artificial lake, and the canals.

This city was surrounded with walls, which, according to the account of Herodotus (l. i.), the most ancient author who mentions them, and who himself had been at Babylon, were 87 feet thick, 350 feet high, and in compass 480 furlongs, or 60 miles. Other writers, who differ from Herodotus in some particulars, give nearly the same account of the dimensions of the walls. Diodorus Siculus indeed (l. ii.) has very considerably diminished the circumference of these walls, and somewhat reduced their height as stated by Herodotus, but he has enlarged their breadth, by saying that six chariots might drive upon them abreast; whereas the former observes, that one chariot only might turn upon them: but then he places buildings on each side of the top of these walls, which, according to him, were only one story high; and thus these two writers may be tolerably reconciled. As for those who assign fifty cubits as the height of these walls, they represent them as they were after the time of Darius Hytaspes, who had caused them to be beaten down to that level. See Strabo, l. 16. p. 743. Pliny H. N. l. vi. c. 26. Philostrat. l. i. c. 18.

These walls formed an exact square, each side of which

BABYLON.

was 120 furlongs or 15 miles long, built of large bricks cemented together with bitumen, a glutinous slime which issues out of the earth in that country, and in a short time becomes harder than the brick or stone cemented by it. Without the walls, the city was encompassed by a large ditch, filled with water, and lined on both sides with bricks made of earth dug out of the site of the ditch, whose dimensions are indicated by those of the walls. In the compass of the walls there were 100 gates, or 25 in each of the four sides, all of which were formed of solid brass, referred to by the prophet Isaiah, ch. xlv. 2. Between every two of these gates were three towers, and four more at the four angles of this large square, and three between each angle and the next gate on either side; and each of these towers was ten feet higher than the walls. This, however, is to be understood merely of those parts of the walls where towers were necessary for defence; for as some parts were seated on a morass, and consequently inaccessible by an enemy, there the labour and expence were spared; and therefore the whole number of these towers amounted to no more than 250. From the 25 gates on each side of this square proceeded 25 streets, extending in straight lines to the corresponding gates in the opposite sides, so that the number of the streets was 50, each of them being about 15 miles long, and all crossing one another respectively at right angles. Besides these there were also four half streets, which were rows of houses, facing the four inner sides of the walls. These latter were properly the four sides of the city within the walls, and each of them was 200 feet broad; the whole streets being about 150 feet in breadth. By this interfection of the 50 streets, the city was divided into 676 squares, each of which was four furlongs and a half on each side, or two miles and a quarter in compass. Round these squares on every side toward the streets stood the houses, all of three or four stories in height, and beautified with every kind of ornaments; and the space within each of the squares was vacant, and occupied only by court-yards or gardens, adapted to convenience or pleasure.

A branch of the river Euphrates intersected the city, running through the middle of it from north to south; and over the river, in the central part of the city, was a bridge, a furlong, as some say, but according to others, much more, in length, and thirty feet broad; which bridge was ingeniously constructed, in order to supply a defect in the bed of the river, which was composed of sand. At the two ends of this bridge were two palaces; the old palace on the east side, and the new one on the west side of the river; the former occupying four of the above-mentioned squares, and the latter nine. The temple of Belus, which stood next to the old palace took up another of these squares.

The whole city stood on a large plain, in a fat and deep soil; that part or half of it which lay on the east side of the river was the old city; the other on the west was added by Nebuchadnezzar; and both were included within the square, bounded by the walls already described. The form of the whole was seemingly borrowed from Nineveh, which was also 480 furlongs in compass, but its form was that of a parallelogram, whereas that of Babylon was an exact square. Nebuchadnezzar, who had destroyed that old seat of the Assyrian empire, is supposed to have designed that this new one should exceed it in size and in magnificence. It appears, however, that it was never wholly inhabited, though Nebuchadnezzar carried thither a great number of captives out of Judæa and other conquered countries; nor was time allowed for its arriving at that population and glory, which were the objects aimed at by Nebuchadnezzar; for Cyrus removing the seat of empire to Shushan, Babylon

gradually sunk into utter decay. When Alexander came to Babylon, we learn from Quintus Curtius, that no more than 8100 square furlongs were then occupied by buildings; but the whole space within the walls contained 14,400 square furlongs; and therefore there must have been 6300 square furlongs, which, as Curtius informs us, were ploughed and sown. Nor indeed were the houses contiguous, but a void space was left on each side between one house and another.

According to the observations of major Rennell (Geographical System of Herodotus examined and explained, &c. p. 341.), there seems to be no mode of invalidating the fact respecting the extent of the space inclosed by the walls of ancient Babylon: "nor (says he) can it be in our idea be reduced to less than a square of about $8\frac{1}{2}$ British miles, giving an area of 72 square miles. But that even 72 contiguous square miles should have been in any degree covered with buildings, is on every account too improbable for belief. The inhabitants of London, taken at a ninth part of the whole population of South Britain (say about 7,000,000, or for London 800,000), require for their supply of provisions and necessities, a proportion of land equal to about 6600 square British miles, on a supposition that they were confined to its produce alone, and that it was taken as it generally runs throughout the kingdom."—"If there be allowed to Babylon an area of seventy-two miles, we conceive that it would then bear a proportion to the space which the buildings of London occupy, taking in all its suburbs and members, whether contiguous or otherwise, and allowing the main area of $15\frac{1}{2}$ British miles, as 9 is to 2 nearly. But as most of the large Asiatic cities that we have seen or heard of, scarcely contain within the same space half the number of inhabitants that European cities do, we must reckon the proportion of population that Babylon would have contained to that of London, as 9 to 4. In this case 15,000 square miles of such land as the common run of that in England would have been required for the support of the people of Babylon. But as the simpler manner of living among the lower classes of people in Asia requires a less quantity of land to support it a considerable deduction may be made, and instead of 15,000 square miles, we may perhaps substitute 12000. Now it will appear that this reduced sum of square miles equals, within one-twelfth part, the whole area of Lower Mesopotamia; and even the whole tract properly denominated Babylonia and Chaldæa, including all the arable and pasture land, from whence Babylon could have been conveniently supplied by the inland navigations, was little more than double the above aggregate, taken at 13,000 square miles. And though it be true, that the quality of the Babylonish lands, in most places, was superior in fertility to those of England; yet, on the other hand, a prodigious deduction must be made for the marshes and lakes of Lower Mesopotamia and Chaldæa." Hence the author very justly infers, that the houses occupied only a part of the vast space inclosed by the walls, and he furnishes a modern instance in the same region of a city surrounded by a wall seven miles in circuit; and yet Bassora contains only from 40 to 50,000 inhabitants; the wall inclosing date groves and corn fields. Besides, it should be remembered that the Euphrates flowed through the centre of Babylon, in which part of its course it is from 400 to 500 feet wide. The palace of the Babylonian kings, the temple of Belus, and other public buildings must also have occupied a considerable part of the space within the walls.

The next object particularly worthy of notice in the city of Babylon, was the temple of Belus. In the middle of this temple stood the ancient tower, supposed by Bochart

(Phaleg. p. 1. l. i. c. 9.) to have been the famous tower of Babel. This tower was at its base a square of a furlong on each side, or half a mile in compass, and consisted of eight towers, as they appeared to be, built one above the other; the height of each being 75 feet, and that of the whole 600 feet. The ascent to its top was by stairs on the outside, formed by a sloping line from the bottom to the top eight times round it, so as to exhibit the appearance of eight towers. As these compartments or stories had many rooms with arched roofs supported by pillars, they made parts of the temple, when the tower became consecrated to idolatrous purposes. The uppermost story was the most sacred, and the most appropriate to the uses of devotion. Over the whole of the top of the tower there was, it is said, an observatory (Diod. Sic. l. ii.), by the advantage of which the Babylonians extended their skill in astronomy beyond other nations. For when Alexander took Babylon, Callisthenes the philosopher, who accompanied him thither, found they had astronomical observations for 1903 years from that time, which carried up the account as high as the 115th year after the flood, or within 15 years after the tower of Babel was built, or to the year B.C. 2334. Till the time of Nebuchadnezzar, the temple of Belus contained only this tower, the rooms of which served all the occasions of its idolatrous worship. But he enlarged it by erecting edifices round it in a square of two furlongs on every side, and a mile in circumference, exceeding the square at the temple of Jerusalem by 1800 feet. The whole of these buildings was enclosed by a wall, which is computed to have been two miles and a half in circumference. In this wall were several gates of solid brass supposed to have been formed out of the brazen sea, brazen pillars, and other vessels and ornaments, which Nebuchadnezzar had brought to Babylon from Jerusalem; for he is said to have dedicated in this temple the spoils of that expedition. Dan. i. 2. 2 Chron. xxxvi. 7. In the same places were several images or idols of massy gold; one of them which was a statue of Belus, in an erect posture forty feet high, crowning the summit, and resting on a pedestal of fifty feet in height. As this is said to have weighed 1000 Babylonian talents, it is computed to have been worth three millions and a half of our money. According to Diodorus Siculus (*ubi supra*), the weight of the statues and decorations amounted to five thousand and odd talents in gold, and their value has been estimated at above twenty-one millions of our money; and the like sum is allowed for the treasure, utensils, and ornaments.

On the east side of the river stood the old palace of the kings of Babylon, four miles in circuit; and opposite to it, on the other side of the river, was the new palace built by Nebuchadnezzar, which was eight miles in circumference.

For an account of the hanging gardens of Babylon, see PENSILES HORTI. The other works ascribed to Nebuchadnezzar, by Berosus and Abydenus, were the banks of the river, the artificial canals, and the completion of the artificial lake, said to have been sunk by Semiramis. The canals were cut out on the east side of the Euphrates, in order to convey the waters of the river, when it overflowed its banks, into the Tigris, before they reached Babylon. The chief of these was the NAARMALCHA.

The lake was on the west of Babylon, and, according to the lowest computation, 40 miles square, 160 in compass, and 35 deep as Herodotus says, and 75 according to Megasthenes. It was dug to receive the waters of the river, while the banks were building on each side of it; but the lake, and the canal that led to it, were afterwards preserved, and found useful to prevent inundations, and to serve as a reservoir, from which water was occasionally let out by

sluices for improving the land. The banks were constructed of bricks and bitumen, on both sides of the river, to keep it within its channel, and were extended through and beyond the city, occupying an interval of twenty miles. Opposite to each street, on either side of the river, was a brazen gate in the wall, with stairs leading down from it to the river; which gates were open in the day, and shut in the night.

All these works are attributed by Berosus, Megasthenes, and Abydenus, to Nebuchadnezzar; but Herodotus says, that the bridge, the banks, and the lake, were the work of a queen who reigned after him, called Nitocris, who probably finished what Nebuchadnezzar had begun and left imperfect.

Babylon subsisted with singular reputation, and was for a long time considered as one of the wonders of the east. At length Cyrus, having subdued the several nations that inhabited the great continent from the Ægean sea to the Euphrates, and likewise Syria and Arabia, entered Assyria, and directed his march towards Babylon. Nabonadius, Labynitus, or Belsazzar, who then reigned at Babylon, hearing that he was advancing to his metropolis, marched out to give him battle; but being put to flight, he returned into the city, where he was closely besieged by Cyrus. But the capture of a place so strong, and furnished with all kinds of provisions for twenty years, was no easy enterprise. Despairing of succeeding against it by storm, he drew round it a line of circumvallation, with a large and deep ditch, to intercept its communication with the country. He also divided his army into twelve bodies, each being appointed to guard the trenches for a month; but the besieged, triumphing in the height of their walls, and the amplitude of their stores, insulted Cyrus from the ramparts, and seemed to defy all his efforts. Cyrus, having spent two years before Babylon without making any impression, adopted the following stratagem, which proved successful. Informed that a great annual solemnity was to be kept in the city, and that the Babylonians were accustomed, on this occasion, to spend the whole night in drinking and debauchery, he thought this a proper time for surprising them. Accordingly he sent a strong detachment to the head of the canal leading to the great lake, already described, with orders, at an appointed time, to break down the bank which separated between the lake and the canal, and to turn the whole current of the river into the lake. At the same time he appointed one body of troops to occupy the place where the river entered into the city, and another to station themselves where it came out; and he ordered them to march in by the bed of the river, which was two stadia broad, as soon as they should find it fordable. Towards the evening he opened the head of the trenches on both sides of the river above the city, that the water might discharge itself into them, and by these means, and the breaking down of the great dam, the river was soon drained. Then the two bodies of troops above-mentioned entered the channel, according to the instructions which they had received; and advancing towards the city, they found the gates left open, in consequence of the riot and disorder of the night, and penetrated into the city without opposition. Meeting at the palace, according to their previous agreement, they surprised the guards, and cut them in pieces. Those who were in the palace, opening the gates to know the cause of the confusion, made way for the Persians to rush in: and thus they took possession of the palace and killed the king, who with his sword in his hand came out to meet them. The king being killed, and those who were about him being put to flight, the rest submitted, and the Medes and Persians became masters of the place; B. C. 538. The reduction of Babylon put an end to the Babylonian empire, and finally fulfilled, in the name and character.

rafter of the conqueror, and in the various circumstances that attended this event, the prophecies which Isaiah, Jeremiah, and Daniel, had uttered against this proud metropolis. However, the tower or temple stood to the time of Xerxes; but in his return from the Grecian expedition, he first plundered it of its wealth, then demolished the whole, and laid it in ruins. Alexander, on his return to Babylon from his Indian expedition, proposed to rebuild it, and to make it the seat of his empire; but his death prevented his accomplishing that design. After the death of Alexander, the city of Babylon began to decline apace; and its decay was chiefly owing to the vicinity of Seleucia, which was built by Seleucus Nicator, as it is said to mortify the Babylonians, and peopled with 500,000 persons drawn from Babylon.

We learn further from a fragment of Diodorus Siculus, produced by Valefius, and quoted from him by Vitringa (Comment. in Jesaiam, c. 13. vol. i. p. 421.), that a king of Parthia sent many of the Babylonians, under the most trivial pretences, into slavery, burnt the forum and some of the temples of Babylon, and demolished the best part of the city. This happened about 130 years B. C. Diodorus Siculus (l. ii.) describes the buildings as ruined or destroyed in his time (B. C. 44.), and asserts that only a small part of the city was inhabited, but that the greatest part of it within the walls was tilled. Strabo (l. xvi. p. 1073.) who wrote not long after Diodorus (B. C. 30.), says, that part of the city was demolished by the Persians, and that part of it decayed by time and the neglect of the Macedonians, particularly after the building of Seleucia, and the removal of the royal court thither. Strabo applies to Babylon what a comic poet said of Megalopolis in Arcadia; "The great city is now become a great desert." Pliny also (H. N. l. 6. c. 30.) affirms (A. D. 66.), that it was reduced to solitude by the neighbourhood of Seleucia. Pausanias, about A. D. 153, compares Megalopolis to Babylon, and says (Arcad. c. 33. p. 668. ed. Kuhnii), that of Babylon, the greatest city which the sun ever saw, nothing remained but the walls. Maximus Tyrius (Diff. 6.) mentions it as lying neglected and forsaken and Lucian intimates (Επιτομ. five Contemplantes), that in a little time it would be sought for and not be found, like Nineveh. Constantine the Great, in an oration preserved by Eusebius, says, that he himself was upon the spot, and beheld the desolate and miserable condition of the city. In the time of Jerome, about the close of the fourth century, it was converted into a chase for keeping wild beasts within the compass of its walls, for the hunting of the later kings of Persia. St. Jerome adds, that, excepting the brick walls, which after many years are repaired for the inclosing of wild beasts, the whole space within its desolation. Hieron. Comment. in Isai. c. 13. c. 14. vol. iii. p. 111. 115. ed. Benedict. Benjamin of Teudela, who lived in the twelfth century, asserts (Itin. p. 76.), that ancient Babylon is now laid waste, but that some ruins are still to be seen of Nebuchadnezzar's palace, into which men fear to enter on account of the serpents and scorpions that are in the midst of it. Texeira, a Portuguese, in his description of his travels from India to Italy, cited by Bochart (Phaleg. l. 4. c. 15.), and by Prideaux (pt. 1. b. 8.), affirms, that of this great and famous city nothing but a few vestiges remained, and that there was not any place in the whole region less frequented. Rauwolf, a German traveller, whose travels have been edited by Ray, passed this way, A. D. 1574, and describes the ruins of this famous city, which he found in the village of Elugo, not far from Bagdad. He mentions some piers and arches of the old bridge over the Euphrates, and the ruins of the castle and tower, which are the habitations of venomous creatures, that are so dangerous as not to be accessible with safety,

except during two months in winter, when these animals never stir out of their holes. Petrus Valensis, or Della Valle, was at Bagdad in 1616, and visited the ruins, as they are thought to be, of ancient Babylon, which he says, appear in confusion like a huge mountain, and exhibit a mass corresponding in form and situation to the pyramid called by Strabo the tower of Belus, and being probably the tower of Nimrod in Babylon, or Babel, as the place is called. But besides this large mass, there are no traces of ruins sufficient to convince an observer that so great a city as Babylon was ever situated in that place. Tavernier says, that the parting of the Tigris, which is but a little way from Bagdad, there is the foundation of a city which may seem to have been a large league in compass. Some of the walls, he says, are yet standing, upon which six coaches may pass abreast. They are made of burnt brick, ten feet square and three thick. The chronicles of the country represent this as the site of the ancient Babylon. But this intelligent traveller adopts the opinion of the Arabs, and conceives the ruins observed by himself, and also by Benjamin the Jew, Rauwolf, and Della Valle, to be the remains, not of Nebuchadnezzar's palace, or of the tower of Babel, but of some tower built by one of their princes, and designed as a beacon to assemble his subjects in time of war. Hauway (Trav. vol. iv. pt. 3. c. 10. p. 78.) says, that the ruins of Babylon, placed about fifteen leagues to the south of Bagdad, are now so much effaced, that there are hardly any vestiges of them to point out the situation.

Whoever compares these accounts, given more in detail by the authors above cited, with the predictions of the ancient prophets, will perceive, and be led to acknowledge, how punctually the ravages of time have contributed to accomplish them. To this purpose bishop Newton observes (Dissert. on the Prophecies, vol. vii. p. 285.), that when Babylon "was converted into a chase for wild beasts to feed and breed there," then were exactly accomplished the words of the prophets, that "The wild beasts of the desert, with the wild beasts of the islands, should dwell there, and cry in their desolate houses." One part of the country was overflowed by the river's having been turned out of its course, and never restored again to its former channel, and thence became boggy and marshy, so that it might literally be said to be "a possession for the bittern, and pools of water." Another part is described as dry and naked, and barren of every thing, so that thereby was fulfilled another prophecy, which seemed in some measure to contradict the former, "Her cities are a desolation, a dry land and a wilderness, a land wherein no man dwelleth, neither doth any son of man pass thereby." The place thereabout is represented as overrun with serpents, scorpions, and all sorts of venomous and unclean creatures, so that "their houses are full of doleful creatures, and dragons cry in their desolate places; and Babylon is become heaps, a dwelling for dragons, an astonishment and an hissing, without an inhabitant." For all these reasons, "neither can the Arabian pitch his tent there, neither can the shepherds water the folds there." And when we find that modern travellers cannot now certainly discover the spot of ground whereon this renowned city was once situated, we may very properly say, "How is Babylon become a desolation among the nations! Every purpose of the Lord hath he performed against Babylon, to make the land of Babylon a desolation, without an inhabitant;" and the expression is no less true than sublime, that "The Lord of hosts hath swept it with the besom of destruction." "How wonderful (adds the prelate) are such predictions compared with the events, and what a convincing argument of the truth and divinity of the holy scriptures! Well might

might God allege this as a memorable instance of his prescience, and challenge all the false gods and their votaries to produce the like. If xlv. 21. xlvii. 10. And indeed where can you find a similar instance, but in scripture, from the beginning of the world to this day?" The triumphant ode upon the fall of Babylon, recited in the fourteenth chapter of Isaiah, merits particular attention, as it is truly admirable for the severest strokes of irony, as well as for the sublimest strains of poetry. "The Greek poet Alceus, who is celebrated for his hatred to tyrants, and whose odes were animated with the spirit of liberty no less than with the spirit of poetry, we may presume to say, never wrote any thing comparable to it." Bishop Lowth, in his excellent lectures upon the sacred poetry of the Hebrews, hath justly described it as one of the most spirited, most sublime, and most perfect compositions of the lyric kind, superior to any of the productions of Greece or Rome. See his *Prælect.* xiii. p. 120, &c. *Prælect.* xxviii. p. 277, &c. Mr. Mason hath also imitated it in an English ode, published with some other odes, in 1756.

BABYLON, a city of Egypt, which was watered by the river Trajanus, according to Ptolemy. It was situated near the Nile, where Grand Cairo now stands, or at a small distance from it, and had a castle strongly fortified both by nature and art. Some say, that it was founded by the Persians when they ravaged Egypt under Cambyfes, (see Josephus *Antiq.*); and that it was erected in the place where Latopolis stood; or according to others, when Semiramis visited this country at the head of a formidable army. Strabo says (l. xvii.), that it was built by some Barbarians, who retired thither by permission of their sovereign, and that in his time the Romans kept in garrison there one of the three legions that were stationed in Egypt. From the fortress of Babylon, the mountain gently sloped to the bank of the Nile; and 150 slaves were continually employed there in raising the water by means of wheels and an aqueduct. The Persians, who were worshippers of the sun, kept up a perpetual fire in this place, which occasioned its being called by the Arabs "The castle of the lights." See **CAIRO**, and **FOSTAT**.

BABYLON, in *Scripture History*, is a name figuratively given by the sacred writers, particularly by St. Peter, 1. Ep. ch. v. v. 13, and by the author of the Revelations, ch. xvii. and xviii. and also by the fathers, to Rome; partly on account of her greatness, pride, and oppression of God's people, and partly for her resemblance of it in idolatry; that kingdom so fully representing the idolatry of the church of Rome in the description given of it in the sixth chapter of Baruch, that scarcely any real difference betwixt them can be observed. Whitby's *Paraphrase*, vol. ii. p. 661. p. 753.

BABYLONIA, or **CHALDÆA**, an ancient kingdom of Asia, was founded by Nimrod, the grandson of Ham, and continued distinct and separate from that of Assyria, till Ninus conquered Babylon, and made it tributary to the Assyrian empire. (See **ASSYRIA**.) This country was known, in ancient times, by the names of Shinar, and Shinaar, which appellation it seems to have retained even in the time of Daniel. The name of Babylon is universally supposed to have been derived from that of the tower of Babel; and the name of Chaldæa arose from the Chaldæans, or Chasdim. (Joseph. *Ant.* l. i. c. 7.) These two names sometimes extend to the whole country, being indifferently taken for each other; and sometimes they are limited to certain parts. By Babylon, or Babylonia, is meant the country more immediately in the neighbourhood of the city of Babylon; and by Chaldæa, that which extends southward to the Persian gulf. Chaldæa is

used by the writers of the Old Testament for the whole country (Jer. xxiv. 5. xxv. 12. l. 8. Ezek. xii. 13.); and Babylonia, generally speaking, by profane authors. (Diodor. Sic. l. ii. c. 11, 12. Strabo, l. xvi. sub. init.) It lies between thirty and thirty-five degrees of north latitude; and was bounded, according to Ptolemy, on the north by Mesopotamia, on the east by the Tigris, on the west by Arabia Deserta, and the south by the Persian gulf and part of Arabia Felix. In Babylonia, properly so called and considered as a distinct province from Chaldæa, were the following cities; viz. Babylon, the metropolis, (See **BABYLON**); Vologfia, or Vologfocerta, built on the Euphrates by Vologesis, king of the Parthians, in the time of Vespasian; Barsita, probably Strabo's Borsippa, sacred to Diana and Apollo, famous in the time of this geographer for a woollen manufacture, and for being the habitation of a certain sect of Chaldæans, thence called Borsippeni; Idiccara, on the Euphrates and the borders of Arabia Deserta; Coche, in the island Mesene, formed by the Tigris; Saura; and Pombeditha, of which the situation is very uncertain. In ancient times the Babylonian name, extending far beyond the limits both of Babylonia and Chaldæa, comprised all, or the greater part of the provinces subject to the Babylonian empire. See **EMPIRE**.

The air of this country was generally temperate and salubrious; though it was occasionally subject to extraordinary heat and a pestilential wind. As it seldom rained, the inhabitants were under the necessity of watering their lands by means of wheels and engines, and of trenches and canals, which flowed from the Euphrates to the Tigris. The soil was rich, the climate was for the most part excellent, and the inhabitants were industrious; and therefore this country vied, in respect of fertility, with any other spot on the face of the earth. The southern parts of it, between the rivers, have been compared with the Delta of Egypt, which it resembles by its natural and artificial islands, and by being almost under the same parallel of latitude; and the other part of it, or Chaldæa properly so called, between the Euphrates and the mountains of Babylon, as they are commonly termed, is not much less watered by rivers and canals conducted from the Euphrates, and large reservoirs of lakes borrowed from the same river. Hence Herodotus (l. i. c. 193.), compares this country with Egypt; and he says, that, with regard to the plenty of its productions, it was reckoned to be equal to a third part of Asia, or of the Persian empire; and that, in the same year, it yielded 300 fold, but generally 200. As it was low, flat, and well watered, it abounded with willows, and was called "the valley of willows," as Prideaux (*Conn.* p. i. b. 1. p. 105.), after Bochart, corrects the text, Is. xv. 7. The palm also flourished naturally every where, and particularly the date kind, which afforded bread, wine, and honey; but the vine, olive, and fig-tree, did not succeed here any more than in Egypt. But as to grain, it exceeded every other land; the millet and sesame shot up to the size of trees; and the leaves of the barley and wheat were usually four fingers broad. The sesame afforded oil, instead of the olive; and the palm yielded wine instead of the grape. This fertility was owing in a great measure to the inundation of the Euphrates and Tigris, in the months of June, July, and August; the snow of the mountains of Armenia melting in those months: and to guard against injury from these inundations, the inhabitants formed artificial rivers and canals, by which they distributed the waters, and maintained an easy communication with one another. For the purpose of mutual intercourse, and particularly of navigating the Euphrates, they had boats, of a round form, constructed like wicker-baskets, which were

covered with hides, and guided by two oars or paddles. They had neither head nor stern; but being of different sizes, they served for carrying various quantities of their commodities to Babylon, whence they returned by land, the rapidity of the stream not allowing them to return by water.

The government of Babylon, like that of Assyria, was despotic, and the sceptre seems to have been hereditary. Their potentates, however, who assumed divine titles, and who received divine honours, administered their government by a variety of officers, civil and military; and these were divided into three classes: the first had the charge of virgins, and of their disposal in marriage, and were to judge in cases of adultery, and similar matters; the second took cognizance of thefts; and the third of all other crimes. The chief officers of the king's household were the captain of his guard, who had the execution of his arbitrary and sanguinary commands; the prince of the eunuchs, who had the charge of the education and subsistence of the youth of the palace; and the prime minister, resembling the Turkish vizier, who sat in the king's gate, as it was called, to hear complaints, and to pass judgment. Besides these, there was also a master of the magicians, whose province it was to satisfy the king on subjects that respected the prognostication of futurity. Among their laws, which were vague and variable, one of the best seems to have been that which respected marriage, and which was calculated to increase the number of inhabitants; for which, see ASSYRIA. Their punishments were arbitrary, and depended upon the will of a capricious monarch. Beheading, cutting to pieces, turning the house of the criminal into a dunghill, and burning in a fiery furnace, were penalties, which were executed by order of the kings of Babylon. The religion and boasted learning of the Babylonians were so blended together, that they are not easily separated: for the Chaldees, properly so called, were not only their priests, but also their learned men; whose whole science seems to have been subservient to the purposes of superstition. (See *BELUS*, and *SABAISM*.) As the Babylonians gave rise to all the idolatries and superstitions that prevailed among the neighbouring nations, they are charged with having introduced the horrible custom of sacrificing human victims, in order to appease or conciliate their deities. The Babylonians were much addicted to judicial astrology; and ascribed an influence to the stars and planets, in the explication of which their chief science consisted. Astronomy was with them subservient to astrology, and the former was cultivated in subordination to the latter. Indeed, the principal part, if not the whole, of their philosophy and learning, consisted in the application of this fanciful and unfounded science. However, some have distinguished, with justice, between the Chaldees, and Babylonians, ascribing to the latter a more accurate and extensive acquaintance with the principles of astronomy, mathematics, and mechanics, than the former. (See *CHALDEAN PHILOSOPHY*.) Of their music and poetry we have few certain records. They are said to have excelled in architecture and sculpture, in the arts of designing, and of casting metals, as the ornaments of their metropolises seem to testify. Their manufactures, particularly of rich embroideries, sumptuous vestments, magnificent carpets, and fine linen, were famous; and they sent their purple into the eastern parts as an article of traffic. Their commerce, especially when Babylon was in the meridian of her glory, must have been considerable. The metropolis was advantageously situated for this purpose; being as it were in the midst of the world, and having, by means of the Euphrates and Tigris, an easy communication with the western and northern parts, and also with the eastern by means of the Persian gulf. With regard to their customs, we may mention in particular their mode of treat-

ing sick persons. Having no physicians, they exposed them publicly in the most frequented places, that all who saw them might offer their advice, if they had, either from their own experience or that of others, any knowledge of their case. Their dead they embalmed with honey and wax, and their manner of mourning resembled that of the Egyptians. The Babylonians were, in a high degree, credulous and superstitious: and much addicted to licentiousness and debauchery in their general conduct. In their dress, they affected pride and effeminacy. Their under garment was a linen vest, which hung down to their heels; over this they had another of woollen; and their outer garment was a white mantle or cloak. They suffered their hair to grow; adorned their heads with a turban or mitre; and anointed their bodies with the oil of sesame. Every individual wore a ring with a seal on his finger, and bore in his hand a carved staff or sceptre, the head of which was adorned with some figure, as that of an apple, rose, lilly, eagle, or some such emblem. On their feet they wore a kind of slippers. The inhabitants of this country were divided not only into two great tribes, the Babylonians, and Chaldeans, properly so called, but into other subordinate sects. Three of these are said to have fed upon nothing but fish, which they dried in the sun, and formed into paste, thus supplying the want of bread.

As to the history of the kingdom of Babylon, distinguished from the kingdom of Assyria, the first king of this country mentioned in Ptolemy's Astronomical Canon, is Nabonassar, to whom Pul or Phul bequeathed it, as he did that of Assyria to Tiglath-Pileser, in the year 747, B. C. The latter resided at Nineveh; and the former at Babylon. From this period commonly denominated the æra of Nabonassar, to the year 625 B. C. when Nabopolassar began his reign, nothing remarkable occurs in the history of the kings of Babylon; excepting that Assaradinus or Esarhadon, king of Assyria, the brother and successor of Sennacherib, took possession of the kingdom of Babylon, B. C. 680; and that upon his death, these kingdoms of Assyria and Babylon were again separated, B. C. 668. In the twentieth year of Nabopolassar, B. C. 606, Nineveh was taken and destroyed by the united armies of Cyaxares and Nabopolassar, and the seat of the empire transferred to Babylon. This Nabopolassar, sometimes called Nebuchadnezzar, was the father of the famous Nebuchadnezzar, or Nabocollassar, whose history occurs in the sacred writings, and who commenced his reign in the year 604 B. C. From this period, to the conquest of Babylon by Cyrus, in the reign of Nabonadius, Labynitus of Herodotus, and Belshazzar of Scripture, the son of Evil-Merodach by Nitocris, and the grandson of Nebuchadnezzar, in the year 538 B. C. the history of Babylon presents nothing worthy of particular notice. For an account of the conquest of Cyrus, which terminated the Babylonian empire, and subjected it to the Persians, see *BABYLON*. From this time, Babylonia was never erected into a distinct kingdom, but has shared the vicissitudes of the great conquerors who have at different times appeared in Asia. It is now frequently the object of contention between the Turks and Persians. *Anc. Un. Hist. vol. iii. p. 367—437. Rollin's Anc. Hist. vol. ii. p. 1—153.*

BABYLONIAN, BABYLONIC, or BABYLONISH, Captivity, Empire, Epochs, Gemara, Hour, Talmud, Year, &c. See the several articles.

BABYLONICA TEXTA, in *Antiquity*, denote a rich sort of weavings or hangings, denominated from the city of Babylon, where the practice of interweaving divers colours in their hangings first obtained. *Plin. H. N. lib. viii. c. 48.*

Hence also Babylonian garments, Babylonian skins, Babylonian carpets, housings, &c.; and *Babylonica folana*, which

were

were coverings laid over couches, &c. painted with gold, purple, and other colours.

BABYLONIAN, *Babyloni*, is also used in some *Ancient Writers*, for an astrologer, or any thing relating to astrology. Hence *Babylonia Cura*, the art of casting nativities; and *numeri Babylonii*, the computation of astrologers. Hor. lib. i. od. 12.

BABYLONICS, or **CHALDAICS**, in *Literary History*, a fragment of the ancient history of the world, ending at 267 years before Christ; and composed by Berosus or a priest of Babylon, about the time of Alexander. Stanley Hist. Phil.

The Babylonics were very consonant with Scripture, as Josephus and the ancient Christian chronologers assure us; whence the author is usually supposed to have consulted the Jewish writers. He speaks of an universal deluge, an ark, &c.; he reckons ten generations between the first man and the deluge; and he marks the duration of the several generations by *Saroi* or periods of 223 lunar months, which reduced to years, differ but little from the chronology of Moses. There now remain only a few imperfect extracts, preserved chiefly by Josephus and Syncellus. They were forged by Annius of Viterbo. Fabr. Bib. Græc. tom. xiv. p. 175. See **BEROSUS**, and **CHALDEAN PHILOSOPHY**.

BABYRSA, in *Ancient Geography*, a strong place of Armenia Major, situate in the mountains, near Artaxates, where were kept the treasures of Tigranes and Artabazus.

BABYRUSSA, in *Zoology*, a species of *Sus*, or hog, having two tusks growing from the lower part of the front. This is the horned-hog of Grew; *porcus indicus babyroussa dictus* of Ray; and *baby-roussa* of Buffon. In the arrangement of the French naturalists, it belongs to the genus of *cochons* and order *pachydermes*.

The babyroussa is described by Dr. Shaw, to be nearly of the size of a common hog, but of a somewhat longer form, and with more slender limbs; and to be covered, instead of bristles, with fine, short, and somewhat woolly hair, of a deep brown or blackish colour, interspersed with a few bristles on the upper and hinder part of the back. It is also distinguished by the very extraordinary position and form of the upper tusks, which instead of being situated internally on the edge of the jaw as in other animals are placed externally, perforating the skin of the snout, and turning upwards towards the forehead; and as the animal advances in age, becoming so extremely long and curved as to touch the forehead. These continue their curvature downwards, by which means they must of necessity lose their power as offensive weapons, which they probably possess in the younger animals; the tusks of the lower jaw are formed as in the rest of the genus, and are also long, sharp, and curved; but not of equal magnitude with those of the upper. The upper tusks are of a fine hard grain, like that of ivory; the eyes are small; the ears somewhat erect, and pointed; the tail rather long, slender, and tufted at the end with long hairs.

The babyroussa is a gregarious animal, and is found in large herds in many parts of Java, Amboina, and some other Indian islands, but is said never to be found on the continent of India. Their food is entirely of a vegetable nature, and they often feed on the leaves of trees. When sleeping, or resting themselves in a standing posture, they are said often to hook or support themselves by placing the upper tusks across the lower branches of the trees. When pursued, they will often plunge into a river, or even into the sea, if near, and can swim with great vigour and facility, and to a vast distance. The voice of the babyroussa is said to resemble that of the common hog, but it occasionally utters also a strong or loud growling note. It is sometimes tamed by the inhabitants of the Indian islands, and the flesh is considered

as wholesome food, Vide Shaw Gen. Zool. Erxleben, &c.

Some writers imagine this quadruped to have been mentioned by Elian, Pliny, and other ancient writers. It is thought to be the animal noticed under the name of tetracheros, or four-horned, by the former; and that kind of Indian boar, described by Pliny as having two very long bent teeth in the lower jaw, and two others rising in front. Apor in India, Plin. &c. Apor cornutus, Calpurn; apor indicus orientalis babi ræfa dictus, Seba; strange hogs, hogs with horns, Purch. pilgr.; eberhirsch oder hirscheber, Knorrdelic, &c.

BABYSENGA, in *Ancient Geography*, an ancient town of India, on the other side of the Ganges. Ptolemy.

BABYTACE, a town of Asia, seated on the northern bank of the Tigris. Pliny.

BAC, in *Navigation*, is used for a praam or ferry-boat.

BAC, in *Brewing*. See **BACK**.

BACA, or **BATATHA**, in *Ancient Geography*, a village of Palestine, which served as a boundary between the Tyrians and Galilee.

BAÇA, in *Geography*, a town of North America, in New Navarre, forty-miles north-east of Cinaloa.

BAÇA. See **BAZA**.

BACACUM, or **BAGACUM**, in *Ancient Geography*, a town of the Nervii, in Gallia Belgica; now *Bavay*.

BACADUCHI, in *Geography*, a town of North America, in New Navarre, 240 miles north of Cinaloa.

BACAIM, or **BACAM**. See **BASSEEN**.

BACALA, a town of India, on this side of the Ganges, on the eastern coast in the kingdom of Arracan.

BACALAL, a lake and small country of North America, in the peninsula of Yucatan.

BACALAN, a town of Asia, in Tokarestan, one of the southern provinces of Great Bucharia, at a small distance N. W. from Anderab. N. lat. 36° 12'. E. long. 67° 35'.

BACALEO, **BACALIEU**, **BACCOLOM**, or **BACCOLAN**, an island on the east coast of Newfoundland, about nine leagues from cape St. Francis, and eight leagues north by east from Portugal cove, is about two leagues long, and half a league broad. This island is about a league from the main, with a fair channel between for any ships. N. lat. 48° 24'. W. long. 52° 34'.

BACAM, a town of North America, in New Navarre, 165 miles north-west of Cinaloa.

BACANO, a small lake of Italy, near a village of the same name, in the patrimony of St. Peter, out of which issues the small river **CREMERA**.

BACANORA, a town of North America, in New Navarre, 230 miles south of Casa Grand.

BACANTIBI, in *Ecclesiastical Antiquity*, wandering clerks, who strolled from church to church. Bingham.

The word seems formed by corruption from *vacantivi*.

BACAPA, in *Geography*, a town of North America, in New Navarre, 120 miles south-west of Casa Grand.

BACAR. See **BAHAR**.

BACARAT, or **BACCARAT**, a town of France, in the department of the Meurte, and chief place of a canton in the district of Luneville; four leagues south-east of Luneville. The place contains 1315, and the canton 14,759 inhabitants: the territory includes 315 kilometres and 31 communes.

BACARDO, a town of Italy, in the state of Genoa, three miles N. N. E. of Vintimiglia.

BACASERAY, or **BAKTSCHISARAY**, a town in the peninsula of the Crim-Tartary, where the khans usually resided, seventy miles south of Precop. It was partly burned by the Russians in 1736. N. lat. 45° 30'. E. long. 35° 10'.

BACAY, a town of India, on the other side of the Ganges,

Ganges, the capital of a country of the same name, on the eastern bank of the river Ava.

BACBAKIRI, in *Ornithology*, the name by which lemerle à plastron noir de Ceylon of Buffon, is known at the cape of Good Hope; because its note very clearly expresses the syllables *ba-ba-ki-ri*. This is the green-pye from Ceylon of Edwards; Ceylon thrush of Latham; and *turdus Zeylonus* of Linnæus.

BACCA, BERRY, in *Botany*, denotes such fruits as consist of a pericarpium full of juice and seeds, without any valves. The seeds have no membranous capsule or covering, but are disposed promiscuously throughout the pulp, as in solanum, &c. and are generally placed on foot-stalks attached to receptacles within the pulp, as in ribes, &c. The berry is said to be *proper* when it is a true pericarpium, formed of a germen; and *improper*, when it is formed from other parts of the fructification, as in morus, rosa, juniperus, taxus, &c. A large succulent calyx becomes a berry; in juniperus the three petals become the umbilicus; in poterium the berry is formed of the tube of the corolla; in fragaria, &c. it is formed of the top of the receptacle; in rubus, &c. it is formed from a seed, which is the receptacle of the berry; in rufcus, &c. it is inclosed within, and is part of the nectary. The berry is commonly either round or oval; and is frequently furnished with an umbilicus, as in ribes, &c. It does not naturally open to disperse the seeds like the capsule; that office being performed by birds and other animals.

BACCÆ *Bermudiansis*, in the *Materia Medica*, the name of the fruit or berries of the *sapindus*, or soap-berry-tree.

BACCAIÆ, in *Ancient Geography*, a town of Asia, in Syria, seated on a plain between the mountains and the river Orontes.

BACCALAN. in *Geography*, a small island in the Red Sea, on the coast of Arabia Felix, about 36 geographical miles N.W. of Loheia. It is inhabited by fishermen, and has no water in summer, which is then brought from Foshit.

BACCALARIA, in *Middle Age Writers*, denotes a kind of country farms, consisting of several manfes. Du-Cange.

BACCALARIA *Dominicaria*, or *Indominicata*, was more particularly used for a farm belonging to the lord, and kept in his own hands.

BACCANELLUS, JOHANNES, in *Biography*, a native of Rheggio, lived in the early part of the sixteenth century. He was deformed in body, and of a diminutive stature, but these defects were abundantly compensated by the powers of his mind, as Brassavolus testifies. We have of him the following works, which were much esteemed: "De consensu Medicorum in curandis morbis," lib. 4.; and "De consensu Medicorum in cognoscendis simplicibus Liber," Lut. 1554, Venet. 1555 and 1558, and Lugd. 1572, 12mo. containing a judicious abridgement of the opinions of the early Greek writers, on these subjects. Linden. Rediv. p. 524.

BACCARACH, or BACHARACH, in *Geography*, a town of Germany, in the Lower Palatinate, formerly imperial and free, afterwards subject to the elector palatine, who has contributed to its prosperity by allowing the Calvinists and Lutherans to establish their forms of worship there, under equal privileges with the Roman Catholics; now a town of France in the department of the Rhine and Moselle, and chief place of a canton, in the district of Simmerla, seated on the left bank of the Rhine, at the foot of a mountain called Vottfberg. The place contains 1237 and the canton 7204 inhabitants; the territory includes 12 communes. It is famous for its wines; whence it is supposed to have its name corrupted from "Bacchi ara," the altar of Bacchus. Baccarach was so completely pillaged by the troops of Louis XIV. in 1689, that

the French commander was obliged, on the night before he left the town, to sleep on straw, which was used next day for burning it; eight miles north of Deux Ponts, and twenty-three south of Coblentz. N. lat. 50° 2'. E. long. 7° 52'.

BACCARACH *Wine*, a name of a particular kind of wine, by some esteemed a kind of Rhenish; but Portzius, who has written expressly on the subject, observes that it differs from all the common Rhenish wine, in colour, odour, taste, and virtue.

BACCARUM, in *Entomology*, a species of ACARUS, found on gooseberries, currants, and other fruit-trees. The abdomen is distended, red, and dusky on the sides. Linn. Fn. Suec.

BACCARUM, a species of CIMEX, of a somewhat fulvous colour; margin of the abdomen spotted with brown. Degeer, Gmelin. Inhabits Europe.

BACCHÆ, in *Antiquity*, the priestesses of Bacchus, who celebrated the orgia, or mysteries of that god.

The word was also used for the ivy crowns and garlands worn by the priests of Bacchus, in offering sacrifices to him.

BACCHANALIA, religious feasts in honour of Bacchus, celebrated with much solemnity among the ancients, particularly the Athenians, who even computed their years by them, till the commencement of Olympiads.

The bacchanalia are sometimes also called orgia, derived, as some conceive, from the Greek *οργη*, *fury*; on account of the madness and enthusiasm wherewith the people appeared to be possessed at the time of their celebration.

They were held in autumn, and took their rise, according to Herodotus, from Egypt, where they were known under the name of the mysteries of Isis and Osiris; whence, according to Diodorus, they were brought into Greece by Melampus; and they afterwards passed into Italy and Gaul, and were adopted almost throughout the whole Pagan world.

The form and disposition of the solemnity depended, at Athens, on the archon, and was at first exceedingly simple; but, by degrees, it became incumbered with a number of ridiculous ceremonies, and attended with much dissoluteness and debauchery; insomuch that the Romans, who grew ashamed of them, suppressed them by a senatus-consultum throughout all Italy, A. U. C. 568. B. C. 186. It was a saying of Plato, recorded by Diogenes Laertius, (l. iii. Segm. 39.), that to drink to excess was not allowable, except upon the festival of that god who is the giver of wine.

The women had a great share in the solemnity, which is said to have been instituted on their account; for a great number of them attended Bacchus in his expedition to India, carrying in their hands the *thyrsus*, i. e. a little lance, covered with ivy and vine leaves, singing his victories and triumphs wherever they went; the ceremony was kept up after Bacchus's deification, under the title of Bacchanalia, and the women were installed priestesses thereof, under that of *Bacchæ* or *Bacchantes*.

These priestesses, at the time of the feast, ran through the streets, and over the mountains, covered with tiger's skins, their hair dishevelled, their thyrsus in one hand, and torches in the other, howling and shrieking *Ευοι σαῖσαι, ευοι Βακχæ, or Ιω Ιακχæ, or Ιω Βακχæ*.

Men and women met promiscuously at the feast, all perfectly naked, except only for the vine-leaves and clusters of grapes, which bound their heads and hips; here they danced and jumped tumultuously, and, with strange gesticulations, sung hymns to Bacchus, till, being weary and giddy, they tumbled down.

The licentiousness of these, and of some other festivals, was so well known, that it was the advice of wife men to married

married women to abstain from the feasts of Bacchus, and Ceres, and the mother of the gods. Hence that saying of Aristippus, mentioned by Sextus Empiricus, concerning a chaste woman, "That she will not be corrupted even at the Bacchanals;" intimating the great danger of those being vitiated that attended these festivals.

BACCHANALIA, *Bacchanals*, is also a name given to pictures, or basso-relievos, whereon the feast is represented, consisting chiefly of dancings, nudities, and the like. Of these basso-relievos, we have seven or eight in the "Monumenti inediti" of Winkelmann. They are also exhibited on a fine vase of agate, preserved in the abbey of St. Dennis in France.

There are antique bacchanals still seen on several ancient friezes. The bacchanals painted by Poussin are excellent.

In the Justinian garden at Rome, there is a marble vase of most precious workmanship, upon which is a representation of these orgies of Bacchus. The vase, from the beauty of its sculpture, is supposed to be by the hand of Saurus. The whole pomp of one of these processions is there admirably represented; in which are introduced Bacchus, the Bacchanals, the Mænades, the players on flutes, matrons and virgins, with the crotalum or cymbalum, and tympanum; fawns and satyrs, holding in their hands vases and cups; priests leading the victims destined for sacrifice, such as the boar, the he-goat, and the bull; and, lastly, old Silenus, drunk, upon his ass, which he is hardly able to guide. Burney's Hist. Mus. vol. i. p. 300.

Some writers call the Romish CARNAVAL, the *Christian Bacchanalia*.

BACCHARIS, in *Botany*, ploughman's spikenard. Lin. 949. Schreb. 1285. Gært. t. 166. Juss. 180. Clafs, *Syn-genesia polygamia superflua*. Nat. Ord. *Compositæ*. *Corymbifera* Juss. Gen. Char. Cal. common, cylindric, imbricate; scales linear, acute. Cor. compound; equal; corollules hermaphrodite and female mixed; proper to the hermaphrodite, funnel-form, five-cleft; to the females, scarcely apparent, almost none. Stam. filaments five, capillary, very small; anthers cylindric, tubular. Pist. germ ovate; style filiform, the length of the flower; stigma bifid. Per. unonc. Calyx unchanged. Seeds, solitary, very short, oblong; down simple. Rec. naked.

Eff. Gen. Char. Cal. imbricate, cylindric; florets female, mixed with hermaphrodites; down simple. Recept. naked. Obs. This genus scarcely differs from that of *Conyza*.

Species, 1. *B. ivaeifolia*, Peruvian ploughman's spikenard. Eupatorium Africanum, &c. Pluk. Phyt. t. 328 f. 2. "Leaves lanceolate, longitudinally tooth-ferrate." Five or six feet high. The female florets with a trifid corolla are very abundant. The hermaphrodites at the disk are few and five-cleft; scales of the calyx in a state of maturity spread very much; florets of the disk barren, of the ray fertile, subulate, scarcely toothed; recept. conical. A native of America. Cultivated at the Chelsea garden in 1696. 2. *B. nerifolia*, oleander-leaved ploughman's spikenard. "Leaves lanceolate, ferrate at the upper part with one or two toothlets." This rises, with a soft shrubby stalk, to the height of eight or ten feet. Flowers of an herbaceous colour, produced in spikes at the extremities of the branches. 3. *B. arborea*. "Leaves elliptic-lanceolate, quite entire, naked, petioled." About three feet high, with a trunk the thickness of the human arm. Leaves alternate, acute, rough; the terminal corymbs panicled. Observed in woods on the island of Johanna, by Koenig. 4. *B. balmifolia*, sea-purflane-leaved ploughman's spikenard, or ground-fel tree. "Leaves obovate, emarginate-crenate in the upper part." Stems shrubby, six feet high; leaves many,

like those of goose-foot, but stiffer, irregularly placed on the branches; flowers crowded, naked, at the ends of the twigs, not handsome, so that it is rather for the foliage of the plant, which continues green throughout the year, that it is usually cultivated. A native of North America. Cultivated by bishop Compton in 1688. 5. *B. Diofcoridis*. "Leaves broad, lanceolate, toothed, sessile, stipuled." Shrubby, six feet high; leaves alternate, half stem-clasping, deeply indented at the base, soft; panicles small; calyx shorter than the flower. It is wrongly named *Baccharis* of Diofcorides, see Supp. Plant. 367. A native of Egypt. 6. *B. indica*. "Leaves obovate, tooth-letted, petioled." Leaves smooth; branches with raised streaks; corymb large, terminating; peduncles angular, with subulate bractes; calyx cylindric, smooth. A native of Ceylon, and the cape of Good Hope. 7. *B. brasiliensis*. "Leaves obovate, entire, scabrous, sessile, veined underneath." Stem somewhat angular; leaves obtuse, almost quite entire; panicles nearly naked, with remote alternate flowers; down ferruginous. It differs from the *indica* in having stiffer, sessile, and scarcely toothed leaves, and its flowers larger, fewer, and more remote. A native of Brasil. 8. *B. fatida*. "Leaves lanceolate, ferrate-toothed, corymbs leafy." Six or seven feet high; leaves long, hoary on the under side, of a disagreeable smell when handled; corymbs terminal. A native of North America. Cultivated here in 1729. 9. *B. chinensis*. Lour. Coch. 494. "Leaves lanceolate, quite entire, tomentose beneath, stalked; peduncles many-flowered, axillary." An under-shrub, three feet high, erect, simple, round; leaves alternate, stalked; flowers yellow, oblong. A native of China, near Canton.

Propagation and Culture. Species 1. may be propagated by cuttings, planted in a shady border, during any of the summer months; or by seeds sown on a common border in the spring. If planted in a warm situation, it will live in mild winters in the open air; but it is usually kept in the green-house, and placed out in summer. It requires much water in warm weather. The second species is difficult to propagate, for the cuttings will seldom take root, and it rarely has shoots near the ground to lay down, so that in Holland they lay down the entire head of young plants, sitting the smaller branches, in the same manner as is practised for carnations, laying them into the ground, and forking each down to prevent their rising: these, when duly watered, will put out roots in one year, when they may be taken off, and planted in small pots filled with light earth, and placed in the shade till they have taken new root. In summer they ought to be kept in a sheltered situation, and in the green-house in winter. The fourth species may be propagated by cuttings planted in April or May, in a shady border, and if properly watered they will be fit for transplanting in the places where they are to remain at Michaelmas. The eighth species may be also propagated by cuttings, which in about two months take root, when they are to be potted and kept under a frame during the winter. The others are more tender and require the protection of a stove, but are little known in this country. See Martyn Miller's Dict.

BACCHARIS. See ATHANASIA, CHRYSOCOMA, CONYZA.

BACCHARIS was also the name of a sweet ointment among the ancients, so called perhaps from this herb's being a principal ingredient in it.

BACCHAROIDES. See CONYZA.

BACCHI, in *Mechanics*, a kind of ancient machines, in form of goats, used by Jupiter in his wars against the giants. Rudbeck describes two kinds of bacchi, one made like the battering-ram, wherewith Jupiter demolished the enemies' fortifications; the other contrived to cast fire out of, from whence

whence the Greeks are conjectured to have framed their idea of chimera.

BACCHIAS, and **ANTIBACCHIAS**, in *Ancient Geography*, the name of two islands in the Arabic gulf, according to Pliny. They are called by Ptolemy and Stephanus, *Bacchi* and *Antibacchi insule*.

BACCHIC, something relating to the ceremonies of Bacchus. The celebrated intaglio, called Michael Angelo's ring, is a representation of a Bacchic feast.

BACCHIC Song, is sometimes used for a *chanson à boire*, or composition to inspire jollity. But, in a more proper sense, it is restrained to a dithyrambic ode, or hymn.

BACCHICA, in *Botany*, sometimes used for *hedera* or *ivy*.

BACCHIGLIONE, in *Geography*, a river of Italy, in the state of Venice, which, after watering Vicenza and Padua, discharges itself into the gulf of Venice, near Chiozza.

BACCHINI, **BENEDICT**, in *Biography*, a learned monk, was born at Borgo San Donino, in the duchy of Parma, in the year 1651. At the age of sixteen he entered into the order of St. Benedict, in the monastery of Mount Cassin, and applied to his studies so intensely as to injure his health. After having travelled with Arcioni, abbot of the Benedictines at Ferrara, to whom he was secretary, he resigned his office, and settled at Parma. Here he published a literary journal, manifesting great learning and judgment; but it excited against him many enemies, who prevailed with the duke of Parma to banish him from his territory. Bacchini then retired to Modena, where he was patronised by the duke of Modena, and appointed his historiographer and librarian. The materials which he collected for investigating the genealogy and history of the house of Este, were transferred to his successor Muratori, upon his removal to the abbacy of the Benedictines of Modena. In 1705, he founded at Modena an academy of ecclesiastical literature. His last preferment was that of professor of ecclesiastical history in the university of Bologna, where he died at the age of seventy, in the year 1721. Bacchini was one of the most celebrated scholars of his age, distinguished by his universal learning, refined taste, theological skill, and ecclesiastical philology; to all which he added in early life eloquence as a preacher; and in more mature years critical acumen, and eminent skill in decyphering manuscripts. Besides his literary journal, commenced at Parma in 1686, and continued to 1690, resumed at Modena from 1692 to 1697, and extant in nine volumes 4to.; he wrote in Italian "The History of the Benedictine Monastery of Polirone;" and in Latin, "De Sistrorum Figuris ac Differentiis," 4to. Bononiæ, 1691, and reprinted at Utrecht, 4to. 1696, with notes by Tollius; "De Ecclesiasticæ Hierarchiæ Originibus," 4to. Modenæ, 1703; and some other small pieces. *Nouv. Dict. Histôr. Gen. Biog.*

BACCHIS, in *Ancient Geography*, a town of Egypt, near the lake Mæris. Ptolemy.

BACCHIUM, an island of the Ægean sea, opposite to Phocæa, at the entrance of the gulf of Smyrna. The temples and statues with which it was richly adorned, were ransacked by the Romans.

BACCHIUS, in the *Latin Poetry*, a kind of foot, consisting of three syllables; whereof the first is short, and the two latter long; as *egēsās*.

The bacchus is the reverse of a dactyl, and takes its name from that of Bacchus, because frequently used in the hymns composed in his honour. It was also called among the ancients, *anotrius*, *tripodius*, *saltans*; and by the Greeks, *πατριμωρος*.

BACCHIUS SENIOR, in *Biography*, one of the seven Greek writers in music, collected and published with a Latin translation and notes, by Meibomius, in 1652, is supposed

to have flourished about the time of Ptolemy, that is, in the second century. His "Introduction to the Art of Music," is a dialogue; in the course of which all the terms used in the ancient Greek music are to be defined, and explained in Greek characters of notation.

Bacchius is the only one of these seven ancient musical writers, who, like Ptolemy, allows of no more than seven modes. See **MODES**. On the subject of rhythm, he quotes Aristoxenus, Nicomachus, Leophantus, and Didymus; so that it is certain he wrote subsequent to all those authors.

BACCHUS, in *Entomology*, a large species of **SCARABÆUS**, that inhabits the Cape of Good Hope. The shield of the head is four-toothed; thorax gibbous, and with the wing-cases glabrous. Fabricius.

BACCHUS, a species of **CURCULIO** that inhabits Europe. It is coppery, with the snout and ends of the feet black. Fabricius, &c.

BACCHUS, a species of **MONOCULUS**, with an orbicular shell: antennæ extended horizontally; tail denticulated on each side. Müller entomotr. Inhabits rivers.

BACCHUS, in *Mythology*, a name synonymous among the Phœnicians with "mourning," and supposed to be derived from the Phœnician term *bakab*, to weep, and given to several deities, or rather to the same god, acknowledged under various distinct epithets and characters in the different countries where he was worshipped. In Egypt, he was called *Osiris*; in Arabia, *Adoneus*; in Mysia, *Phanaces*; in India, *Dionysus*, or *Dionusus*; by the Lucanians, *Pentheus*; throughout the Roman dominions, *Liber*, &c. &c. The reasons assigned for these different appellations, by which the same god was distinguished, are stated by Banier in the second volume of his "Mythology." It is natural to suppose that the Greeks and Romans, in their usual manner, bestowed upon the one Bacchus whom they worshipped, the several actions and attributes of the many divinities known by that name, and by other equivalent denominations in different countries. Cicero (*de Nat. Deor.* iii. 23.) mentions five divinities known by the name of Bacchus, and thus adds two to the three of Diodorus Siculus and Philostratus. Antiquity, however, has chiefly distinguished two gods, under the title of Bacchus; that of Egypt, the son of Ammon, and the same with Osiris; and that of the Greeks, or of Thebes in Bœotia, the son of Jupiter and Semelé. The Bacchus of Egypt was the Dionysus of the Arabians, so called from the city of Nyssa in Arabia Felix, where he was brought up, and worshipped by them in consequence of the glory he had acquired by leading his army into India. (See **DIONYSUS**.) According to sir Isaac Newton (*Chron. apud Op. vol. v. p. 77—80.*), this great Bacchus, whom the Arabians so denominated from a word which in their language signified "great," was the same with Sefac or Sefostris, who became king of Egypt in the reign of Solomon. (*1 Kings xi. 40*) See **SESAC**, and **SESOSTRIS**.

All agree (says this author) that Bacchus was the same king of Egypt with Osiris (see **OSIRIS**); and he supposes that the Cælus, or Uranus, or Jupiter Uranus, of the Arabians, the other god besides Dionysus whom they worshipped, was the same king of Egypt with Ammon, the father of Bacchus, according to the poet:

"Quamvis Æthiopum populis, Arabumque beatis
Gentibus, atque Indis unus sit Jupiter Ammon."

(See **AMMON**.) Sir Isaac Newton adds, that when Ariadne, the daughter of Minos, was deserted by Theseus in the island Naxos or Dia, and taken up by Glaucus, an Egyptian commander at sea, she became the mistress of the great Bacchus, who was at that time returning from India in

triumph; and by him she had two sons, Phlyas and Eumedon, who were Argonauts. This Bacchus was caught in bed in Phrygia with Venus, the mother of Æneas, according to Homer (Odys. l. viii. v. 292.), just before he came over the Hellespont and invaded Thrace; and he married Ariadne, the daughter of Minos, according to Hesiod (Theogon. v. 947.); and therefore, by the testimony of both Homer and Hesiod, who wrote before the Greeks and Egyptians corrupted their antiquities, this Bacchus was one generation older than the Argonauts; and so being king of Egypt at the same time with Sesostris, they must be one and the same king. They also agree in their actions: Bacchus invaded India and Greece; and after he was routed by the army of Perseus, and the war was composed, the Greeks did him great honours, and built a temple to him at Argos, and called it the temple of the Ctesian Bacchus, because, as Pausanias relates (l. 2. c. 23.), Ariadne was buried in it.

The distinctive character of this Indian Bacchus was a long beard, whence he was denominated "the bearded Bacchus," or *Καλὸς πικύων*. Some have supposed that there was another Bacchus peculiar to Egypt, and the most ancient of all; and, indeed, Diodorus Siculus seems to warrant this opinion, by mentioning three different deities under this appellation. Accordingly, Bochart (Geog. Sac. l. 1. c. 18. apud Op. t. i. col. 439, &c.) suggests, that Bacchus was the same with Nimrod the father of Ninus; and he supposes that the worship of this deity originated in Assyria, and from thence was transmitted to the Syrians and Phœnicians; and that it was communicated by the Phœnicians to the Greeks. Many of his names, attributes, and actions bear an obvious allusion to the scripture history, and are most satisfactorily elucidated by it. Amongst those who have referred the origin of Bacchus, and the worship that was performed in honour of him, to the earliest antiquity, and very nearly to the dispersion at Babel, we may mention the learned Mr. Bryant, who discovers in the history of the exploits of this illustrious person, references to the migration of the Cuthite colonies, or of the sons of Chus, who, upon the dispersion, partly betook themselves eastward to the Indus and Ganges, and partly passed into Egypt. See CUTHITES, and DISPERSION.

The Theban Bacchus, or Grecian Bacchus, is particularly distinguished by Diodorus Siculus, l. iii. This historian informs us, that Orpheus first deified the son of Semelé by the name of Bacchus, and that he appointed his ceremonies in Greece, in order to render the family of Cadmus, the grandfather of the Grecian Bacchus, illustrious. Semelé, it is said, was struck with lightning at the very instant of her son's birth; and the child was probably denominated Bacchus, from the grief which this melancholy accident might have occasioned in the family. Cadmus, with a view of concealing his daughter's dishonour, conveyed away his infant grandson, as it should seem, to some of his relations in Phœniæ, or Egypt. After having been there instructed in the mysteries of Isis and Osiris, and initiated in all the magical or juggling tricks of the Egyptian priests and hierophants, and having attained the maturity of age, he returned to Thebes with the traditional retinue of the original deity of the same name, and claimed divine honours; which, after some opposition, were allowed him. To this Grecian Bacchus the actions of Osiris were ascribed, together with a variety of absurd and disgraceful adventures in which his prototype had no concern. Hence the Theban Bacchus became a monster of licentiousness and debauchery; whereas the Egyptian was of a very contrary character. Of course the mysteries of the former were attended with the most shocking abominations. See BACCHANALIA.

According to the account of Diodorus Siculus (l. iii. p. 207.) there was no nation upon earth, neither Græcian nor foreign, that was not indebted to this deity for some mark of his munificence and favour. He taught the people to plant the vine, and to preserve the juice of the grape, and to lay up the fruits of the earth in proper repositories. Those who possessed an harsh and ungenial soil, not adapted to the cultivation of the vine, were shewn the art of making a drink from barley, not less grateful than that which proceeded from the grape. He adds (l. iv. p. 210), that the person, from whom these blessings were derived, is represented of the highest antiquity, and the greatest benefactor ever known by mankind. Such is also the history given of Osiris, under which character, says Bryant (Anc. Myth. vol. iii. p. 445.), we are to understand a people who went forth and performed all that has been mentioned. Their religion consisted in the worship of the sun under various titles; accordingly however Dionysus or Bacchus may be diversified by various names or titles, all of them, as this learned writer imagines, with regard to worship, relate ultimately to the sun. Such was also the opinion of Selden (De Diis Syris, p. 77.) To this worship were added, by the ancient people to whom Bryant refers, divine honours paid to their ancestors, the Baalim of the first ages: all which were attended with particular mysterious rites, in which were commemorated the circumstances of the deluge, and the history of the great patriarch by whom mankind was preserved. Bacchus was esteemed one of the founders of medicine.

Diodorus Siculus further informs us, that it was Bacchus, the son of Semelé, who invented farces and theatres, and who first established a music school, exempting from all military functions such musicians as discovered great abilities in their art; on which account, says the same author, musicians formed into companies have since frequently enjoyed great privileges.

Dr. Burney (Hist. Music, vol. i. p. 298.) observes, that the dithyrambics, which gave birth to dramatic representations, are as ancient as the worship of Bacchus in Greece; and there is little doubt but that the ceremonies of his mysteries gave rise to the pomp and illusions of the theatre. Many of the most splendid exhibitions upon the stage for the entertainment of the people at Athens and Rome being performed upon the festivals of Bacchus, gave occasion to the calling all those that were employed in them, whether for singing, dancing, or reciting, "servants of Bacchus." Pausanias, in his Attics (p. 7. ed. Kuhnii), speaks of a place at Athens consecrated to Bacchus the *singer*; thus named, he says, for the same reason as Apollo is called the chief and conductor of the Muses. Whence it should seem, says Burney (ubi supra), "that Bacchus was regarded by the Athenians not only as the god of wine, but of song; and it must be owned, that his followers, in their cups, have been much inclined to singing ever since. Indeed, we are certain, that in none of the orgies, processions, triumphs, and festivals, instituted by the ancients to the honour and memory of this prince of *bons vivans*, music was forgotten, as may be still gathered from ancient sculpture, where we find not only that musicians, male and female, regaled him with the lyre, the flute, and with song; but that he was accompanied by fawns and satyrs playing upon timbrels, cymbals, bagpipes, and horns; the Suidas calls his minstrels; and Strabo gives them the appellations of Bacchi, Sileni, Satyri, Bacchæ, Linæ, Thyæ, Mamillones, Naiades, Nymphæ, and Tityri. These representations have furnished subjects for the finest remains of ancient sculpture; and the most voluptuous passages of ancient poetry are descriptions of the orgies and festivals of Bacchus.

Nonnus,

Nonnus, an Egyptian of Pentapolis, who lived in the fifth century, has collected all the fabulous adventures of Bacchus, and exhibited them in a beautiful, but irregular, poem, under the title of "Dionysiaca." See **DIONYSIACA**, and **NONNUS**.

The Grecian Bacchus, the god of wine and song, is usually represented under the figure of a jolly beardless youth, crowned with ivy (that plant, as it is said, being reputed an antidote to the intoxicating effects of wine), and also vine-leaves; bearing in one hand a spear of thyrsus, wrapped with the same, and in the other, grapes, a cup or a horn for drinking; and drawn on a car by tigers and panthers. He is sometimes exhibited with a mitre on the head, or a kind of band or fillet raised in front, and falling back over the shoulders, and with his temples ornamented by horns. These horns originated from the relation he sustained to the fun, whose rays were thus represented. On the Greek medals, Bacchus is known by his crown of ivy or vine, his diadem and horn, with a tiger and satyrs around him.

BACCHUS, in *Experimental Philosophy*, is the name of a small brass apparatus (*Pneumatics*, Pl. IX. fig. 73.) seated on a cask, with a tube proceeding from the mouth to the barrel; this is filled with red wine, or coloured water, so that being put under a receiver, when the air is exhausted, the liquor is thrown up into his mouth, by the expansion of confined air, and the rosy god seems to be at his usual employment; while he is drinking, his belly expands, which is effected by a bladder, containing a small quantity of air, concealed under his shirt.

BACCHYLIDES, in *Biography*, a celebrated Greek lyric poet, the nephew of Simonides, was a native of the island of Ceos, and flourished in the 82d olympiad, B. C. 452. He is reckoned the last of the nine lyric poets of ancient Greece. The purity of his style, the correctness of his manner, and the regular and connected beauties of his work (See Longin. de Sublim. c. 33.), obtained for him an applause of which Pindar might have been jealous. These two poets divided, for some time, the favour of king Hiero, and the suffrages of his courtiers; but when the royal patronage no longer prevented each from taking his true place, Pindar soared to the skies, and Bacchylides remained on earth. The compositions of Bacchylides consisted of hymns, odes, and epigrams, which abounded in moral sentiment; so that the emperor Julian, according to Ammianus Marcellinus, was so much delighted with them, that he was frequently accustomed to repeat his verses. Horace is said sometimes to have imitated him in some of his pieces, particularly in the prophecy of Nereus, which was suggested by the Greek poet's vaticination of Cassandra. Some fragments only of Bacchylides now remain. *Anacharsis*, vol. vi. p. 342.

BACCHYLUS, a Christian divine, was bishop of Corinth in the second century. He is mentioned by Eusebius, with Polycrates bishop of Antioch, and others, who had left testimonies of the orthodoxy of their faith in writing. He afterwards speaks of a letter written by Bacchylus, about the time of celebrating Easter. Jerome, in his Catalogue, says, that Bacchylus, bishop of Corinth, who flourished in the time of the emperor Severus, wrote an elegant book about Easter, in the name of all the bishops of Achaia. His works are lost. Euseb. H. E. l. v. c. 22, 23. p. 190. Hieron. de Vir. Illustr. c. 44. Lardner's Works, vol. ii. p. 305.

BACCIFEROUS PLANTS, in *Botany*, are such as bear berries, i. e. fruit, covered with a thin membrane, wherein is contained a pulp, which grows soft and moist when ripe, and incloses the seed within its substance. The bacciferous trees Mr. Ray divides into four kinds: 1. Such as bear a

caliculate, or naked berry, the flower and calyx both falling off together, and leaving the berry bare, as the fassafra tree, &c. 2. Such as have a naked monopyrenous fruit, that is, containing in it only one seed; as the arbutus, the terebinthus, lentiscus, &c. 3. Such as have a naked, but a polypyrenous fruit, that is, containing two or more kernels or seeds within it, as the jasminum, ligustrum, &c. 4. Such as have their fruit composed of many alciui or round soft balls, set close together, like a bunch of grapes: as the uva marina, the rubus vulgaris, rubus Ideus, and the rubus minor fructu cæruleo.

BACCINIUM, or **BACCINA**, in *Antiquity*, a basin or vessel to hold water to wash the hands. The holding the basin, or waiting at the basin, on the day of the king's coronation, was an ancient tenure in serjeantry. Lib. Rub. Scaccar. f. 137.

BACCICI, or **BACICI**, in *Biography*. See **GAULI**.
BACCIO, **FRA. BARTOLOMEO**, called *Barteleme di S. Marco*, a painter of history and portrait, was born at Savignane, near Florence, in 1469, and became a disciple of Cosimo Roselli; but derived his principal knowledge in the art of painting from Leonardo da Vinci. He understood the true principles of design better than most masters of his time, and was also a considerable painter in perspective; so that he directed the studies of Raphael with regard to the art of managing and uniting colours, as well as the rules of perspective. Some years after Raphael left Florence, Baccio visited Rome; and by the observations he made on the antiques, and the works of Raphael, he made great improvement, which was manifested in his picture of St. Sebastian. This picture, which he finished after his return to Florence, was so well designed, so naturally and beautifully coloured, and had also such an expression of pain and agony, that it was removed from public view in the chapel of the convent, because it made too strong an impression on the imaginations of many women who beheld it. He was very laborious, and studied nature; he designed the naked correctly; his figures had much grace, and his colouring was admirable. To him is ascribed the first invention of the machine called by the artists a layman, and at this day generally used. Upon this he placed his draperies, for the purpose of more accurately observing their natural and their more elegant folds. A capital picture of the Ascension by Baccio is in the Florentine Collection. He died in 1517. Pilkington.

BACCIUS, **ANDREW**, a native of Ancona, practised medicine at Rome, towards the end of the 16th century. He was physician to Cardinal Afcanio Columna, and afterwards to pope Sixtus the fifth. A man of indefatigable industry, and of great genius and learning, as his numerous publications testify. The principal of them "De Thermis, Lacubus, Fluminibus, et Balneis totius Orbis," lib. vii. was first printed at Venice, 1571; again 1588; then at Rome, 1622; at Padua, 1711, folio. The last edition is augmented with an eighth book, containing analyses of the different mineral waters, with observations extracted from other writers on the subject. We have also of this author, treatises, "De Venenis, et de Antidotis," 4to. Rome, 1586; "De Dignitate Theriacæ," also 4to. Patavii, 1583; "De Naturali Vinorum Historia, de Vinis Italiæ, et de Conviviis Antiquorum," fol. Rome, 1596; "De Gemmis et Lapidibus prætiosis, de eorum viribus et usu," 12mo. Franci. 1603, and 1643; with various other works. Haller Bib. Med. Pract. p. 157.

BACCOFOE, in *Botany*, the name of a fruit very common in Guinea. It is like the banana, except that it is whiter, thicker, and shorter. The taste and smell are both very agreeable; and some pretend, that on cutting it through transversely,

transversely, there is the figure of a crucifix on each side of it. Phil. Transf. N° 108.

BACH, SEBASTIAN, in *Biography*. The illustrious family of Bach has produced more great musicians, than any other single family in Germany, or, perhaps, in Europe; as previous to the great eminence to which Sebastian had arrived, early in the last century, his family, according to Walther, had distinguished itself in the profession of music, particularly in organ-playing, for four generations. Innumerable are the stories still circulating in Germany, of Sebastian Bach's conflicts and triumphs over great competitors, till at length, like a courser often victorious, his form was so high, as to discourage all competition. He was as superior to all organ-players on the continent, as Handel was in England. The performances and compositions of these two great musicians, not only surpassed those of all their contemporaries, but established a style of playing and writing for the organ, which is still respected and imitated by the greatest organists in Germany, where men of superior abilities have always abounded, and been celebrated, not only for treating the manuals, but the pedals of that noble instrument.

Sebastian Bach is said by Marpurge, in his "Art de la Fugue," to have been "many great musicians in one, profound in science, fertile in fancy, and in taste easy and natural;" he should rather have said, original and refined, for to the epithets easy and natural many are unwilling to assent; as this truly great man seems by his works for the organ, to have been constantly in search of what was new and difficult, without the least attention to nature and facility.

Old Kirkman, the harpsichord maker, used to relate the extraordinary curiosity excited at Salzburg, when Handel and Sebastian Bach happened to meet in that city. On their going together to the cathedral, they found it so full that they could scarcely get to the organ-loft; and when one of them opened the organ, it was not possible for more persons to crowd into the church. But so great was the fame of these performers, that those who could not gain admission into the interior of the building, procured ladders, and placed them at the windows, in order to gratify their ears with all the passages which the full organ could convey to them through all impediments.

Of *Sebastian Bach*, who was successively cantor, organist, and music-director, at Leipzig, all the musical writers of Germany for these last sixty years, have borne testimony to the abilities. Quantz in his "Art of Playing the Flute," written during the life of Bach, says, that this admirable musician had brought organ playing to the highest degree of perfection.

The challenge which he received and accepted, from the celebrated French organist Marchand, at Dresden, is well known in Germany. Upon the arrival of Marchand in that city, after he had vanquished all the organists of France and Italy, he offered to play extempore with any German whom the king of Poland could prevail upon to enter the lists against him; no one at Dresden had the courage to encounter so successful a champion; but an express being sent to Sebastian Bach, who was at that time a young man, and residing at Weimar, he came away immediately, and, like another David, vanquished this Goliath. It must not, however, be concluded from this defeat, that Marchand was a mean performer; if that had been the case, the victory over him would have added nothing to the fame of his competitor. It was an honour to Pompey that he was conquered by Cæsar, and to Marchand to be only vanquished by Bach.

This was the Bach whom the learned editor of the Latin Thesaurus, John Matthias Gefner, has celebrated in his notes on Quintilian, i. xii. p. 61. where the ancient citharæ-

dists are extolled for the use they made of their feet as well as their hands (perhaps merely to beat time) in their performance. The critic addressing himself to the shade of Quintilian, exclaims; "you will think but slightly, my dear Fabius, of all those exertions of the citharædist, if you could revisit the world, and attend the exhibitions of Bach, one of my colleagues in the university of Leipzig; who, when at the great organ, while every finger of both hands is engaged at the manuals, his feet are running over the pedals with a skill and velocity which several of your citharædist with 500 tibicinists could not emulate; nor is his dexterity inferior in directing a band of thirty or forty performers, all employed at once; correcting the time of one by his nod, of another by his foot, and of a third by holding up a threatening finger; giving the right note to one from the top of his voice, to another from the bottom, and to a third from the middle of it; if you could have seen him amidst the very powerful sounds with which he was surrounded, performing a very difficult part himself, yet marking whence proceeded the least discordance, and aiding those that erred; favourer as I am of antiquity, the exertions of our Bach appear to me to effect what not many Orpheuses, nor twenty Arions, could achieve."—"Maximus alioquin antiquitatis fautor, multos unum Orpheas et viginti Arionas complexum Bachum meum, et si quis illi similis sit forte, arbitror." Sebastian Bach died at Leipzig in 1754.

BACH, *Wilhelm Friedemann*, the eldest son of the immortal Sebastian Bach, usually called Bach of Halle, where he resided a considerable time; but he was born at Weimar, in 1710. He soon rendered himself worthy of the instructions which he received from his father, by his abilities on the organ and harpsichord, and in composition. He likewise became a great proficient on the violin by the instructions of the younger Graun. With equal industry he applied to mathematics and other sciences, and even studied the law at the university of Leipzig. He was a short time Maestro di Cappella in Hesse Darmstadt. In 1733, he received an invitation to Dresden as organist. Here he continued the study of mathematics and principally that of Algebra. In 1747, he obtained a place as director of the band and organist at Halle, which he quitted in 1767, and resided some time at Leipzig. After that he removed to Brunswick and Gottingen as a public teacher. At length he went to Berlin, where he remained the rest of his life, with the title of Maestro di Cappella, but without any appointment, and died in June 1784.

Though this profound musician was unanimously allowed to be the greatest organ-player, fughst, and theorist which Germany has ever produced, as well as a first-rate mathematician; yet with all his talents, learning, and science, the works which he published were never very successful: for during the last seventeen years of his life he was obliged to drudge as a common music-master from door to door, teaching children their A B C. The style of his father, which he had religiously followed, was daily declining and losing its favour, while he stubbornly adhered to that alone, without giving way to what some call the refinements, and others the corruptions of music.

BACH, *Charles Philip Emanuel*, son of Sebastian, resided many years at Berlin, in the service of Frederic II. king of Prussia: he was afterwards music director at Hamburg, and long regarded as the greatest composer and performer on keyed instruments of his time; he was certainly the founder of the present style of composition for the piano-forte, as his father and Handel had been for that of the organ. It was observed by Abel, that if Sebastian Bach and his admirable son Emanuel, instead of being music-

music-directors in commercial cities, had been fortunately employed to compose for the stage and public of great capitals, such as Naples, Paris, or London, and for performers of the first class, they would doubtless have simplified their style more to the level of their judges; the one would have sacrificed all unmeaning art and contrivance, and the other have been less fantastical and *recherché*; and both, by writing in a style more popular, and generally intelligible and pleasing, would have extended their fame, and been indisputably the greatest musicians of the eighteenth century.

Emanuel Bach, in his life, written at our request by himself, has some excellent reflections on his own style, which he formed and polished by hearing the greatest performers, vocal and instrumental, of his youth, who visited his father, or were employed in the theatre at Berlin. When the critics, says he, are disposed to judge impartially, which seldom happens, they are frequently too severe on works that come under their lash, from not knowing the circumstances that gave them birth, or remembering the author's original intention. But how seldom are critics found to possess feeling, science, probity, and courage; qualities without which no one should set up for a sovereign judge. It is a melancholy truth, that musical criticism, which ought to be useful to the art, is in Germany a trade, commonly carried on by dry, malignant, and stupid writers. He then declares that of all his works, those for the clavi-chord or piano-forte are the chief in which he has indulged his own feelings and ideas. His principal wish has been to play and compose in the most vocal manner possible, notwithstanding the great defect of all keyed instruments, except the organ, in not sustaining their tone. But to make a harpsichord or piano-forte sing, is not easily accomplished; as the ear must not be tired by too thin a harmony, nor flun- ned by too full an accompaniment. In his opinion, music ought to touch the heart, and he never found that this could not be effected by running, rattling, drumming, or arpeggios.

If Haydn ever looked up to any great master as a model, it seems to have been C. P. E. Bach: the bold modulation, rests, pauses, and free use of semitones, and unexpected flights of Haydn, remind us frequently of Bach's early works more than of any other composer. But in writing for violins, he has surpassed his model in facility and invention; freaks, whim, and even buffoonery, appear natural to Haydn, which in the works of his imitators seem downright caprice and affectation. E. M. Bach used to be censured for his extraneous modulation, crudities, and difficulties; but, like the hard words of Dr. Johnson, to which the public by degrees became reconciled, every German composer takes the same liberties now as Bach, and every English writer uses Johnson's language with impunity. Emanuel Bach died at Hamburg, 1788, at near eighty years of age.

BACH, *John Christian*, arrived in England 1763, during the opera regency of the admirable female singer and actresses, Colomba Mattei, who had engaged him as composer of the serious opera. He was the youngest son of Sebastian Bach, and had been a considerable time in Italy, where he added new lustre to his name and family by his dramatic productions, and had been appointed by the empress queen organist of the Duomo at Milan.

On his arrival here, he was extremely mortified to find that he had no better singers to write for than Ciardini and the Cremonini, two performers hardly worthy to be ranked in the second class; and for some time he totally declined composing for our stage, being unwilling, as a stranger, to trust his reputation to such performers. But, at length,

having heard the De Amicis sing two or three serious songs in private, it suggested to him the idea of giving her the first woman's part in his serious opera; and having communicated his design to Mattei the impresaria, matters were soon arranged, and the De Amicis, who afterwards held the first rank among female singers in the serious operas of Naples and other great cities of Italy, was now first taken from the comic opera, and invested with the character of principal woman in the serious. And during the rest of the season, on Tuesday nights, she delighted the town as the representative of Thalia, and on Saturdays as that of Melpomene.

John Christian Bach's first opera in England, called *Orione, o sia Diana vendicata*, was honoured with the presence of their Majesties on the first night, February the 19th, 1763, and extremely applauded by a very numerous audience. Every judge of music perceived the emanations of genius throughout the whole performance; but were chiefly struck with the richness of the harmony, the ingenious texture of the parts, and above all with the new and happy use he had made of wind-instruments; this being the first time that clarinets had obtained admission in our opera orchestra. Their Majesties honoured the second representation likewise with their presence, and no other serious opera was wanting for near three months. *Zanàida*, however, a second serious opera by this composer, was brought out in May, which ran more than a month, when the season closed.

The principal songs of these two operas, though excellent, being calculated to display the compass of voice and delicate and difficult expression and execution of De Amicis, were not likely to become common or of much use out of the opera house. The rest of the airs were so indifferently sung, that they were more admired as instrumental pieces, than compositions for the voice. But this excellent master soon convinced us that he possessed every requisite for a great musician, by the songs he afterwards composed in every style of good singing; by his symphonies, quartets, and concertos for almost every species of instrument, as well as by his expressive and masterly performance on the piano-forte. It is with pleasure that we take this opportunity of doing justice to the talents and abilities of a man who improved our taste both in composition and performance. Having very early in life been deprived of the instructions of his father, the great Sebastian Bach, he was for some time a scholar of his elder brother, the celebrated Charles Phil. Emanuel Bach, under whom he became a fine performer on keyed-instruments; but on quitting him and going to Italy, where his chief study was the composition of vocal music, he assured us, that during many years he made little use of a harpsichord or piano-forte but to compose for or accompany a voice. When he arrived in England, his style of playing was so much admired, that he recovered many of the losses his hand had sustained by disuse, and by being constantly cramped and crippled with a pen; but he never was able to reinstate it with force and readiness sufficient for great difficulties; and in general his compositions for the piano-forte are such as ladies can execute with little trouble; and the allegros rather resemble bravura songs, than instrumental pieces for the display of great execution. On which account, they lose much of their effect when played without the accompaniments, which are admirable, and so masterly and interesting to an audience, that want of hand, or complication in the harpsichord part is never discovered.

There are many admirable airs in the operas he composed for our stage that long remained in favour. The richness of the accompaniments perhaps deserve more praise than the originality of the melodies; which, however, are always natural, elegant, and in the best taste of Italy at the time

he came over. The Neapolitan school where he studied, is manifest in his cantilena, and the science of his father and brother in his harmony. The operas of this master are the first in which Dacapo disappeared, and which, about this time, began to be generally discontinued: the second part being incorporated with the first, to which, after modulating into the fifth of the key, the finger generally returns.

Bach seems to have been the first composer who observed the law of *contrast* as a *principle*. Before his time, contrast there frequently was, in the works of others; but it seems to have been accidental. Each in his symphonies and other instrumental pieces, as well as his songs seldom failed, after a rapid and noisy passage, to introduce one that was slow and soothing. His symphonies seem infinitely more original than either his songs or harpsichord pieces, of which the harmony, mixture of wind-instruments, and general richness and variety of accompaniment, are certainly the most prominent features. In the sonatas and concertos which he composed for his own playing, when his hand was feeble, or likely to tire, he diverted the attention of the audience to some other instrument; and he had Abel, Fischer, Cramer, Crofdil, Cerveto, and other excellent musicians to write for, and take his part, whenever he wanted support.

In 1765, he new set Metastasio's *Adriano in Siria*, in the performance of which the rich, powerful, and mellifluous voice of Manzoli was assigned the principal part. The expectations of the public the first night this drama was performed, occasioned such a crowd at the King's theatre as had been seldom seen there before. It was impossible for a third part of the company collected together on this occasion to obtain places. But whether from heat or inconvenience, the unreasonableness of expectation, the composer being out of fancy, or too anxious to please, the opera failed. Every one seemed to come out of the theatre disappointed, and the drama was performed but two or three times. This seemed matter of great triumph to the Italians, who began to be jealous of the Germanic body of musicians at this time in the kingdom. The songs were printed by the elder Welcker, and many of them sung afterwards at concerts with great applause, and found, as detached airs, excellent, though they had been unfortunate in their totality.

Soon after his arrival in England, J. C. Bach and his countryman Abel uniting interests, opened a subscription for a weekly concert; and as their own compositions were new and excellent, and the best performers of all kinds which our capital could supply enlisted under their banners, this concert was better patronised and longer supported than perhaps any one had ever been in this country; having continued for full twenty years with uninterrupted prosperity. Bach had not been long in London before he had the honour of being appointed chamber-musician and music-master to her majesty; and his merit seems to have been constantly well understood and royally patronized at St. James's to the end of his life, which he terminated, after a short illness, in 1782. And having much more genius than worldly prudence, he left his widow Mrs. Bach (formerly the signora *Graffi*, first woman at the opera during the run of Gluck's *Orfeo*) in very indigent circumstances; but her majesty finding that she wished to return to her own country, settled a pension upon her to enable her to end her days there in ease and comfort.

BACH, in *Geography*. See BATHA.

BACHA, in *Ornithology*, a species of *FALCO* figured in the fifteenth plate of Le Vaillant's work on the birds of Africa. It is about the size of that kind of falcon which we call the common buzzard; and it naturally belongs to that tribe of rapacious birds. The prevailing colour is a very deep brown, with the lower parts of the body and belly

spotted with white, and a large band of the same white colour disposed transversely upon the tail. On the back of the head is a tuft of white feathers, with black tips, that forms a crest; the beak and legs are yellow. The plumage of the female is varied with whitish and yellow.

This is a solitary and ferocious creature; and its chief haunts are the barren mountainous parts of South America. It utters a piercing cry, which as it rebounds among the rocks is truly lamentable. The rapidity of this bird in flight is remarkable; and its patience when waiting for its prey is no less deserving mention; it will remain for hours together in one posture, and be during that time so completely immoveable as to be mistaken for a point of the rock on which it rests; but the moment a lizard or any other reptile appears on which it feeds, it darts down upon it with the greatest velocity. These birds build their nests in the craggy hollows of the rock; and the female lays two, or at most three, eggs at a time.

BACHAASH, in *Geography*, a small island among the western islands of Scotland, near the north-east coast of North Vist.

BACHELERI, LA, a town of France, in the department of the Dordogne, and chief place of a canton, in the district of Martignac; four leagues north of Sarlat.

BACHELOR, or BATCHELOR, BACCALAUREUS, in *Middle Age Writers*, was a denomination given to those who had attained to knighthood, but were not rich enough, or had not a sufficient number of vassals, to have their banner carried before them in battle; or, if they were of the order of bannerets, were not yet of age to display their own banner, but obliged to march to war under the banner of another.

Camden and others define bachelor, a person of a middle degree between a knight and an esquire, of less age and standing than the former, but superior to the latter.

Others will have bachelor to have been a common name for all degrees between a mere gentleman and a baron.—Thus we find the lord admiral, when he was neither an earl nor baron, denominated a bachelor.—“Ant it is too weet, that when the admiral rideth to assemble a shippe of war, or other, for the business and affairs of the realm, if he be a bachelor, he shall take for his day-wages four shillings sterling; if he be an earl or baron he shall take wages after his estate and degree.”

BACHELOR was more peculiarly a title given to a young cavalier who made his first campaign, and received the military girdle accordingly.

BACHELOR was also a denomination given to him who had overcome another in a tournament, the first time he ever engaged.

BACHELORS, *Knights*, in *Heraldry*. See KNIGHTS Bachelors.

BACHELORS is also used in a college sense, to denote a person possessed of the *baccalaureate*, which is the first degree in the liberal arts or sciences.

The degree of bachelor was first introduced in the thirteenth century by pope Gregory IX. but it remains still unknown in Italy. At Oxford, before a person is entitled to the degree of bachelor of arts, he must have studied there four years; three years more to become master of arts; and seven more to commence bachelor of divinity.

At Cambridge, to commence bachelor of arts, he must have been admitted near four years, and above three years more before he commence master; and seven more still to become bachelor of divinity. He may commence bachelor of law having studied it six years.

At Paris, to pass bachelor in theology, a person must have studied two years in philosophy and three years in theology,

ology, and held two acts of examination in the Sorbonne. Bachelors in the canon law are admitted after two years study in the same, and sustaining an act according to the forms. A bachelor of physic must have studied two years in medicine, after having been four years master of arts in the university, and having stood an examination; after which he is invested with the fur, in order to be licensed.

In the university of Paris, before the foundation of divinity-professorships, those who had studied divinity six years were admitted to go through their course, whence they were called *baccalarii cursoris*; and as there were two courses, the first employed in explaining the Bible, during three successive years; the second, in explaining the master of the sentences for one year; these who were in their Bible course were called *baccalarii Biblici*; and those arrived at the sentences, *baccalarii sententiarum*; and, lastly, those who had gone through both, were denominated *baccalarii formati*, or *formed bachelors*.

At present, *formed bachelor* denotes a person who has taken the degree regularly after the due course of study and exercises, required by the statutes; by way of opposition to a *current bachelor*, who is admitted in the way of grace, or by diploma.

We also find mention of bachelors of the church, *baccalarii ecclesiæ*.—The bishop with his canons and *baccalarii*, *cum consilio & consensu omnium canonicorum suorum & baccalariorum*.

There is scarce any word whose origin is more controverted among the critics than that of *bachelor*, *baccalarius*, or *baccalaureus*: the two different acceptations of the word literary and military, above recited, have each of them their advocates, who assert each to be the primitive sense, and derive the word accordingly.

Among those who hold the military bachelor to be the more ancient, is Cujas, who derives the word from *buccellarius*, a kind of cavalry, anciently in great esteem. Ducange deduces it from *baccalaria*, a kind of fees, or farms, consisting of several pieces of ground, each whereof contained twelve acres, or as much as two oxen would plough; the possessors of which *baccalaria* were called bachelors.

Caseneuve and Altaferra derive bachelor from *baculus*, or *bacillus*, a staff, because the young cavaliers exercised themselves in fighting with staves. Martinius derives it from *baccalaureus*, i. e. *baccā laurea donatus*, in allusion to the ancient custom of crowning poets with laurels, *baccis lauri*; as was the case with Petrarch at Rome in 1341. Aleiat and Vives are of the same opinion; nor is this etymology improbable.

BACHELORS, in the livery companies of London, are those not yet admitted to the livery.

These companies generally consist of a master, two wardens, the livery, and the bachelors, who are yet but in expectation of dignity in the company, and have their function only in attendance on the master and wardens; they are also called yeomen.

BACHELOR is also a name given in the six companies of merchants at Paris to the elders, and such as having served the offices, have a right to be called by the masters and wardens to be present with them, and assist them in some of their functions, particularly in what relates to the *chef d'œuvres*, or master-pieces, of such as are candidates for being admitted masters.

BACHELOR is also particularly used for a man not married, or who is yet in a state of celibacy.

The Roman censors frequently imposed fines on old bachelors. Dion. Halicarnæus mentions an old constitution, by which all persons of full age were obliged to marry.

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But the most celebrated law of this kind was that made under Augustus, called the *lex Julia de maritandis ordinibus*, and by Horace (*Carm. Secul. v. 5.*) *lex marita*, by which bachelors were made incapable of legacies of inheritances by will, unless from their near relations. See PAPIAN-POPÆAN Law.

The Rabbins maintain, that, by the laws of Moses, every person, except some few, is obliged in conscience to marry at twenty years of age: this makes one of their 613 precepts. Hence those maxims so frequent among their casuists; such as, that he who does not take the necessary measures to leave heirs behind him, is not a man, but ought to be reputed a homicide. Lycurgus was not more favourable; by his laws bachelors are branded with infamy, excluded from all offices civil and military, and even from the shows and public sports. At certain feasts they were forced to appear, to be exposed to the public derision, and led naked round the market-place. At one of their feasts, the women led them in this condition to the altars, where they obliged them to make the *amende honorable* to nature, accompanied with a number of blows, and lashes with a rod at discretion. To complete the affront, they forced them to sing certain songs composed in their own derision.

The Christian religion is more indulgent to the bachelor-state: the ancient church recommended it as preferable to, and more perfect than the matrimonial state.

In the canon law, we find injunctions on bachelors, when arrived at puberty, either to marry, or turn monk and profess chastity in earnest.

In Great Britain, taxes have been occasionally levied on bachelors, as by 7 W. III. 1695, which imposed a tax on such, after 25 years of age, of 12l. 10s. for a duke, and 1s. for a common person; and the taxes laid on others have been increased with regard to bachelors, as in the case of the duty on servants by stat. 25 Geo. III. c. 43. See SERVANTS.

BACHELORS, in *Geography*, a river of South America, which runs into a bay of the same name, on the north side of the straits of Magellen. N. lat. 53° 38'. W. long. 73° 52'.

BACHER, the name of a chain of Austrian mountains, in the south of Stiria.

BACHER's *Tonic Pills*, in the *Materia Medica*. See HZLEBORE, and PILLS.

BACHIAN, or BATCHIAN, in *Geography*, one of the Molucca islands, lying south from Machian, and possessed, since the year 1610 by the Dutch. This is the largest of the little Moluccas, and is governed by a sultan, who is likewise sovereign of Oubi and Ceram, together with Goram. This monarch has a pension from the Dutch, either for the destruction or supply of nutmegs; but he is otherwise little subservient. Bachian rises into woody hills, and through the idleness or oppression of its inhabitants, is suffered to become wild and desert, although by cultivation it is capable of becoming fertile and productive, and it was represented as formerly producing the best cloves in the Moluccas. On the shores, as in most of the other isles of this archipelago, there are prodigious rocks of coral, of infinite variety and beauty. Its principal town is Sabongo; it is about twelve leagues in circuit, and has a burning mountain. It is situated nearly under the equinoctial in S. lat. 0° 25', and E. long. 125° 5'.

BACHINA, in *Ancient Geography*, an island of the Mediterranean sea, near Smyrna, according to Pliny; called by Livy, Bachiun.

BACHMUT, a town of Russia, in the province of Ekaterinoflav, 104 miles W. N. W. of Azof. N. lat. 48° 25'. E. long. 37° 44'.

BACHO, a river of North Wales, which runs into the Severn near Llanidlos, in Montgomeryshire.

BACHOLKZ, or VONCHOTSCH, a town of Poland, in the Palatinate of Sandomitz, twenty miles south of Radom.

BACHOVIUS, REINIER, in *Biography*, a German civilian, was born at Cologne, in 1544, and resided at Leipzig, where he suffered persecution on account of his religious principles, as he professed attachment to the doctrines of Calvin, rather than to those of Luther. Compelled not only to resign his public offices, but to quit Leipzig, he withdrew into the Palatinate, and found in the elector a generous patron. At Heidelberg, he held several honourable and lucrative posts till his death in 1614. In a theological tract, intitled, "The Catechism of the Palatinate," he cited the writings of the fathers in defence of Calvinism. His son, of the same name, was professor of civil law in the university of Heidelberg, which he filled with distinguished reputation for more than 20 years, till the city was taken by count Tilly, and the university was dissolved by the elector Palatine. Upon this event, he quitted Heidelberg; but having suffered many disappointments and vexations on account of his Protestant principles, he returned to Heidelberg, and having united with the Catholic church, he was restored to his office upon the re-establishment of the university. His works, besides other law tracts, are "Exercitationes ad partem posteriorem Chiliados Fabri," published in 1624, folio; "De Actionibus," 1626; "De Pignoribus et Hypothecis," 1627; "Disputationes de variis Juris Sivilis Materiis," 8vo. Heidelberg, 1604; and "In Institutionum Juris Justiniani Libros quatuor Commentarii," 4to. Francf. 1628. Gen. Dict. Nouv. Dict. Hist.

BACHSTELZE, (*Weisse Bachstelze*), in *Ornithology*, the name of the *MOTACILLA Alba*, or white wag-tail, in Frisch. Hist. Birds.

BACHU, in *Geography*. See BAKU.

BACILLARIA, in *Natural History*, a genus of VERMES *Infusoria* in Gmelin's Syst. Nat. of which only a single species is described, viz. *paradoxa*. In this genus the body consists of straw-like cylinders placed parallel to each other, and frequently changes its direction and arrangement. Müll. Gmel. &c.

BACILLARIS, a species of TÆNIA, with the head rounded, and proboscis pyriform; joints extremely narrow, and resembling pieces of straw placed on each other. Goëze. Infests the intestines of the mole; size of a very fine thread; neck without joints.

BACILLI, or BACULI, in the *Materia Medica*, such compositions as are made up in a cylindrical figure, like a stick; thus called from the Latin *baculus*, a staff. See LOZENGE.

BACINET, in *Ancient Armour*. See BASSINET.

BACK. See DORSUM.

BACK Bone. See SPINE.

BACK, in the *Manege*, and among *Farriers*. A horse's back should be straight, not hollow, which is called *saddle-backed*; horses of this kind are generally light, and carry their heads high, but are deficient in strength and service. A horse with a weak back is apt to stumble.

In the French riding-schools, to mount a horse *a dos*, is to mount him bare backed, without a saddle.

BACK, in *Brewing*, a large flat kind of tub or vessel, wherein the wort is put to stand and cool before boiling.

The ingredients of beer pass through three kinds of vessels.

They are mashed in one, worked in another, and cooled in a third, called *backs* or *coolers*.

To gauge a Brewer's BACK. Most backs have their

sides straight; in case, however, they be not, but make either an acute or obtuse angle with the bottom, the true length and breadth must be carefully taken in the middle of every inch in depth; from whence the area may be found upon every tenth. For finding the area of the back, this rule must be observed, to multiply the length by the breadth, and divide by 282; which gives the contents in ale gallons.

To find the true dip of a BACK. Because backs are not placed level, but sloping, for convenience of drawing off the wort; therefore, were the dip taken in too deep a place, the subject would be wronged; as would the king, if it were taken in too shallow a part; to guard against which, as many dips as are thought convenient must be taken; these being added together, and divided by the number of dips, will give a mean depth. When this is done, trial being made in different parts of the back, until one is found which answers exactly to the mean depth; let a mark or notch be made at the side of the back, to point it out as the true dipping place for the future.

The bottom of large backs ought to be every where equally and well supported, to secure them from warping, which else they will do, more and more as they grow older. Those who make backs and other vessels for brewers, are denominated *back-makers*; and the workmanship consists partly of carpentry and partly of cooperage.

BACK, in the *Distillery*, a vessel in which liquor is put to be fermented.

BACK, or *Dutchman's Cap*, in *Geography*, one of the small islands of Scotland, eleven miles south-east of Coll.

BACK, *Iron*, is a large plate of cast-iron, frequently adorned with figures in low relief, intended to preserve the stonework of a chimney-back, and to reflect the heat of the fire.

BACK a Ship, To, in *Sea Language*: when the wind is cross, or nearly off shore, or in the opposite direction, ships will always back by the mizen top-sail, assisted, if necessary, by the mizen stay-sail. If there be no mizen top-sail, the main top-sail is used. In backing, always keep a slight cable, to wind the ship, that the anchor may be drawn round. If the wind be not sufficient for this purpose, the ship must be hove a-peak.

BACK the Anchor, is to carry out a small anchor a-head of the large one, in order to support it in bad ground, and to prevent its loosening on coming home.

BACK a-stern, in rowing, is to impel the boat with her stern foremost, by means of the oars.

BACK of the Post. See STERN-Post.

BACK the Sails, is to put them in a situation that will occasion the ship to retreat or move a-stern. This operation, however, is only performed in narrow channels, when a ship is carried along sideways by the tide or current, and strives to avoid any thing that may interrupt her progress, as shoals, vessels at anchor, &c. or in the line of battle, when a ship would put herself into a situation opposite to another with which she is engaged.

BACKBEROND, or BACKBEREND, in *Law Writers*, denotes a criminal caught carrying off something on his back.

In this sense Bracton uses it for a species of what the civilians call manifest theft, *furtum manifestum*.

In the *Forest Laws*, backberond is one of the four circumstances, or cases, wherein a forester may arrest the body of an offender against vert or venison in the forest. The others are *stable-stand*, *dog-draw*, and *bloody-hand*.

BACK-Board, in *Maritime Affairs*, is of a semicircular figure, placed transversely in the after-part of a boat, like the back of a chair, to recline against while sitting in the *stern-sheets*.

BACKELEYS, in *Zoology*, a denomination, derived from

from *backeley*, which in the Hottentot language signifies *war*, and given by the Hottentots to those oxen which they train for war and use with success, as the Indians employ the elephants in their combats. In all their armies there are considerable troops of these oxen, which are easily governed, and which are let loose by the chief, when a proper opportunity occurs. They instantly dart with impetuosity on the enemy; striking with their horns, kicking, and trampling under their feet every thing that opposes their fury. By running furiously into the ranks and putting them into disorder, they prepare an easy victory for their masters. These animals are likewise of great use in guarding the flocks. At the smallest signal from the keeper, they collect and bring back those that wander; and they also run with great fury upon strangers, and serve to secure the flocks and herds against the attacks of the bushies, or robbers of cattle. Every kraal has at least six of these backeleys, which are chosen from among the fiercest oxen; and after they have been duly trained, they distinguish friends from enemies, understand signals, and obey the voice of their master. If a stranger, and particularly an European, should approach the cattle, without being accompanied by a Hottentot, his life would be in great danger. These backeleys would soon run round him at full gallop, and if not protected by the shepherds, by fire arms, or by suddenly climbing a tree, his destruction would be inevitable. Kolbe, *Voyage and Description du cap de Bonne Esperance*, cited by Buffon, vol. vi. p. 184. ed. Smellie.

BACKER, or BAKKER, JACQUES, in *Biography*, an historical painter was born at Antwerp in 1530, and received instruction from his father: after the death of his father, he resided in the house of Jacopo Palermo, a picture-dealer, who, for the gratification of his own avarice, kept him incessantly employed, and disposed of his pictures at Paris, where they were much admired and fetched a high price; whilst the artist himself was continued in an obscure and depressed condition. He was distinguished by a clean light manner of penciling, and a very pleasing tint of colour. He died in 1560. Pilkington.

BACKER, or Bakker, Jacob, a painter of portrait and history, was born at Harlingen, in 1609, but resided chiefly at Amsterdam; where he acquired the reputation of an extraordinary painter, particularly of portraits, which he executed with strength, spirit, and a graceful resemblance. He was so remarkable for his expedition, that he is said to have painted the half-length portrait of a lady in one day, though he adorned the figure with rich drapery, and several ornamental jewels. He succeeded also in painting historical subjects; and in this style his picture of Cimon and Iphigenia has been much extolled by connoisseurs. In designing academy figures, his expression was so just, and his outline so correct, that he obtained the prize from all his competitors; and his works are bought up at very high prices in the Low Countries. His capital picture of the Last Judgment, preserved in the church of the Carmelites at Amsterdam, is well designed and well coloured. He died in 1651; or, according to Descamps, in 1641. Pilkington.

BACKEREEL, called BACQUERELLI, WILLIAM, was born at Antwerp, and was a disciple of Rubens, at the same time with Vandyck. At the commencement of the exercise of their profession, Backereel was deemed little, if at all, inferior to Vandyck; as appears from the works of the former in the church of the Augustin monks at Antwerp, where these two great artists painted as competitors; and each possessing a mode peculiar to himself, the superiority was not determined in favour of either. Backereel, by the exercise of his poetical talents, and particularly by his satires against the Jesuits, incurred the persecution of this power-

ful fraternity, and by their persecution, he was compelled to leave Antwerp, so that his country was deprived of the honour which must have accrued to it from his performances as a painter. In Italy, and the Low Countries, there were seven or eight eminent painters, of the name of Backereel. Pilkington.

BACK-GAMMON, a game played with dice and tables, to be learned only by observation and practice. This game is said to have been invented in Wales, in the period preceding the conquest, and to have derived its name from two Welsh words, *bach*, little, and *cammon*, battle. Gloss. ad Leges Wallicas, a voc. Tawlbwrdd, cited by Henry, vol. iv. p. 404. 8vo.

BACK-HEAVER, in *Agriculture*, a machine long used in several parts of England, particularly in Hampshire, Wiltshire, and Sussex, for winnowing corn. An improved construction of this machine, illustrated by a figure, was proposed by Dr. Hales, in the year 1747, which, he says, will not only render it fit for winnowing corn sooner and better than by any other means hitherto used, but also for clearing it of the small corn, seeds, blacks, smut-balls, &c. to such perfection, as to make it proper for feed-corn. See Hales's *Uses of Ventilators*, part ii. p. 247, &c.

BACKHUUSEN, LUDOLPH, in *Biography*, an eminent painter of ships, sea-pieces, and sea-ports, was born at Embden, in 1631, and after receiving early instructions from Albert Van Everdingen, acquired his principal knowledge by frequenting the painting-rooms of great masters, and particularly Henry Drubbel, and observing their various methods of touching and colouring. His improvement was very considerable, and his drawings were in such estimation, that several of them were purchased at 100 florins a-piece. Whilst he was painting, his mind was so much engaged, that he would not allow his most intimate friends to have access to him, lest his ideas should be interrupted. He studied nature with singular attention in all her forms; in gales, calms, storms, clouds, rocks, skies, lights, and shadows; and he expressed every subject with so sweet a pencil, and such a degree of transference and lustre, as placed him above all the artists of his time in that style, the younger Vandervelde excepted. It was his frequent custom to go out to sea in a storm, in order to store his mind with grand images, directly deduced from nature; and at the moment of his landing, he flew to his palette, that the traces of those incidents which had occurred might not be obliterated by delay. Backhuysen perfectly understood the management of the chiaro-scuro: and he was thus able to give uncommon force and beauty to his objects. He also strictly observed the truth of perspective, in the distances of his vessels, the receding of the grounds on the shores, and the different buildings which he described in the sea-ports. His works may be easily distinguished by an observant eye, from the freedom and neatness of his touch; from the clearness, and natural agitation or quiescence of the water; from a peculiar tint in his clouds and skies; and also from the exact proportions of his ships, and the gracefulness of their position.

For a picture, exhibiting a multitude of vessels, and a view of the city at a distance, he received from the burgo-masters of Amsterdam 1300 guilders, and a considerable present; and this picture was afterwards given to the king of France, who placed it in the Louvre. No painter was ever more honoured by the visits of kings and princes than Backhuysen; the king of Prussia was one of their number; and the Czar Peter the Great took delight in seeing him at work, and often endeavoured to draw, after vessels which he had designed. He was remarkably assiduous; and yet the number of pictures which he finished, and

the exquisite manner in which they are painted, are astonishing. He died in 1709. Pilkington.

BACKING a Colt, in the *Manege*, the operation of breaking him to the saddle, or bringing him to endure a rider.

To back a colt, they usually take him into ploughed ground, trot him a while, to rid him of his wantonness; then having one stay to his head, and governing the chaffing-rein, the master mounts his back, not suddenly, but by degrees, first making several offers, or half-rifings: when he bears these patiently, he mounts in earnest, and settles in his place, cherishing him, &c.

BACKING Warrants, in *Law*, denotes the signing of such as have been issued by a justice of the peace in one county, by a justice of the peace in another county, which is necessary before they can be executed there. This practice, which had long prevailed without law, is authorized by statutes 23 Geo. II. c. 26. and 24 Geo. II. c. 55. And now, by statute 13 Geo. III. c. 31. any warrant for apprehending an English offender, who may have escaped into Scotland, and *vice versa*, may be endorsed and executed by the local magistrates, and the offender conveyed back to that part of the united kingdom, in which such offence was committed.

BACK-Nails. See **NAIL**.

BACK-Painting, is used by some for the art of pasting of prints and other designs on glass.

The art consists chiefly in laying the print upon a piece of crown-glass, of such a size as fits the print. In order to do this, the print must be soaked in clean water for forty-eight hours, if it be on very strong, close, and hard gummed paper; but if on a soft, spongy paper, two hours will sometimes be sufficient. The picture, being well soaked, must be laid between four sheets of paper, two over and two under it, that the moisture may be drawn out of it. Instead of soaking the print, it may be rolled up and boiled for about two hours, more or less, according to the quality of the paper, in water; and this mode will answer the purpose as well as soaking it. In the mean while, let the glass upon which the print is to be laid be warmed at the fire; then with a hog's-hair brush dipped in melted Strasburg turpentine, spread the turpentine smoothly and evenly on the glass. Then lay the print upon the glass, rubbing it gently from one end to the other, that it may lie close. With the finger, rub off the paper from the back side of the print, till nothing can be seen but the print, like a thin film left upon the glass, and set it aside to dry. When it is dry, varnish it over with some white transparent varnish, that the print may be seen through it, which is now fit for painting.

Having prepared a variety of oil colours, which must be ground very fine, and tempered very stiff, lay such colours on the transparent print as each particular part requires, the master-lines of the print guiding the pencil; and thus each colour will appear fair to the eye on the other side of the glass, and look almost as well as a painted piece, if it be done neatly. The shadows of the print are generally sufficient for the shadow of every colour; but if it be desired to give a shadow by the pencil, the shadows should be laid on first, and the other colours afterward. The chief care to be used in this part of the work, is that of laying the colours on thick enough, that they may be struck plainly through the glass.

BACK-River, in *Geography*. See **BALTIMORE**.

BACKS, among dealers in leather, denote the thickest and best tanned hides, used chiefly for soles of shoes. See **BUTTS**.

BACKS of a Hip. See **HIP**.

BACK-staff, in *Navigation*, an instrument, by the French

called the *English quadrant*. It was invented by captain Davis, about the year 1590; and is of good use in taking the sun's altitude at sea. It consists of three vanes, A, B, and C, and of two concentric arches (*Plate I. Navigation, fig. 2.*); the vane at A, called the *horizon vane*; that at B, the *shade-vane*; and that at C, the *sight-vane*. The lesser arch B (or ED) is of 60 degrees, and that of C (or FG) of 30 degrees.

To use the *back-staff*. The shadow-vane B is set upon the 60 arch, to an even degree of some latitude, less by 10 or 15 degrees than you judge the complement of the sun's altitude will be; the horizon vane is put on at A, and the sight-vane on the 30 arch FG: the observer's back being then turned to the sun (whence the name of *back-staff*, or *back-quadrant*), he lifts up the instrument, and looks through the sight-vane, raising or falling the quadrant, till the shadow of the upper edge of the shade-vane fall on the upper edge of the slit of the horizon vane; and then if he can see the horizon through the said slit, the observation is well made; but if the sea appear instead of the horizon, the sight vane must be moved lower towards F; if the sky appear, it must be moved upwards towards G, and thus tried till it comes right: then he observes how many degrees and minutes are cut by that edge of the sight-vane which answers to the sight-hole, and to them adds the degrees cut by the upper edge of the shade-vane: the sum is the sun's distance from the zenith, or the complement of his altitude. To find the sun's meridian, or greatest altitude on any day, continue the observation as long as the altitude is found to increase, which you will perceive by the appearance of the sea, instead of the horizon, removing the sight-vane lower; but when you perceive the sky appear instead of the horizon, the altitude is diminished; therefore, desist from farther observation at that time, and add the degrees upon the 60 arch to the degrees and minutes upon the 30 arch, and the sum is the zenith distance, or co-altitude of the sun's upper limb.

And because it is the zenith distance, or co-altitude of the upper limb of the sun, and not the centre, that is given by the quadrant, in observing by the upper edge of the shade-vane, add 16 minutes, the sun's semidiameter, to that which is produced by your observation, and the sum is the true zenith distance of the sun's centre. If you observe by the lower part of the shadow of the shade-vane, then the lower limb of the sun gives the shadow; and, therefore, you must subtract 16 minutes from what the instrument gives: but considering the height of the observer above the surface of the sea, which is commonly between 16 and 20 feet, you may take 5 or 6 minutes from the 16 minutes, and make the allowance but of 10 minutes or 12 minutes, to be added instead of 16 minutes.

Mr. Flamsteed contrived a glass *lens*, or double convex, to be placed in the middle of the shade-vane, which makes a small bright spot on the slit of the horizon-vane, instead of the shade; which is a great improvement, if the glass be truly made; for, by this means, the instrument may be used in hazy weather, and a much more accurate observation made in clear weather than could be by the shadow.

The theory of this quadrant is very intelligible: for the line AC being horizontal, the arc fGC is equal to the height of the sun above the horizon; but this arc fGC is equal to the sum of the arcs $BE + GC$; and the arc $dfF = 90^\circ =$ the altitude and zenith distance taken together; consequently the zenith distance = the arcs $fd + CF = DB + CF$.

When the horizon is obscured by hazy weather, Davis's quadrant is of no use; and this often occasions distressing consequences. Means have therefore been sought for to remedy

remedy this defect. Mr. Hadley has recommended and described a spirit-level for this purpose. Mr. Leigh proposed to fix a water-level to the quadrant; and he has likewise given the description and use of an apparatus to be added to this instrument, consisting of a mercurial level, which he prefers, with reason, to a water-level. See *Phil. Trans.* N° 430, &c. or *Martyn's Abr.* vol. viii. p. 357, 360, &c.

It has been observed, that one great objection against this instrument is the trouble and time lost in sliding the sight-vane upward or downward, which sometimes cannot conveniently be done without taking the quadrant from the eye, by which an opportunity may be lost for making the observation. But this defect is easily removed by having a long index or ruler fitted to the quadrant; one end moving round the centre to which the horizon-vane is fixed, and having the sight-vane fixed to the other end. By this contrivance the sight-vane may be readily raised higher, or lowered, by the motion of the index about its centre; and this may be done without taking the instrument from the eye. See **QUADRANT**.

BACK-Stays of a Ship, are ropes belonging to the main-mast and fore-mast, and the masts belonging to them, serving to keep them from pitching forwards, or overboard. See **STAYS**.

BACK-Stays, Travelling, are used in bad weather to support the fore and main-top masts; they splice into a span, round the top-mast, under the parrel, and let up in the chain, with a luff-tackle, to an eye-bolt. They travel up and down the top-mast occasionally with tricing lines that splice into a thimble, on each side of the span, and through blocks seized to the top-mast trestle-trees, and lead into the top.

BACK-Worm, a name given by *Sportsmen* to a disease very common among hawks, and called also *filander*; which see.

BACO, in *Geography*, the capital of Mindoro, one of the Philippine islands where the Alcaide, or governor, resides. Its environs are well watered by springs proceeding from mountains covered with sarsaparilla. See **MINDORO**.

BACOA, in *Botany*, a name by which some authors call the banana tree, or *musa fructu breviori*. Piso.

BACOFEN, in *Geography*, a town of Bohemia, in the circle of Boleslaw, five miles N.N.E. from Jung Buntzlau.

BACON, swine's flesh, salted, and dried in the chimney. Writers on this branch of æconomics give rules for the hanging, the salting, and curing of bacon, larding with bacon, &c.

This appears to be in general an extremely improper and unwholesome aliment, especially for people who do not use great exercise; for those who do may almost eat any thing without injury. Swine's flesh, considered as an aliment, is none of the best; and when hardened by salt, and dried by smoke, it is rendered more indigestible, and in consequence of that, productive of obstructions in a very great degree. We may add, that the fat of bacon frequently becomes rancid and acrimonious, and often even excoriates the mouth and throat.

BACON-Sward, denotes the thick outer skin taken off the lard or fat. Old historians and law writers speak of the *service of the bacon*, a custom in the manor of Whichenovre in Staffordshire, and priory of Dunmow in Essex; in the former of which places, by an ancient grant of the lord, a sitch of bacon, with half a quarter of wheat, was to be given to every married couple, who could swear, that having been married a year and a day, they would never within that time have once exchanged their mate for any other person on earth, however richer, fairer, or the like. But they were to bring two of their neighbours to swear with them, that they believed they swore the truth. On this, the lord of another neighbouring manor, of Rudlow, was to find a horse

saddled, and a sack to carry the bounty in, with drums and trumpets, as far as a day's journey out of the manor: all the tenants of the manor being summoned to attend, and pay service to the bacon. *Plott's Hist. Staff.* c. x.

The *bacon of Dunmow*, first erected under Henry III. was on much the same footing; only the tenor of the oath was, that the parties had never once repented, or wished themselves unmarried again. *Ib.* c. x. sect. 80.

BACON, Robert, in *Biography*, an English divine of the thirteenth century, was born about the year 1168, completed his education at Paris, and returning to Oxford, where he had commenced his studies, read lectures in divinity, and became a famous preacher. In one of his sermons, preached at Oxford, in 1233, before Henry III., he reproved the king for his partiality to foreigners, and faithfully informed him, that this was the principal cause of the discontent which prevailed among his subjects. Such was the impression made by this address, that the king is said to have discovered a disposition to listen to the complaints of his nobles. Bacon was favoured with the friendship and patronage of Edmund Rich, called St. Edmund, archbishop of Canterbury; and after his decease, in 1240, wrote his life. He was also the author of several commentaries, sermons, and lectures. Some have supposed that he was the brother of the celebrated Roger Bacon; but as Robert died in 1248, at an advanced age, and Roger was not born till the year 1214, it is not probable that they were brothers. *Biog. Brit.*

BACON, Roger, a celebrated English monk of the Franciscan order, was born at Ilchester in Somersetshire, in the year 1214, and at an early age received the rudiments of learning and science at Oxford, where he prosecuted his studies with an ardour and success which secured to him the patronage and friendship of the most eminent men in that university. In the number of these we may reckon Robert Grossetest, bishop of Lincoln, to whom he was particularly indebted, and of whom he speaks in terms of high commendation; Edmund Rich, archbishop of Canterbury; William Shirwood, chancellor of Lincoln; and Richard Fishacre, who was a distinguished lecturer in the sciences both at Oxford and at Paris. Having spent some years at Oxford in the study of the languages, logic, mathematics, and various branches of philosophy, he removed, according to the custom of that age, to Paris, where he was distinguished both by his assiduity and improvement, and where, in token of his acknowledged eminence in literature and science, he received the degree of doctor in theology. While he was in France, or soon after his return to England, in the year 1240, he took the monastic habit in the order of St. Francis, and with a view of pursuing his studies and researches with the greater advantage, he settled at Oxford. Such was the esteem in which he was generally held, and so high were the expectations which his contemporaries entertained of the benefits that would result to science from the vigour of his mind and the assiduity of his application, that he was enabled, by generous contributions, to collect books, to construct instruments, and to prosecute his experiments, during a course of twenty years, at an expence of 2000*l.*, which, considering the time in which he lived, was a very large sum. His growing fame, however, excited envy; and the monks of his own order industriously circulated a report, that he held converse with evil spirits, and practised magical arts. His enemies so far prevailed, that, under a pretence of dangerous innovations, tending to disturb the peace of the church, which Bacon was attempting to introduce, he was restrained from reading lectures to the young students in the university; and at length so closely confined as to be debarred from all intercourse with his friends, and from receiving a necessary supply of food. The prelates and the monks, says Bacon himself.

(*Epist.*

(Epist. ad. Clem. IV.), were afraid lest his own writings should extend beyond the limits of his convent, and be seen by and besides themselves and the pope. But other circumstances had contributed to excite against Bacon the spirit of persecution. He had censured the clergy, on account both of their ignorance and immorality; he was particularly intimate with bishop Grouthead, who had written a letter of reproof to pope Innocent IV. and declared to his confidential associates, that in his judgment the pope was anti-christ; and he himself had written freely to the pope, concerning the necessity of a reformation. The efforts of malevolence, whatever might have been the real or pretended causes from which they originated, could not deprive this great man of the esteem and respect to which his distinguished talents and character entitled him. Such was the high opinion entertained by the cardinal bishop of Sabina, who was the pope's legate in England, of his genius and merit, that he requested from him a complete copy of all his works. As he was restrained, by the prohibition of his own fraternity, from communicating any of his works to any person whatever, he at first declined complying with the cardinal's request; but as soon as he heard that the cardinal-legate was raised to the pontifical dignity, under the name of Clement IV. he signified to him by letter his readiness to perform what his holiness had desired; and the pope assured him of protection against any interference of his own order. Bacon immediately began to collect, arrange, and improve the pieces he had already written, and having digested them into one volume under the title of "*Opus Majus*" (the greater work), he sent it to the pope, in the year 1267, by a special messenger, whose name was John of Paris, and who was his own favourite disciple. This John of Paris was a poor boy, of promising talents, taken by Bacon under his tuition, in order to try by experience the efficacy of his peculiar mode of instruction; and, as the result of it, he observes, "that there was no room to conceive any high notions of the perfection of human wisdom, when it was possible, in a year's time, to teach a young man all that, with the utmost industry and application, a zealous inquirer after knowledge was able either to acquire or to discover in the space of twenty, or even forty years." (See *Opus Majus*, p. 29, and Jebb's Preface.) The pope was so gratified with the present of this learned work, that it procured for Bacon extraordinary favour and encouragement in his studies.

With the life of the enlightened and liberal Clement IV. terminated the tranquillity of this philosopher; for in 1278, under the pontificate of Nicholas III. and with the sanction of his authority, Jerom de Esculo, or de Ascoli, general of the Franciscan order, prohibited the reading of his works, and sentenced him to imprisonment. The pretended cause of this severity has been sought by some writers in tracts of Bacon on necromancy, astrology, and alchemy; but the true reason was most probably that dread of innovation which Bacon's improvements in science caused in the minds of bigotted or interested persons. Bacon continued in prison for ten years; but upon the accession of Jerom de Esculo to the papal see, under the name of Nicholas IV., he attempted to conciliate the favour of the pope, by presenting to him a treatise "*On the means of avoiding the Infirmities of Old Age*;" but his endeavours seem to have been ineffectual, as he still remained in prison, and was not released till about the latter end of this pontificate, when some English noblemen interceded in his favour, and obtained for him his liberty. Upon his return to Oxford, he wrote, at the request of his friends, "*A compendium of Theology*," of which a copy is preserved in the Royal library. This work appears, from internal evidence, to have been written about the year

1291; and as editions were afterwards made to it, it is hence inferred that the author lived till the year 1292, or the seventy-eighth year of his age. The learned editor of his "*Opus Majus*" dates his death in 1294; but Anthony Wood, from two MSS. which he mentions, fixes the time of it to the 11th of June, 1292; and Dr. Freind acquiesces in this opinion. He is said to have died in tranquillity, in the college of his order, and to have been interred in their church. Tradition reports, that in order to prevent the uneasiness occasioned by his enemies, in the earlier period of his life, and while he was prosecuting his studies, and performing his experiments at Brazen-nose hall at Oxford, he was obliged to retire from the university into a solitary place, called to this day "*Friar Bacon's Study*;" and Mr. Hearne informs us, that he sometimes retired in the summer to Sunning Well.

When we contemplate the extraordinary powers and attainments of Bacon, and review the important and useful discoveries that were made by him in various branches of science, and compare them with the period in which he lived, we shall not be surprised that he was distinguished by the title of "*doctor mirabilis*," or wonderful doctor; whatever might be the reasons which induced the monks of his order thus to discriminate him. With respect to his knowledge of the languages, which he thought to be the foundation of all true learning, it appears that he was perfect master of the Latin, Greek, and Hebrew, and that he had studied those languages with a degree of critical exactness which renders some of his observations in that part of the "*Opus Majus*," which treats on this subject, judicious and instructive. With various branches of the mathematics he was well acquainted: and in mechanics his knowledge was such, that, in the judgment of Dr. Friend, "a greater genius had not arisen since the days of Archimedes." Accordingly, in his treatise, intitled, "*Epistola Fratris Rogeri Baconis de secretis Operibus Artis et Naturæ, et de Nullitate Magiæ*," he proposes the construction of wonderful instruments, which may be artificially contrived, by which such things (says he) may be done without the help of magic, as magic itself is incapable of performing. "For a vessel may be constructed, and oars therein so disposed, as to make more way with one man in her, than another vessel fully manned." "It is possible (says he) to make a chariot which, without any assistance of animals, shall move with that irresistible force which is ascribed to those scythed chariots in which the ancients fought." "It is possible," adds our author, "to make instruments for flying, so that a man sitting in the middle thereof, and steering with a kind of rudder, may manage what is contrived to answer the end of wings, so as to divide and pass through the air. It is no less possible to make a machine of a very small size, and yet capable of raising or sinking the greatest weights, which may be of infinite use on certain occasions, for by the help of such an instrument, not above three inches high, or less, a man may be able to deliver himself and his companions out of prison, and to ascend or descend at pleasure." Hence it has been inferred that Bacon was acquainted with the perpetual screw. Our author's knowledge of the science of optics was so accurate and comprehensive, that he is justly allowed to have understood the theory and practice of many of those discoveries, the application of which has been so important and useful in more modern times. Besides the descriptions of the camera obscura, and of burning glasses, which are found in his writings, we have unquestionable evidence that he was well acquainted with the properties of convex and concave lenses, and with the effects of refraction; and some have even ascribed to him the honour of having invented the telescope. (See these several articles.)

In geography his researches were various and extensive; and his acquaintance with astronomy enabled him to discover the errors of the calendar, and to propose the proper method of correcting them. See CALENDAR.

Although Roger Bacon was in some instances misled by the visionary projects of the alchemists of his age, and though he indulged chimerical notions of the medicinal virtues of the aurum potable, or tincture of gold, and of a secret charm for renewing the native heat of old men, he was led by his chemical processes into an acquaintance with the properties of bodies, and a variety of discoveries that were no less important and useful than novel and curious. Such, in particular, was that of the ingredients and effects of gun-powder, which was for a long time supposed to have been the invention of a much later period. (See GUN-POWDER.) Of his medical knowledge we have evidence in his "Treatise on Old Age," blended with many things that are obscure and fanciful; and though he so far partook of the superstition of the times as to place some confidence in judicial astrology, he was an enemy to necromancy and magic. The imputation on his character of his leaning to magic, was altogether unfounded; and the story of his having constructed a brazen head, which proposed and answered questions, is as ridiculous as it is groundless. The first object of this calumny, was his patron Robert Grosseteste, or Grossthead, bishop of Lincoln; and similar tales have been related of Pope Sylvester II., Albertus Magnus, and other eminent philosophers; but they gained credit merely with mean and ignorant persons. In logic and metaphysics, as well as in philology, and the politer parts of learning, Bacon was equal, if not superior, to most of his contemporaries; and his treatise on Ethics, or moral philosophy, contains many excellent principles for directing the judgment, and regulating the conduct. To theology, all his other studies were subservient; and he directed both his actions and his writings to the glory of God, and the good of his fellow-creatures. To the holy scriptures he paid due deference; and he enforced the study of them in their original languages, and an assiduous application to the several branches of learning which he thought necessary for rightly understanding and interpreting them. This seems to have been the object of his last treatise, which he left as a kind of testament to his order.

As the whole life of friar Bacon was spent in study and writing, we need not wonder that his works were very numerous. Bayle speaks of upwards of fourscore books written by him; and Dr. Jebb has digested a still greater number, under the distinct heads of grammar, mathematics, physics, optics, geography, astronomy, chronology, chemistry, magic, medicine, logic, metaphysics, ethics, theology, philology, and miscellany. It seems, however, that the number has been multiplied by means of the different titles under which various copies of the same treatise have been dispersed, and by considering the titles of distinct chapters of his work as the titles of separate treatises. Accordingly, eleven of these pieces will be found in the work intitled, "Epistola Fratris Rogeri Baconis, &c." already mentioned, published in 4to. at Paris, in 1542; in 8vo. at Basil, in 1593; in 8vo. at Hamburg, in 1608 and 1618. This treatise abounds with various physical facts and observations, and exposes the futility of the several practices of necromancy, charms, divination, and magic. The "Opus Majus," written in the form of an epistle or address to pope Clement IV. is professedly a digest of the author's former writings. "In this curious and valuable work, Bacon describes the impediments which hinder men from arriving at true and useful knowledge; illustrates, at large, the usefulness of the studies of grammar, mathematics, and perspective; explains the

nature and value of experiments in philosophy; and earnestly exhorts the pontiff whom he addresses, to give all possible encouragement to science in general, and particularly to the study of nature. This work, which affords abundant proofs of the author's superior talents, and, considering the time in which he lived, of his wonderful knowledge, long remained buried in obscurity, and never appeared in print till, in 1733, Dr. Jebb, from various collated MSS. sent from the press of William Bowyer, a correct and beautiful edition in folio. Bacon wrote many chemical tracts, most of which may be found in "Thesaurus Chemicus," printed in 8vo. at Francfort, 1603, 1620; others are in MS. in the university library of Leyden. His treatise "On the Means of avoiding the Infirmities of Old Age," in which, beside a regular course of life, he recommends the use of certain secret and extraordinary medicines, was first printed at Oxford in 1590, and afterwards translated into English, with notes, by Dr. Richard Browne, under the title of "The Cure of Old Age, and Preservation of Youth," 8vo. 1683. Several tracts of friar Bacon, yet unpublished, remain in MS.; a piece, bearing the title of "Liber Naturalium;" a treatise on Chronology, intitled, "Computus Rogeri Baconis;" and the "Compendium of Theology;" are to be seen in the King's library; and two other works, which the author called "Opus Minus," and "Opus Tertium," remain in the Cotton library; and other pieces might probably be found by diligent search."

Although in the present advanced state of literature and science, we could not expect to derive much accession to our means of knowledge from the publication and study of friar Bacon's works, yet as a display of the astonishing powers of the human intellect, and as a valuable part of the history of knowledge, they ought to be preserved and known. The want of a complete edition of his works is the less to be regretted, since the public have been put into possession of his "Opus Majus," by Dr. Jebb.

From the brief account that has been given of the talents and performances of friar Bacon, it will appear that he contributed, in a very eminent degree, to illuminate the dark age in which he lived, and to prepare the way, by emancipating the mind from the authority of Aristotle, and pursuing a plan of experiment and induction in the prosecution of science, for those discoveries and improvements, which have distinguished a later period. Although allowance should be made for the language of panegyric, which characterizes Bacon as the "brightest and most universal genius that perhaps the world ever saw;" he must ever be regarded as a prodigy of learning and science, and a very high rank must be assigned to him among those who have been instruments of enlightening and reforming the world. Jebb's Pref. to Bacon's Opus Majus. Cave, H. L. t. ii. p. 325. Biog. Brit.

BACON, Sir Nicholas, an eminent lawyer, and lord keeper of the great seal in the reign of queen Elizabeth, was the descendant of an ancient and honourable family in the county of Suffolk, and born in the year 1510 at Chiffchurst in Kent. He was sent at an early age to Corpus Christi or Bennet college at Cambridge, and finished his education by travelling into France. Upon his return, he entered at Gray's Inn, and distinguished himself by the study of the law. By favour of Henry VIII. he obtained a grant of several manors in Suffolk, when the monastery of St. Edmondsbury was dissolved; and was appointed attorney in the court of records; which office he retained during the reign of Edward VI. Having, by his prudence and moderation, escaped the dangers of the reign of Mary, he was honoured with knighthood on the accession of queen Elizabeth; and in 1558, he was intrusted with the custody of the great seal, and

and admitted a member of the privy council. He took an active part in the administration of this period, and was eminently instrumental in the settlement of religion. It has been said, that he incurred the displeasure of Elizabeth by joining the party that was adverse to the title of the queen of Scots; but from a "Discourse upon certain points touching the inheritance of the crown, conceived by sir Anthony Brown, and answered by sir Nicholas Bacon," published in 1723, by Nathaniel Booth, of Gray's Inn, Esq., from the original MS., it has been inferred, that sir Nicholas Bacon was a most strenuous asserter of the title of the queen of Scots, in opposition to sir Anthony Brown, who had contended for the right of the house of Suffolk. However this be, he was placed by Elizabeth, in 1563, at the head of the commission for hearing the disputes between that unfortunate princess and her rebellious subjects; and, in 1571, he again acted in the same capacity. From this time he was a principal agent in the counsels of Elizabeth, and by his inflexible adherence to the Protestant cause, shared the odium of the Popish faction, in common with her other principal ministers. As a statesman, he manifested great skill in properly balancing the different parties, and it is thought that he instructed the queen in this art, which she found to necessary and useful. In the chancery, he distinguished himself by a very moderate use of power, and by shewing great respect to the common law. His private as well as his public conduct was regulated with great discretion, and a moderate use of the fortune which he had acquired. His motto was "*Mediocria firma*," and he was accordingly content to be safe, but did not wish to be great. In his set speeches he attained the reputation of uniting two opposite characters, viz. those of a witty and a weighty speaker. That he was not unduly exalted in his own opinion, notwithstanding his eminent talents and preference, appears from his modest answer to queen Elizabeth, when on a visit to him at Redgrave, she told him that his house was too little for him: "Not so, madam," replied sir Nicholas, "but your majesty has made me too great for my house." In deference to her majesty's opinion, he added two wings to it; and he also indulged his taste for building and gardening, at Gorhambury, near St. Albans, which was a manor taken from the ancient abbey of this place. Having retained his office of lord keeper for more than twenty years, with the reputation of a wise statesman and faithful counsellor, he died, after an illness of a few days, on the twentieth of February 1579, in the sixty-ninth year of his age. Of his writings there are extant in MS. several discourses on topics of law and politics, and also a commentary on the twelve minor prophets. *Biog. Brit.*

BACON, *Francis*, baron of Verulam, viscount of St. Albans, and high chancellor of England in the reign of James I. the glory and ornament of his age and nation, was the son of sir Nicholas Bacon, mentioned in the last article, by his second wife Anne, the daughter of sir Anthony Cook, tutor to King Edward VI.; and born in London on the twenty-second of January 1561. In his childhood he manifested indications of singular genius, from which those who conversed with him might have deduced presages of his future attainments. In reply to queen Elizabeth, who asked him how old he was, he instantly replied, "Just two years younger than your majesty's happy reign;" and her majesty, condescending frequently to converse with him, and forming a high opinion of the solidity of his sense, and the gravity of his behaviour, used pleasantly to call him "her young lord keeper." At the age of thirteen, in the year 1573, he was entered a student in Trinity college, in the university of Cambridge, where his progress, under the tuition of Dr. John Whitgift, afterwards archbishop of Canterbury, was rapid and surprising. Before he had completed

his sixteenth year, he began to perceive the imperfections of the Aristotelian philosophy, which was then the reigning system, and probably to form designs of introducing a more rational and profitable method of pursuing philosophical researches. To this purpose, we are assured by Dr. Rawley, who was his chaplain and biographer, and to whom he communicated several particulars relating to the earlier period of his life, that his objections against the prevalent philosophy were not owing to any disrespect of Aristotle himself, of whom he entertained a very high opinion, but to the inutility of his philosophy, which was calculated to produce and perpetuate disputes, rather than to afford any substantial benefit to mankind; and these sentiments of it he retained through life. In order to perfect his education, and to extend his knowledge of the world, his father sent him to France, and placed him under the patronage of sir Amias Pawlet, who was then the queen's ambassador at Paris. In this situation he gained the esteem and confidence of sir Amias to such a degree, that he was intrusted by him with a commission to the queen, which required both secrecy and dispatch, and having executed this commission in a manner highly honourable to himself, and equally satisfactory to the queen and ambassador, he returned to Paris, and from thence travelled through several of the provinces, for the purpose of gaining a more accurate and extensive acquaintance with the manners and customs of the country. The result of his inquiries appears in a treatise, intitled, "*Of the state of Europe*," and written when he was no more than nineteen years of age. The unexpected death of his father obliged him to return suddenly from France, and to engage in some lucrative profession. Accordingly he determined upon the profession of the law, and entered himself in the Society of Gray's Inn, where by assiduous application he obtained such a degree of reputation, that at the age of twenty-eight years he was appointed by the queen to the honourable office of her learned counsel extraordinary in the law. Whilst he was studying at Gray's Inn, and in the twenty-sixth year of his age, he formed the plan of that great philosophical work, afterwards completed, and intitled, the "*Instauracion of the Sciences*," which will not only render his name immortal, but do honour to his age and country, as long as learning shall flourish. The title of the work which our author composed at this time, was "*Temporis partum maximum*," or the "*Greatest birth of Time*;" with respect to which it appears, from a letter written towards the close of his life to father Fulgentio, a learned Italian, that he lived to regret the juvenile folly and vain confidence which led him to prefix to it this pompous title. These rudiments of Bacon's philosophy have been supposed to be lost; but it has been suggested (see Mallet's edition of Bacon's works, Append. to vol. i. p. 17.) that they probably remain under the more modest title of the "*Interpretation of Nature*," and that philosophers may still have the pleasure of tracing the steps by which this great genius advanced from one discovery in science to another in forming and establishing his system.

From the high rank of a philosopher, in which Bacon appears with acknowledged pre-eminence, we are obliged to descend, in tracing the outlines of his history, to the level of ordinary men, and to contemplate him as an humiliating example of human frailty. Reduced by his father's death to circumstances which rendered it necessary for him either to pursue his philosophical speculations in obscure retirement, or to become an obsequious dependent on the court; he unfortunately chose the latter alternative. Allied by marriage to the lord treasurer Burleigh, and to his son Robert Cecil, principal secretary of state, he indulged reasonable expectations of advancement; but his friendship for the earl of Essex, Cecil's avowed enemy, interposed an obstacle in the way of his

his preferment. The interest of lord Burleigh procured for him merely the reversion of the office of register to the star-chamber, worth about 1600*l.* a year, which he did not obtain for twenty years. In 1594, Cecil represented him to the queen as a man wholly devoted to speculation, and prevented his being advanced to the post of solicitor-general, which the earl of Essex endeavoured to procure for him; but as a compensation for this disappointment, the earl presented him with a landed estate, which was afterwards sold, at less than its value, for 1800*l.* Bacon, however, after this singular expression of friendly attachment on the part of Essex, proved ungrateful; and in the moment of danger abandoned his friend and benefactor; pleaded against him on his trial for high treason; produced evidence to his injury from his letters; and after his execution, vindicated the conduct of administration, in an appeal to the public, under the title of "A Declaration of the Treasons of Robert earl of Essex." In this "Declaration" there occurred some apparent marks of tenderness for the reputation of Essex, which led the queen to observe to him, that "old love could not easily be forgotten;" but whilst they proved that he was countering his feelings by his conduct, they were insufficient to exculpate the baseness of his ingratitude. His conduct on this occasion excited against him such general dissatisfaction, that he found it necessary to write an elaborate defence under the title of "Apology;" but no art or eloquence could avail to rouse the public indignation. From the queen he received no additional honours or emoluments during the remainder of her reign; and to persons in power he was an object of jealousy and aversion.

In public concerns, however, he acted with firmness and dignity. Having been chosen, in 1593, to represent the county of Middlesex in parliament, he took the popular side, though a servant of the crown, against her majesty's ministers; and in the question of subsidies, to which he indeed assented, he delivered a speech, the freedom of which offended the queen, and prevented his advancement. Towards the end of her reign he became more servile in his parliamentary conduct; for which his only plea was his poverty, and debts which he had incurred, and for which he had been twice arrested.

Upon the accession of James I. Bacon was distinguished by the favour of his new sovereign, and in 1603 received the honour of knighthood. In the first parliament of this reign, he regained his popularity by undertaking the redress of grievances, arising from the exactions of the royal purveyors; and in the conduct of this business he gave satisfaction both to the house and to the king. From the former he received a vote of thanks, and from the latter a patent to be one of the king's counsel, with a salary of 40*l.* a year, accompanied with a pension from the crown of 60*l.* a year, for special services rendered by his brother Anthony Bacon and himself. Notwithstanding the opposition of Cecil, now earl of Salisbury, and of sir Edward Coke, attorney-general, he pursued with steady perseverance his plans of advancement; and by promoting the king's favourite object of an union between the two kingdoms, and by publishing, in 1605, one of his most important works "On the advancement of learning," he so far succeeded in gaining the favour of his royal master, that in 1607 he was appointed to supply the place of sir John Doddridge, as solicitor-general. His practice also was at this time very extensive and profitable, and he also improved his fortune by marriage with the daughter of Benedict Barnham esq. a wealthy alderman of the city of London. Whilst he displayed his eminent talents both in the senate and in the courts, he was not inattentive to his grand philosophical speculations and pursuits.

Of the outline of his intended work he circulated copies,

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under the title of "Cogitata et visa," in order to obtain the animadversions of the learned; and in 1610, he published his treatise, intitled, "Of the Wisdom of the Ancients." In 1611, he was appointed one of the judges of the Marshalsea court, and about the same time became register to the star-chamber, granted to him by Elizabeth in reversion; and in 1613, he was made attorney-general. In the exercise of this office he supported the arbitrary power of government in some of the state trials; but on various other occasions he performed his duty with fidelity, and was active in his exertions for suppressing the savage practice of duelling.

Notwithstanding the affluence of his circumstances and income, his prodigality rendered him indigent; and his ambition, which led him to aspire after the first dignity in the law, concurring with his penury, induced him to seek it by culpable servility and artifice. With this view he cultivated the friendship of George Villiers, afterwards duke of Buckingham, the king's favourite; and having selfish ends to secure, this friendship on his part degenerated into a mean and crouching servility. Apprehending the speedy death of the lord chancellor, he not only petitioned the king for this high office, but basely traduced the talents and character of those who were likely to be his competitors, and enforced his application by avowing his ready obedience, and his power of influencing the lower house of parliament. His solicitation, seconded by the interest of the earl of Buckingham, prevailed; and in March 1617, he was honoured with the seals, and the title of lord keeper. In the beginning of 1619, he was created lord high chancellor of England, and baron of Verulam, which title was exchanged, in the following year, for that of viscount of St. Albans. In this year, viz. in 1620, he presented the world with a work, which he had been twelve years in completing, his "Novum Organum," or the second part of his grand "Instauration of the Sciences." The high department in the law, which he sought with so much anxiety, and with such sacrifices of personal honour, proved in the issue an occasion of vexation and disgrace. By opposing the proposed treaty of marriage between Charles prince of Wales, and the Infanta of Spain, he offended the king; and by endeavouring to prevent the marriage of sir John Villiers, Buckingham's brother, and sir Edward Coke's daughter, he displeased the favourite. The misunderstanding occasioned by both these circumstances soon subsided; and whilst he increased his assiduity in promoting the private interest of his royal master, he countenanced and encouraged the rapacity of Buckingham, by affixing the great seal to patents that were intended to be instruments of extortion. At length his conduct in various circumstances, involving his own pecuniary advantage, became so atrocious, that national justice demanded an inquiry. The parliament, summoned by James at the beginning of the year 1613, for the purpose of obtaining legal supplies, entered on this business; and as they proceeded, the king encouraged them to persevere. "Spare none," said he, "where you find just cause to punish." The further they extended their inquiries, new occasions of complaint presented themselves, and these furnished materials for a parliamentary accusation. Accordingly, the cause was transferred to the house of lords, and twenty distinct charges of corruption and bribery, amounting to several thousand pounds, were exhibited before the select committee. The chancellor was alarmed, and earnestly solicited the king's protection. A short recess of parliament delayed his danger; but this temporary expedient served only to aggravate the evil, and to increase the public clamour. Wishing to evade a minute inquiry, the humbled culprit addressed a submissive letter to the house of lords, and exerted all his powers of eloquence to induce the peers to content themselves with dismissing him from the high office which he

had disgraced. They insisted, however, on a particular confession, respecting each article of bribery and corruption of which he was accused; and the chancellor confessed his guilt with regard to most of the twenty-three articles of corruption which were exhibited against him, whilst he extenuated some of them, and again threw himself on the mercy of the house. Upon being asked whether the confession which had been read was written by his own hand, he replied, "It is my act, my hand, my heart; I beseech your lordships to be merciful to a broken reed." The house moved his majesty to sequester the seals, which was accordingly done; and then proceeded to pass sentence; which was, "That the lord viscount St. Albans, lord chancellor of England, shall undergo fine and ransom of 40,000*l.*; that he shall be imprisoned in the Tower during the king's pleasure; that he shall for ever be incapable of any office or employment in the state or commonwealth; and that he shall never sit in parliament, or come within the verge of the court." This sentence, severe as it may seem, and for which collateral causes have been alleged, was the result of the strict exercise of justice. Thus degraded under a just sentence, we cannot forbear pitying a man, who, among other crimes, suffered his servants to become the instruments of his ruin; and who, in passing by several of his retinue, that stood up to salute him, sarcastically said to them; "Sit down, my masters; your rise has been my fall."

Thus degraded and banished into solitude, reproached by his own mind as well as by the public censure, and depressed by a load of debt, he retained the vigour of his faculties to such a degree that he returned with ardour to his favourite pursuits, and produced various writings of singular merit in history, morals, and philosophy. Through all the vicissitudes of his life, he kept in view the great object of the improvement of science, to which his attention was directed in the early period of his youth. From contemplating the examples of Demosthenes, Cicero, and Seneca, who, like himself, had occupied high stations, had fallen into delinquency, and had been banished into retirement, he derived consolation; and in imitation of them, he determined to devote the remainder of his time to philosophy, and writing. He might, indeed, have adopted the language in which Cicero addresses philosophy: "Ad te confugimus; a te opem petimus; tibi nos, ut antea magnâ ex parte, sic nunc penitus totosque tradimus." "To thee I fly; from thee I seek support; to thee I devote myself, as formerly in part, so now entirely and altogether." It is observed, however, that neither philosophy nor experience had taught Bacon a lesson of moderation. After his release from confinement in the Tower, which was soon granted him, and the entire remission of his sentence gradually obtained, he possessed a royal pension of 1200*l.* a year, in addition to 600*l.* a year, accruing to him from the alienation office, and 700*l.* a year derived from his own estate; but he lived with a magnificence and splendor which had no bounds. In his way to London, his coach was attended by a number of attendants on horseback; he was met by the prince of Wales, who asked whose equipage it was, and being told that it was lord St. Albans, attended by his friends, his highness remarked; "Well, do what we can, this man scorns to go out like a snuff." With such prodigality, it is no wonder that at his death his debts should have amounted to 22,000*l.* As an instance of his humility, we may cite his reply to the French ambassador, who, upon reading a French translation of his Essays, paid him the fulsome compliment of comparing him to angels; "If the politeness of others compare me to an angel, my own infirmities remind me that I am a man;" and of self-command we have a singular display in his behaviour, when he received information by a friend that his application for an important favour at court

had proved unsuccessful: at this time he was dictating to his chaplain an account of some experiments in philosophy, and he calmly said, "Be it so;" and dismissing his friend with thanks for his service, he turned to his chaplain, saying; "Well, Sir, if that business will not succeed, let us go on with this, which is in our power;" and he continued to dictate to him for some time, without hesitation of speech, or interruption of thought.

Lord Bacon pursued his philosophical researches to the last, in the midst of bodily infirmities, occasioned by intense study, multiplicity of business, and, above all, by anxiety and anguish of mind. In the winter of 1625, his health and spirits were much impaired; but in the following spring he made an excursion into the country, for the purpose of making experiments on the preservation of bodies. Having exposed himself imprudently to noxious effluvia, he was suddenly seized with pains in his head and stomach, which made it necessary for him to stop at the earl of Arundel's house at Highgate. Here he fell sick of a fever, and, after a week's illness, expired on the ninth of April 1626, in the sixty-sixth year of his age. In a letter addressed to the nobleman in whose house he expired, he compares himself to the elder Pliny, who lost his life by approaching too near to mount Vesuvius during an irruption. He was buried in the chapel of St. Michael's church, within the precincts of Old Verulam. Verses to his memory were written in various languages by the most eminent scholars of the university of Cambridge; but the most honourable memorial of this great man is found in his immortal writings.

Before we can duly appreciate the value of lord Bacon's philosophical works, we should duly consider the state of philosophy, and the method of pursuing science which prevailed, at the period in which he lived. The authority of Aristotle was absolute; his logic, physics, and metaphysics, were the principal guides in all scholastic disquisitions; and the science that was principally cultivated was such as consisted of words and notions, and seemed to exclude the study of nature. Instead of investigating the properties of bodies and the laws of motion by which all effects are produced, this science, or philosophy, if it may be so called, was conversant about logical definitions and distinctions, and about speculations that were altogether barren and unprofitable. This kind of captious philosophy was not only useless, but a real obstacle to all advances in sound learning, human and divine. Some few persons, indeed, had before the time of lord Bacon, ventured to dissent from Aristotle; and the fields of natural knowledge had been cultivated and improved by friar Bacon, Galileo, Copernicus, and others. But there was still wanting one great and comprehensive plan that might embrace the almost infinite varieties of science, and guide our inquiries aright in all. This, lord Bacon first conceived in its utmost extent, to his own lasting honour, and to the general advantage of mankind. To him belongs the praise of having invented, methodised, and in a considerable degree perfected, this general plan for the improvement of natural science by the only sure method of experiment. With a mind commanding and comprehensive, prompt in invention, patient in inquiry, and subtle in discrimination, neither affecting novelty, nor idolising antiquity, he formed and in a great measure executed his grand plan, "The Instauration of the Sciences." This plan comprehended *fix* capital parts. Of these, the *first* part proposes a general survey of human knowledge, and is executed in the admirable treatise, intitled, "The Advancement of Learning." He begins with accurately reviewing the state of learning as it stood, through all its provinces and divisions; that he might not lose himself on a subject so vast and of such variety, he ranges, according to the three faculties of the soul, memory,

fancy,

fancy, and understanding, the several sciences and arts under three great classes, history, poetry, and philosophy. He observes and points out defects and errors; and then suggests proper means for supplying omissions and rectifying mistakes. At the end of this treatise he has marked out in one general chart the several tracts of science that lay still neglected or unknown.

The *second*, and the most considerable part, is the "Novum Organum," or new method of employing the reasoning faculties in the pursuit of truth. Here our author offers to the world a new and better logic, calculated not to supply arguments for controversy, but arts for the use of mankind; not to triumph over an enemy by the sophistry of disputation, but to subdue nature itself by experiment and inquiry. Rejecting syllogism as a mere instrument of disputation, and finding no certainty in the hypothetical systems of ancient philosophy, the author recommends and explains the more slow but more satisfactory method of induction, which subjects natural objects to the test of observation and experience, in order to furnish certain facts as the foundation of general truths.

The *third* part is the "Sylva Sylvarum," or history of nature, which furnishes materials for a natural and experimental history; upon which the organ, or the instrument, which the author has provided for the investigation of nature, may be employed. The phenomena of the universe are ranged in this repository under three principal heads, viz. the history of generations, or the production of all species, according to the ordinary laws of nature; that of preter-generations, or births deviating from the stated rule; and the history of nature as confined or assisted, changed or tortured by the art of man. Of such a history the use is either to acquire the knowledge of qualities in themselves, or to serve for the first matter of a true and useful philosophy. The facts and observations that are here collected together are possibly not always correct; but they are valuable, as they furnish a pattern of the manner in which such researches should be pursued.

The *fourth* part, or "Scala Intellectus," is a series of steps by which the understanding might regularly ascend in its philosophical inquiries; and it is evidently intended as a particular application and illustration of the author's method of philosophizing.

The *fifth* part, or "Anticipationes Philosophiæ secundæ," was designed to contain philosophical hints and suggestions, but nothing of this remains besides the title and scheme.

The *sixth*, and sublimest part, was proposed for exhibiting the universal principles of natural knowledge, deduced from experiments, in a regular and complete system; but this the author despaired of being himself able to accomplish. Having laid the foundation of a grand edifice, he left the superstructure to be completed by the united and continued labours of philosophers in future ages.

Among the more popular works of lord Bacon, the principal are his "History of Henry VII." which, allowing for some faults, and particularly for its partiality to Henry, with a view of flattering his grandson James, at whose desire it was written, may be justly admired for vigorous conception and energy of language; his "Wisdom of the Ancients," in which he endeavours, with greater ingenuity than solidity, to unveil the hidden sense of the fables of antiquity; his "Moral Essays," containing many just reflections on subjects, which, in the author's own phraseology "come home to men's business and bosoms;" and his law tracts, speeches, letters, and other miscellaneous papers, relative to personal or public affairs, and abounding with curious and interesting matter. These valuable writings, which were gradually collected, have been repeatedly published on the continent in Latin. An edition in folio was printed at Francfort in

1665; and another by Arnold at Leipzig, in 1694. They have passed separately and collectively through several editions in English; in 1740, they were published in 4 volumes, folio; but the most complete edition is that printed at London in 1778, in five volumes, quarto.

The character of lord Bacon seems to be pretty justly delineated by Mr. Hume in his History, vol. vi. p. 52. He represents him as "a man universally admired for the greatness of his genius, and beloved for the courteousness and humanity of his behaviour. He was the great ornament of his age and nation; and nought was wanting to render him the ornament of human nature itself, but that strength of mind which might check his intemperate desire of preferment that could add nothing to his dignity, and restrain his profuse inclination to expence, that could be requisite neither for his honour nor entertainment. His want of economy, and his indulgence to servants, had involved him in necessities; and, in order to supply his prodigality, he had been tempted to take bribes, and that in a very open manner, from suitors in chancery." "If we consider," says he, "the variety of talents displayed by this man; as a public speaker, a man of business, a wit, a courtier, a companion, an author, and a philosopher, he is justly the object of great admiration." He adds; "if we consider him merely as an author and philosopher, the light in which we view him at present, though very estimable, he was yet inferior to his cotemporary Galileo, perhaps even to Kepler." "The national spirit," adds Hume, "which prevails among the English, and which forms their great happiness, is the cause why they bestow on all their eminent writers, and on Bacon among the rest, such praises and acclamations as may often appear partial and excessive." In answer to these strictures it has been justly observed (Brit. Biog. vol. iv. p. 154.) that "Galileo was undoubtedly an illustrious man, and Kepler an admirable astronomer; but though we admit their superiority in astronomy, mechanics, and some particular branches of physical knowledge, it does by no means follow that either of them was a greater philosopher than Bacon. The praise of Bacon is founded not upon his skill in this or that particular branch of knowledge, but on his great and comprehensive understanding, which took in almost the whole extent of universal science. And he was so little indebted to the partiality of his countrymen, that his writings appear, for some time at least, to have been more esteemed and admired in foreign countries than in England."

Mrs. Macaulay expresses in very strong terms her abhorrence of his character, when she says (vol. i. p. 157.), that "philosophy itself was degraded by a conjunction with his mean soul." But with respect to the strength and extent of his genius, this female writer says, "his precious bequests to posterity paint them stronger than can any other pen." It must however be confessed, that it was some discredit to Bacon, that he could not perceive the reasonableness of the system of Copernicus; but perhaps he understood less of astronomy, and was less sensible of its deficiencies, than of any other part of science and philosophy. With confidence in the merit of his own productions, and assuring himself of posthumous fame, lord Bacon introduces in his last will this remarkable passage:—"My name and memory I leave to foreign nations; and to mine own countrymen, after some time is passed over." Upon the superstructure that has been raised on the foundation of experimental philosophy which he has established, this inscription will be read, says one of his biographers, by distant posterity, "BACON, THE FATHER OF EXPERIMENTAL PHILOSOPHY."

Upon the whole, in contemplating the character of Bacon, exclusively of his incontestible merit as a philosopher, notwithstanding all the allowances that are made in his favour,

from the spirit of the times, from his own peculiar circumstances, and from other considerations, yet, when we call to mind his slavish submission in general to the will of the crown, and especially his ingratitude to Essex, and his corruption as a judge, we are constrained, though not without great regret, to acquiesce in the justice of the description given of him by Mr. Pope, (*Ess. on Man*, ep. iv. v. 277.)

"If parts allure thee, think how Bacon shin'd,
The wisest, brightest, meanest of mankind."

Acknowledging the propriety of this representation, we may infer from it the infinite superiority of the pursuits of intellect above those of ambition. "Had Bacon contented himself with being a philosopher, without aspiring after the honour of a statesman and a courtier, he would have been a greater and a happier man." *Mallet's Life of lord Bacon*, prefixed to the edition of his works, 1753. *Brucker's Hist. Phil.* by Enfield, vol. ii. p. 520, &c. *Biog. Brit. Gen. Biog.*

Though not a practical musician, nor a writer *ex professo* on the musical art or science, yet it is so manifest by his *Nat. Hist.* cento ii. that he had done music the honour to bestow much meditation on the theory of sound, we are proud to devote to him an article among music's benefactors.

He treats of the philosophy or production of sound, not by calculation, but by observation and experiments on Nature herself. He does not call octaves *replicates* (which is a Gallicism), but a recurrence. He thinks (and thinks rightly), that our not cultivating quarter tones, or enharmonic, is from their not being capable of harmony; and it seems a proof, among others, that the ancient Greeks had no harmony, or music in parts.

He speaks of sliding from one sound to another by small degrees, which are delightful. This we used to think a refinement of late times.

The *clavecin oculaire*, or ocular harpsichord of Perc Cassel, was certainly suggested to him by the experiment, N° 3, second cent.

The powers of sound on the spirits and affections; that sound depends on motion; that the inclosure of sound increases its force; that the tone of voice at the same pitch is of a different quality in a room, and in the open air, and in different rooms, are his discoveries. He denies, indeed, what was afterwards proved by the air-pump, that sound cannot be produced in an exhausted receiver.

Sound is carried along a wall better than in open space; and better on the smooth surface of a river or piece of water, than on land.

Dr. Holder, in his *Elements of Speech*, has but ingeniously extended one of sir Francis Bacon's experiments.

Derham's experiments on the propagation and motion of sound, were pointed out by the 201st experiment of sir Francis.

The late honourable Daines Barrington's experiments on birds, their power of imitation, and of teaching each other, seem to have sprung from sir Francis's experiments on the imitation of sound, cent. iii.

Consent of visibles and invisibles, advances somewhat further towards an ocular harpsichord.

The *sons harmoniques*, which Galileo and father Merfennus were observing about this time, had not escaped the penetrating and active mind of our great philosopher; and the *acousticon*, or ear-trumpet, is here first pointed out, N° 285.

His reflection at the end of N° 290, shall close this article.

"We have laboured, as may appear in this disquisition of sounds, diligently; both because sound is one of the most hidden portions of nature, and because it is of a virtue that may be called incorporeal and immaterial; whereof there be in nature but few. Besides, we were willing now, in

these our first centuries, to make a pattern or precedent of an exact inquisition, and we shall do the like hereafter on some other subjects that require it. For we desire that men should learn and perceive, how severe a thing the true disquisition of nature is; and should accustom themselves by the light of particulars to enlarge their minds to the amplitude of the world, and not reduce the world to the narrowness of their minds."

BACON, JOHN, an English sculptor of considerable eminence, and a member of the Royal Academy in London. He died August 7th 1799, aged 59. *Cecil's Mem. of Bacon*, 12mo. 1801. For a further account of this distinguished Artist; see SCULPTOR.

BACON, in *Geography*, a town of Persia, in the province of Segestan; 90 miles N.N.E. of Zareag.

BACONE, a town of Italy, in the duchy of Tuscany, 28 miles N.E. of Florence.

BACANTHORP, or BACON, JOHN, in *Biography*, an English monk of the thirteenth century, was born at Baconthorp, a village in Norfolk, and assumed the monastic habit in the convent of Blackney in the same county. He received his education at Oxford and Paris; and in his youth was attached to the philosophy of Averroes, who taught that one intelligent principle animates all human beings. At a general assembly of the order of English carmelites held in London in 1329, he was chosen one of their provincials. Being invited to Rome about four years afterwards, he gave offence by allowing, in public disputation, too much latitude in the marriage of persons mutually related. But he afterwards maintained, that in degrees of consanguinity prohibited by the divine law, the pope has no dispensing power. His stature was small; but his mind was eminently vigorous and active. He was distinguished through life by the appellation of the "Resolute Doctor;" and after his death he was celebrated both in prose and verse, as a zealous defender of the Catholic faith against Jews, Turks, and Heretics. Some few of the many books which he wrote were printed; among these were "Commentaries, or Questions on the four books of Sentences," Milan, 1510, and 1611; and "a Compendium of the Law of Christ," Venice, 1527. He died at London in 1346. *Cave, H. L.* vol. ii. Appendix, p. 27. *Biog. Brit.*

BACOPA, in *Botany*. *Lin. gen.* Schreb. n. 266. *Aubl.* 49. *Juss.* 313. *Class.* *pentandria monogynia*. *Nat. Ord.* *fucculentia: portulacæ*, *Juss.* *Gen. Char.* *Cal.* perianth one-leaved, five parted; two of the parts oblong, concave, acute; the two inferior reflex, ovate, acute; the single superior one broader, roundish, undulated. *Cor.* one-petalled; tube short, towards the orifice a little enlarged; border five-parted; parts ovate, oblong, obtuse, equal, spreading. *Stam.* filaments five, inserted into the tube of the corolla; anthers sagittate. *Pist.* germ ovate, compressed, below incrustured by the calyx growing to it; style short; stigma headed. *Per.* capsule one-celled. *Seeds* many, extremely small.

Ess. Gen. Char. *Cor.* with a short tube, spreading at the top. *Stam.* inserted into the tube of the corolla; stigma headed, caus. one-celled.

Species, 1. *B. aquatica*. *Aubl. Guian.* 129. t. 49. This plant puts forth several cylindric, succulent, knotty stems; leaves opposite, stem clasping or rather connate, thick, oblong, concave, sharp, smooth; flowers solitary, peduncled, alternate from the axillæ; below the calyx there stands a pair of fleshy bractes on the long peduncle; corolla blue. It puts forth roots from the knots, both as it runs along the ground, and as it lies on the surface of the water. A native of Cayenne, on the borders of rivulets, flowering in December. The inhabitants of the island call it *herbe aux brulures*, on account of its being used for curing burns.

BACQUERE,

BACQUERE, BENEDICT, in *Biography*. Of this writer, who lived towards the end of the seventeenth century, but of whose life no memorials have come to us, we have a much esteemed work, "*Salvator Senum*," published 1672; and, if it is not the same work, "*Senum Medicus, præscribens observanda, ut sine magna molestia fenectus protrahatur*." Colon. 1673, and 1683, 8vo. Haller Bib. Med. Pract. Monf. Carrera says, that Bacquer was professor of theology, and prior of the abbey of Dunes, which Eloy observes is very probable, as at the end of the directions for the preservation of the health of aged persons, is another work intitled, "*Salvator Senus, remedia fuggerans pro Senum salute eterna*." Eloy. Diction. Hist. De la Med. v. i. p. 242.

BACQUET, JOHN, a learned French lawyer, was advocate to the king, and flourished at the close of the sixteenth century. He wrote many excellent law-tracts, which were published with notes by Ferrière at Lyons, in 2 vols. folio, in 1744. He died in 1597. Nouv. Dict. Histor.

BACQUEVILLE, in *Geography*, a town of France, in the department of the Lower Seine, and chief place of a canton in the district of Dieppe. The place contains 2190 and the canton 15,238 inhabitants; the territory includes 110 kilometres and 30 communes.

BACTISHUA, or **BOKT JESU**, *Servants of Jesus*, a Christian family famed in the East for their knowledge of physic.

BACTISHUA, GEORGE, the first of the family of whom we have any account, who besides his skill in medicine, was eminent for his proficiency in the Persian and Arabian languages, received his education at Jondisabur, or Nisabur, the capital of Korasan. Sapor, king of the Persians is said to have built this city, A. C. 272, in honour of his queen, the daughter of the emperor Aurelian, who sent with her several Greek physicians. These men, settling there, received and propagated the doctrines of Hippocrates, in the east, and hence, Freind conjectures, it happened, that most of the celebrated Arabian physicians, Rhazes, Haly Abbas, Avicenna, were educated in the more eastern parts of Asia. George, being sent for to Bagdad, by Almanzor, the second caliph of the house of Abbas, to relieve him of a complaint of his stomach, in which he was successful, was detained there, and at the desire of the caliph, translated several books of physic; and when, on account of his ill health, he desired leave to return to his country, Almanzor sent him home with great honour, and a reward of 10,000 aurei. Rhazes and Serapion have recorded in their works many of the maxims and medicines of George. The answer was remarkable which he made to Almanzor, who had condescended to solicit his conversion from Christianity to Mahometanism, and offered to insure him a place in paradise upon his compliance. "No," replied the doctor, "I am very well contented to go wheresoever my forefathers have gone, be it to heaven or to hell." Russel's Aleppo, vol. ii. Append. p. 5.

Gabriel, the son of *George*, was in equal estimation with the caliph Haroun Al Raschid, whom he cured of an apoplexy, by directing him to be bled, which was performed, though contrary to the opinion of the other physicians. Freind annexed to his History of Physic, the life of Gabriel, translated into Latin, from the Arabic of Abi-Osbai. The translation was performed at the expence of Dr. Mead. The work is principally remarkable for the extravagant praises bestowed on Gabriel, and the account of the high honours and prodigious wealth heaped by the caliphs on their physicians. Freind's History of Physic, vol. ii. Haller. Bib. Med. Pract. For an account of others of this family, which in succession supplied the caliphs with physicians for above two centuries; see Russel's Aleppo (ubi supra).

BACTRIA, or **BACTRIANA**, in *Ancient Geography*, a country of Asia, was bounded on the west by Margiana and Aria, on the north by the river Oxus, which separated it from Sogdiana, on the south by the mountains called Paropamisus, which covered the north of India, and on the east by mountains which separated it from Asiatic Scythia and the country of the Massagetæ. It comprehended the present provinces of Balk and Gaur, and probably, says major Rennell, part of Korasan. It was a large, fruitful, and well-peopled country, and contained, according to Ammianus Marcellinus (l. xxiii.), a great number of cities mentioned by the ancients; but the metropolis was *Bactra*, called also Zariaspa, and now BALK, from which, or from the river Bactrus, the country derived its name. Quintus Curtius (l. vii. c. 4.) deduces the name both of the city and country from the river Bactrus, which watered the environs of the capital. Pliny (l. vi. c. 15, 16.) places Bactra on the river Zariaspe; and Curtius, on the Bactrus, at the foot of mount Paropamisus; but Ptolemy describes it as situated on the river Dargidus, in the heart of the country, at a great distance from this mountain, which was the southern boundary. The chief rivers of Bactria, with regard to the names of which there is considerable confusion, were the Oxus, the Oclius, the Orgomenes, or as Ptolemy calls it, Dargomenes, which, uniting with the Ochus, fell into the Oxus; the Zariaspa, or Zariaspes; the Artemis; and the Dargidus. That part of Bactria, which was watered by the river Oxus, is described by the ancients as a very fruitful country, abounding with pastures, and well stocked with cattle of a very large size; but the southern parts were sandy deserts, through which travellers journeyed only in the night, being under a necessity of guiding themselves by the stars, as if they were at sea, and exposed to the danger of being buried in the sand. The country was inhabited by the following nations: the Salatræ and Zariaspe; the Chomari, or Comarians, placed by Ptolemy near the sources of the Iaxartes, toward the eastern boundaries of Sogdiana; the Comi; the Acinacæ; the Tambazæ, or Tambyzi; the Thocaræ, or Tochari, who were mountaineers on the declivity which regards Bactriana, whence the modern Tokarestan; the Marycæi; the Scordæ; the Varni; the Aradiæ; the Orisippi; the Amarispæi, and some others. The Bactrians in general were reckoned good soldiers, and were always at war, either among themselves, or with the neighbouring nations. Herodotus says they were archers, and used bows made of their country reed or cane, and had short darts. In other respects they were accoutred, like the Medes, who wore tiaras, tunics, and breeches, with a dagger at their girdles. They were enemies to every kind of luxury. Pliny informs us, that they used to expose their old people after a certain age, to be devoured by fierce mastiffs, which they kept for that purpose, and called sepulchral dogs. He adds, that they allowed their daughters to associate with any whom they liked, and that incontinence was not disreputable even to the women.

The early history of Bactria is, like that of other ancient nations, involved in considerable obscurity and uncertainty. According to Diodorus, the Bactrian government, in the earlier ages, was monarchical. Zoroaster is said by Eusebius (in Chron.) to have reigned in Bactria, and to have been contemporary with Ninus, who made war upon him, and subdued his country. But Ctesias, followed by Diodorus, mentions one Oxyartes, who reigned in Bactria, when that country was reduced by Ninus, and he says that Zoroaster was contemporary with Cyrus the Great. But the history of this Persian lawgiver is lost in remote antiquity. It has been asserted by some writers, that Ninus subdued all Asia, except India and Bactriana. However this be, all authors

are agreed, that Bactria was subdued, first by the Assyrians, and afterwards by the Persians under Cyrus the Great. After the overthrow of the Persian empire by Alexander (B. C. 328.), it fell under the power of the Macedonians, and was held by the successors of Seleucus Nicator, till the reign of Antiochus Theos, when Theodotus, about the year B.C. 249, from being governor of that province, became king, and strengthened himself so effectually in his new kingdom, while Antiochus was engaged in a war with Ptolemy Philadelphus, king of Egypt, that he could never afterwards dispossess him of his acquisitions. He was succeeded by his son Theodotus, who, strengthening himself by an alliance with Arsaces, the founder of the Parthian monarchy, considerably enlarged his kingdom. Theodotus, being vanquished by Euthydemus, was expelled the kingdom; and Euthydemus was succeeded by his brother Menander, who extended his conquests to several countries that were unknown to Alexander the Great. The possessions which Menander had reduced were retained by his nephew and successor Demetrius, and enlarged by several new acquisitions. Having left the kingdom of Bactria in a very flourishing condition, he was succeeded by his son Eucratides, who invaded India, and made himself master of all those provinces which had been subjected by Alexander. During the reigns of these six princes, the commerce of Bactria with India was very considerable. The district near the mouth of the Indus, which Alexander had subdued, was recovered; and military operations were carried on in India, with such success, that the Bactrian kings penetrated far into the interior part of the country; and proud of the conquests which they had made, as well as of the extensive dominions over which they reigned, some of them assumed the title of "Great King," which distinguished the Persian monarchs in the days of their highest splendour. Apollodorus, the Bactrian historian, asserts that Eucratides possessed one thousand cities. The learned Bayer, in his interesting history, advances many arguments to prove that the Greeks of Bactriana imported the first linaments of science to the Hindoos. M. Pezron, in his "Antiquities of Nations," alleges that there was a people in the upper regions of Asia, beyond Media and mount Imaus, who in the first ages spread themselves over Bactria and Margiana, and proceeding by Armenia and Cappadocia, at last passed over into Europe. These people were called Sacæ. In the mean time, the Cimmerians, who were of the same family, went by the north; and having made various incursions, at last settled above the Euxine sea, near the Palus Mæotis. The learned Bryant is of opinion; that this account is not warranted by sufficient authority on the part of the writers to whom M. Pezron appeals. Although such people as the Cimmerians actually existed upon the Mæotis, yet that they came from Bactria, and fought their way through different countries; and that they were the brethren of the Scythians styled Sacæ, and took the upper route, when the others were making their inroad below, are circumstances which, says Bryant (Anal. Mythol. vol. iii. p. 121.), have not the least shadow of evidence. Another writer of our own nation (see Wiffes's Hist. & Chron. of the Fabulous Ages, p. 119.) supposes, that all sciences centered of old in Bactria, called Bochary, or "the land of books." (See SACÆ, and SCYTHIA.) But to return from this digression: Eucratides, king of Bactria, was treacherously murdered by his son of the same name, who usurped the throne; but he was expelled by the united forces of the Scythians who attacked it on one side, and of the Parthians who attacked it on the other, and was soon after killed in attempting to recover it. The Greeks, says Strabo (l. xi. p. 779.), were deprived of Bactria by tribes or herds of Scythian Nomades, who came from the country

beyond the Iaxartes, and were known by the names of Afii, Pafiani, Tachari, and Sacarauli. This fact coincides with the relation of the Chinese historians, cited by M. de Guignes (Mem. de Liter. t. xxv. Mem. p. 19.), and is confirmed by it. By them we are informed, that about 126 years before the Christian æra, a powerful horde of Tartars, pushed from their native seats on the confines of China, and obliged to move towards the west by the pressure of a more numerous body that rolled on behind them, passed the Iaxartes, and pouring in upon Bactria, like an irresistible torrent, overwhelmed that kingdom, and put an end to the dominion of the Greeks there, after it had been established near 130 years. The kings, who reigned in Bactria in the times of the Roman emperors Adrian, Antoninus Pius, and Valerian, were all of Scythian extraction; but the Scythians were in their turn driven out by the Huns, who reigned in Bactria in the time of Ladislaus IV. king of Hungary.

BACTRIANI, in *Geography*, a town of Asia, in the country of Georgia, 60 miles north of Teflis.

BACTRIANUS, in *Zoology*, a species of CAMELUS, having two bunches on the back. Linn. This differs very little in appearance from the common Arabian camel, except in being rather larger, and having two bunches on the back instead of one. It is an inhabitant of the western and northern parts of India, and also of the deserts bordered on China; the breeds of this kind are in more esteem for their swiftness than the other. In Arabia, we are told, it is chiefly kept for the use of the great, being not a native of that country, but imported from India, &c. Of this animal, as well as of the Arabian kind, there are several races or varieties, differing like those of horses in strength, size, swiftness, and elegance of form. A breed of peculiar swiftness is said to be reared in China, where it is distinguished by the expressive title of *Fong Kyo Fo*, or camels with feet of wind. A white variety occurs in some parts of Siberia; and lastly, a hybrid or mixed breed is said to be occasionally obtained between the Bactrian and the Arabian camel. Shaw, &c.

BACTRIS, in *Botany* (*από του βακτρην*, a staff; canes being made of the stems). Lin. gen. Schreb. n. 1693. Jacqu. Amer. t. 171. Gært. 9. 139. Class. *monocia hexandria*. Nat. Ord. *Palms*. Generic character; * Male flowers. *Cal.* spathe universal, one-leaved; spadix branched; perianth one-leaved, three-parted, small; parts lanceolate, concave, coloured. *Cor.* one-petalled, three-cleft; tube short; clefts ovate, acute, erect. *Stam.* filaments six, subulate, erect, of the length of the corolla, inserted into the middle of the tube; anthers oblong, incumbent. * Female flowers few, in the same spadix, intermixed with the male ones. *Cal.* spathe the same as in the males; perianth one-leaved, bell-shaped, three-toothed, pointed, coloured, very small, permanent. *Cor.* one-petalled, erect, three-toothed, permanent. *Pist.* germ ovate, large; style very short; stigma headed, obscurely three-cleft. *Per.* drupe coriaceous, roundish, fibrous-succulent, sharp-pointed with the style. *Seed*, nut roundish, depressed on each side; marked on the sides with three holes; kernel solid.

Ess. Gen. Char. Male. *Cal.* three-parted. *Cor.* one-petalled, three cleft. *Stam.* six. Female. *Cal.* one-leaved, three-toothed. *Cor.* one petalled, three-toothed; stigma obscurely three-cleft; drupe coriaceous.

Species, 1. *B. minor*. Jacqu. l. c. Ic. select. t. 256. *B. minima* Gært. Fruct. 2. 269.—conf. *B. globosa minor*. Ejusd. 1. 22. quæ *Cocos aculeata*, Swartz & Hort. Kew Palma, 7. Brown Jam. 344. "Fruit roundish." Root creeping; trunk upright, armed with numerous prickles, about an inch in diameter, seldom more than twelve feet high. The flowers usually appear as soon as it has attained

the height of about four feet; leaves frondose, few, stems clasping at the base, pinnate; the rib prickly; the leaflets ensiform, acuminate, shining, flat, serrate-prickly; spathes axillary, solitary, spreading, continuing long after the fruit is ripe; flowers without scent, very slightly tinged with yellow; fruit the colour and size of a common cherry, containing an acid juice of which the Americans make a sort of wine. Canes are made of the stem; they are dark-coloured, shining, jointed, very light, and called by the French *Cannes de Tobago*. 2. *B. major*. Jacqu. l. c. "Fruit ovate." This resembles the former, but grows to the height of twenty-five feet with a stem more than two inches in diameter. Leaves six feet long; leaflets nearly two feet, with the marginal prickles brown, and more conspicuous than those in the other species; spadix compressed, flat, reclining; fruit of the form and size of an egg, acuminate with the style, fibrous, succulent, covered with a dark purple coriaceous coat, of which the natives make a vinous liquor. The nut is large, of a dark colour, ovate-oblong, with an acuminate trifid apex, and three obscure holes, two above the middle, and the third higher; kernel oblong, blunt at both ends, cartilaginous, solid. The fruits are called *Cocorotes*, and sold in the market. Both these plants are natives of Carthagera in South America.

BACTRIS, in *Entomology*, a species of *BRUCHUS* that lives in the nuts of the American palms. It is cinereous; wing-cases rather smooth; posterior thighs ovate; shanks incurved. Linn. Amoen. Ac. Gmel. &c.

BACTROPERATA, also written *βακτροπερετα*, compounded of *βακτηρον*, staff, and *πηρα*, bag, or budget, an ancient appellation given to philosophers by way of contempt, denoting a man with a staff and a budget.

BACUACHI, in *Geography*, a town of North America, in New Navarre, 135 miles south of Casa Grand.

BACULARES, a sect of *ANABAPTISTS*, so called, as holding it unlawful to bear a sword, or any other arms besides a staff.

BACULARIUS, in *Writers of the Middle Age*, an ecclesiastical apparitor, or verger, who carries a staff, *baculus*, in his hand, as an ensign of his office.

BACULE, in *Fortification*, a kind of portcullis, or gate, made like a pit-fall with a counterpoise, and supported by two great stakes. It is usually made before the *corps du guard* advancing near the gate.

BACULI. See *BACILLI*.

BACULI, *Sancti Pauli*, or batons of St. Paul, a kind of figured stones, of the same substance with those resembling the bristles of some American *echini*, called by Dr. Plot *lapides Judaici*.

BACULOMETRY, the art of measuring accessible and inaccessible distances, by the help of *baculi*, staves or rods. Schwenker has explained this art in his "*Geometria Practica*;" the rules of it are also laid down by Wolfius in his *Elements*; Ozanam also gives an illustration of the principles of baculometry. See *DISTANCE*, and *LONGIMETRY*.

BACULOSUS ECCLESIASTICUS, in some *Ancient Laws*, is used for a bishop or abbot, dignified with the pastoral staff or crozier.

BACULUS DIVINATORIUS, or *Vergula Divina*, a branch of hazle-tree, of a forked figure, used for the discovery of mines, springs, &c. See *VIRGULA Divina*.

BADA, in *Ancient Geography*, a town of Africa, according to Ortelius and St. Cyprian.—Also, a river of Phœnicia, in the vicinity of the town of Paltos, near which was a tomb said to be that of Memnon, son of Tithonus, and nephew of Priam, king of Troy. Strabo, l. xv.

BADA, or *Badas*, in *Zoology*. This is the name of the *RHINOCEROS* among the negroes on the coast of Angola.

BADACUM, in *Ancient Geography*, a town of Norica, situate near the Danube. Ptolemy.

BADAGIS, in *Geography*, a town of Korasan, on the southern borders of the ancient desert of Margiana. N. lat. 35° 20'

BADAGSHAN, or *BADAKSHAN*, an ancient city of Independent Tartary, in Great Bucharia, seated on the north side of the river Amu, or Harrat, not far to the north of Anderab in Tokaristan. In the last century, this city belonged to the khan of Great Bucharia, or rather of Samarcand; and being secluded in a branch of the Belar Alps, was used as a state prison for rivals or insurgents. Badakshan was small, but well built and populous; and its inhabitants were enriched by the gold, silver, and rubies, found in its neighbourhood; the grains of gold and silver abounding in the torrents which descend from the mountains, when the snow melts in the beginning of summer. Several Caravans for Little Bucharia and China pass by this city. Ebn Haukal mentions that there were not only mines of rubies and lazulite near Badakshan; but that there was abundance of musk. It is situated above 100 miles from the source of the Amu, 230 from Balk, and 210 from Anghein in the province of Samarcand. N. lat. 36° 15'. E. long. 68° 45'.

BADAGRY, a town of Africa, in the country of Benin.

BADAJOS, *PAX AUGUSTA*, a considerable town of Spain, being the capital of Estremadura, and a frontier fortress towards Portugal. It is seated near the river Guadiana, on a gentle rise, which on one side is covered with olive-trees, and on the other side of the river are some fortified hills. Over the river is a handsome stone bridge, built, as it has been said, by the Romans, but as the inscription on its gates, by Philip II. The streets are clean, and partly straight, and well-paved; and there are a few large houses, with some handsome churches and towers. The fortifications are not very strong; but it has sustained two sieges, one by the Portuguese in 1658; and another by the English and Dutch, aided by the Portuguese, in 1705. N. lat. 38° 43'. W. long. 6° 19'.

BADANATHA, in *Ancient Geography*, a town of Arabia Felix, in the country of the Thamudæi. Ptolemy.

BADARA, a town of Asia, in Gedrosia.—Also, a town of Asia, in Caramania. Ptolemy.

BADASKA, in *Geography*, a town of Siberia, on the side of the Angara; 80 miles N.N.W. of Tekutsch.

BADATIUM, in *Ancient Geography*, a town of the Tauric Chersonesus. Ptolemy.

BADAUSA, a town of Asia, in Mesopotamia. Ptolemy.

BADDAMMY, in *Geography*, a town of Hindostan, in the country of the Vissapour, eighty miles south of Vissapour. N. lat. 16° 10'. E. long. 75° 40'.

BADELONA, *BADALONA*, or *BETULA*, an ancient town of Spain, in Catalonia, seated on the coast of the Mediterranean, about six miles north-east of Barcelona.

BADELU, or *BADIBOU*, a country of Africa, on the borders of the river Gambia.

BADELUNDSAHS, a long narrow sandy tract of land in Sweden, in the province of Westmannland, where the Danes were totally defeated in 1521.

BADEN, a district or county of Swisserland, lying on both sides of the river Limmatt, and bounded on the west by the river Aar, on the north by the Rhine, and on the south by the Reuss, became a bailliage of the eight ancient cantons in 1418, when the canton of Zurich took possession of the town and county, and so continued till the year 1712. A civil war breaking out at that time between the

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Protestant and Catholic cantons, Baden was besieged and taken by the troops of Zurich and Bern; and at the peace of Arau, it was ceded to those two cantons and Glarus, which, on account of its neutrality, preserved its right of joint sovereignty. Until 1712, the diet assembled at Baden; but was afterwards transferred to Frauenfeld. The three cantons alternately appointed a bailiff, who resided in the castle. The inhabitants elected their own magistrates, and had their own judicial courts. In civil proceedings, an appeal lies to the bailiff, and from his decision to the syndicate, composed of the deputies of the three cantons, and in the last resort to the three cantons themselves. In penal causes, the criminal court condemns, and the bailiff enjoys the power of pardoning, or mitigating the sentence. This bailiarge comprehends about 138 square geographical miles, and contains 24,000 persons. In consequence of the French revolution, a new division took place in 1798; the county of Baden, the free bailiarges, and a small portion of the south-western part of Zurich, were constituted one of the 18 Swiss departments or cantons, and Baden was its capital; but according to the constitution of the 29th of May 1801, Argovie, re-united with Baden and with the upper part of the Frickthal, was made one of the 17 departments or cantons of Switzerland; and six representatives were appointed to be deputed by it to the diet. The soil of this district is fertile; in general it abounds with grain and fruit, and on the sides of the Limmatt it produces wine. The mountains yield excellent free-stone, marble, and iron ore. The greater number of the inhabitants are Roman Catholics.

BADEN, the capital of the above district or canton, is situated on the side of the river Limmatt, in a plain flanked by two hills, between which the river runs. It derived its name and its origin from the warm baths in its neighbourhood, which were famous before the Christian æra, and are mentioned by the ancients under the name of *Aque* and *Thermæ Helveticæ*. It was a Roman fortress, erected to curb the Alemanni or Germans, and was rased when the Helvetians, who supported Otho, were routed by Cæcina, general to Vitellius. Being rebuilt, it was taken by the Germans; fell afterwards under the dominion of the Franks, was in the tenth century incorporated in the German empire, and became successively subject to the dukes of Zæringen, to the counts of Kyburg, and to Rhodolph of Hapsburgh. When his descendant Frederic, duke of Austria, was put under the ban of the empire, in 1418, it came into the possession of the canton of Zurich, which purchased it of the emperor Sigismund, and subjected it to the eight cantons. (See the preceding article.) Many monuments of antiquity have been found in this place; such as statues of several heathen gods, made of alabaster; Roman coins, formed of bronze, of Augustus, Vespasian, Decius, &c.; and several medals of the Roman emperors, of gold, silver, copper, and bronze. There are two churches in this city; one collegiate, and the other a monastery of Capuchins, near the town-house, in which the diet formerly assembled. Before the castle, which is the residence of the bailiff, there is a stone-pillar, erected in honour of the emperor Trajan, who paved in this country a road eighty-five Italian miles long. The inhabitants are rigid Roman Catholics, and were formerly insolent in their behaviour towards the Protestants. The baths are seated on each side of the river, about a quarter of a league from the city. Adjacent to the small baths is a village, and to the large, a town, seated on a hill of steep ascent. The water of the baths is conveyed to inns and private houses by means of pipes, of which there are about sixty. And in the middle of the town there are public baths, supplied by a spring in the street, where the

poor may bathe gratis. All the baths are hot, and they are used for drinking as well as for bathing. They serve, like others of a similar kind, to give relief in a variety of diseases. (See *WATERS, Medicinal*.) About a mile from Baden, at a place called Wettingen, where the Limmatt flows with the greatest rapidity, there is a beautiful piece of mechanism, which is a wooden bridge, 240 feet long, and suspended above twenty feet from the surface of the water. It was the last work of Grubenman, the self-taught architect, and exceeds in elegance that of Schaffhausen. Mr. Coxe (*Trav. Swiss*, vol. i. 137) has given a geometrical elevation of it. Baden is distant 14½ miles from Zurich. N. lat. 47° 21'. E. long. 8° 12'.

BADEN, a margravate of Germany, in the circle of Swabia, is divided into the upper and lower margravate. The upper, or the marquisate of Baden-Baden, terminates westward on the Rhine, though a small part of it lies west of that river, and is bounded on the north-west by the lower margravate of Baden-Durlach, on the east by the duchy of Wurtemberg and the county of Eberstein, and on the south by the Ortenau and the Brisgau. The principal towns are Rastadt, Baden, Etlingen, Steinbach, and Stollhofen. The margrave is a sovereign prince, and has a vote in the college of princes. The established religion is Roman catholic. The lower margravate, or that of Baden-Durlach, is bounded on the west by the Rhine, on the south by the upper margravate of Baden, on the east by the duchy of Wurtemberg, and on the north by the bishopric of Spire. The principal towns are Carlsruhe, Durlach, Pforzheim, Muhlburg, and Emmingen. This prince has two votes in the college of princes, one for Baden-Durlach, and the other for the margravate of Stockberg, which belongs to him, and lies in and along the Brisgau. The reigning family, and the country in general, profess Lutheranism, with a toleration of Protestants, Catholics, and Jews at Carlsruhe. The whole margravate of Baden is a populous and fertile country, abounding with corn, hemp, flax, bees-wax, wood, and wine. Venison and wild-fowl are so plentiful that they are the common diet of the peasants. Their hogs, being fed with chestnuts, furnish excellent bacon. They have free-stone for building, marble of various colours, and some agate. Manufactures are much encouraged, and the country is in a flourishing condition. The territories of the margrave of Baden comprehend 832 square miles, and 200,000 inhabitants. The annual revenue is estimated at 1,200,000 florins; and the military establishment consists of 3000 men, of whom 300 are cavalry.

BADEN, a town of Germany, and capital of the upper margravate of Baden, is seated on the river Oalbach near the Rhine, among vineyards. It has a fine castle, on the top of a mountain, where the prince often resides during the summer. It is famous for its hot baths, whence it derives its name: distant four miles south from Rastadt. N. lat. 48° 46'. E. long. 9° 24'.

BADEN, a town of Germany, in the archduchy of Austria, seated on the river Schwocha, and much frequented on account of its baths. The town is walled, and has three churches; twelve miles S.S.W. from Vienna. N. lat. 48° 3'. E. long. 16° 12'.

BADENOCH, a district forming the eastern part of Inverness-shire, in Scotland, extending from east to west about thirty-three miles, and in the broadest part twenty-seven miles from north-east to south-west. It is barren and hilly, and abounds with deer and game.

BADENS, FRANCIS, in *Biography*, a painter of history, and portraits, was born at Antwerp, in 1571, and acquired the first rudiments of the art from his father; and, by visiting Rome and other parts of Italy, acquired a good taste

in design, and a very pleasing manner. Upon his return to his own country, his merit was so generally acknowledged, that he was distinguished by the name of the Italian painter. His touch was light and spirited, and his colouring warm, so that he had the honour of being the first who introduced among his countrymen a good taste for colouring. The news of his brother's assassination occasioned his death in 1603, which was much regretted by every lover of the art. Pilkington.

BADENSIS, in *Entomology*, a species of *CURCULIO*, about the size of *C. cerasi*. It is black; legs pitchy. Gmelin, Blom. This insect inhabits Germany; the thorax is rather smooth and ovate; wing-cases obsoletely striated; thighs clavated.

BADENSIS, in *Ornithology*, a species of *EMBERIZA* found in the neighbourhood of Baden. The colour is olive, streaked with blackish, beneath paler; chin orange; breast striated with blackish. Sander Naturf.

BADENUCHI, in *Geography*, a town of North America, in the province of New Navarre; 125 miles south of Casa Grand.

BADENWEILER, a town of Germany, in the circle of Swabia, and margravate of Badcu-Baden. N. lat. 47° 55'. E. long. 7° 50'.

BADERA, in *Ancient Geography*, *Basice*, a place of Gaul, belonging to the Volcæ Tectofages, in the Narbonensis Prima, on the rout from Toulouse to Narbonne, and south-east of the first of these towns.

BADESSUS, a town of Asia, placed by Ptolemy in Caria.

BADEY, in *Geography*, a town of Persia, in the province of Korasan; 140 miles north-west of Herat.

BADGE, in *Naval Architecture*, signifies a sort of ornament placed on the outside of small ships very near the stern, containing either a window, for the convenience of the cabin, or a representation of it. It is commonly decorated with marine figures, martial instruments, or such like emblems.

BADGE, in *Heraldry*. See *DEVICE*.

BADGER, *Common*, in *Zoology*, *ursus meles* of Linn. and Gmel. See *URSUS MELES*. The badger's skin is of some use in commerce. Their fat is sold by the druggists, as a remedy against disorders of the kidneys and the sciatica; and their hair, for the making pencils for painters and gilders.

BADGER, from *bajulo*, *I carry*, or from the Fr. *baggage*, *a bundle*; whence *bagagier*, *a carrier of goods*; a licensed huckster, or person privileged to buy corn, or other provisions, and to carry them from one place to another to make profit of them, without being reputed an engrosser. In the statutes he is also called a *kidder*, or *lader of corn*, 5 & 6 Ed. VI. c. 14. 5 El. c. 12.—We also read of badgers, or retailers of salt, 9 W. III. c. 6. If any person shall act as a badger without licence, which continues in force one year, he shall forfeit five pounds, one moiety to the king, and the other to the proprietor. 13 Eliz. c. 25. § 20.

BADGER-hunting. See *HUNTING*.

BADIA, in *Conchology*, a species of *CYPRÆA*, having an oblong gibbous shell, above bay-colour, dotted with brown and white. Gmelin, &c. Its native place is unknown.

BADIA, a species of *HELIX*, called by Born *helix unguina*; it is about an inch in height, and rather more than an inch and a half in length; and of a chefnut colour. The shell is umbilicated, subglobose, smooth, depressed above; aperture lunar. Gmelin.

BADIA, a species of *PATELLA*, the shell of which is

somewhat convex, brown, bay colour within; with twelve larger rays, each surrounded on both sides by a rib; and smaller rays. The varieties of this kind are numerous, and no less than sixteen of them are described by Schroet. Einl. in Conch. n. Litterat. &c. This shell is usually about two inches and three quarters in length; more or less flat in different specimens, and rarely pellucid; sometimes they are dotted with green, but slightly; and in others the upper surface is spotted all over with that colour; shells of this kind occur in which green or brown is disposed in rays, or in rows of dots; sometimes they are pale ash-colour, waved or spotted with yellow or black, or liver colour. The crown is often variegated with rays, and not unfrequently with five rows of blue dots; and a spatulate liver-coloured or green spot in the bottom, surrounded by a single or double band, which is more or less pale, and of different colours in different shells; the inner surface is usually either brown, yellow, liver-colour, or hoary-grey.

BADIA, in *Ancient Geography*, a town of Spain, in Bætica, supposed to be the present BADAJOZ.

BADIA, in *Geography*, a town of Italy, in the duchy of Tuscany, seventeen miles north of Florence.—Also, a town in the same duchy, fifteen miles west of Volterra.

BADIAGA, in the *Materia Medica*, the name of a sort of spongy substance, common in the shops in Moscow, and some other northern kingdoms: used for taking away the livid marks from blows and bruises, which the powder of it is said to do in a night's time.

We owe the knowledge of this medicine, and its history, to the accurate Buxbaum. He observes, that the substance is always found under water, and is of a very singular and peculiar nature. It somewhat resembles the *aleyoniums*, and somewhat the sponges, but differs greatly from both, in that it is full of small round granules, resembling seeds. It is of a loose, light, and spongy structure, and is made up of a number of fibres of an herbaceous matter, and is dry, rigid, and friable between the fingers. This may serve as the generic character of the badiaga, of which this accurate observer has found three different species. Linnæus makes it a species of sponge.

BADIAN, or **BADIANA**, the seed of the anise-tree, or of a tree resembling it, that grows in China: and sometimes used by the Chinese, and also by the Dutch, to give an aromatic taste to their tea.

BADIATH, in *Ancient Geography*, a town of Africa, in Libya interior.

BADIGEON, a mixture of plaister and free-stone, well ground together, and sifted; used by statuaries to fill up the little holes, and repair the defects in stones, whereof they make their statues and other work.

The same term is also used by joiners, for saw-dust mixed with strong glue, wherewith they fill up the chaps, and other defects in wood, after it is wrought.

BADILE, **ANTONIO**, in *Biography*, a painter of history and portrait, was born at Verona in 1480, and by assiduous application excelled his predecessors in an acquaintance with the true principles of his art. He was allowed to be a very eminent artist; and he had the honour of having for his disciples, Paolo Veronese, and Baptista Zelotti. His colouring was admirable; his carnations beautiful; and his portraits preserved the perfect resemblance of flesh and real life. He died in 1560. Pilkington.

BADILETTERS, a name given to a race of horsemen resident in the mountains, in the vicinity of Circassia, and of the Nogai Tartars, who in some measure retain their independence.

BADINGEN, in *Geography*, a town of Germany, in the

circle of Upper Saxony, and old mark of Brandenburg, seven miles west of Stendal.

BADJOURA, a large village of Egypt, on the western shore of the Nile, not far from Fushout, in N. lat. $26^{\circ} 3' 16''$.

BADIS, in *Ancient Geography*, a town of Carmania, seated on the coast of the Persian gulf, near the promontory of Carpella. Nearchus's Periplus.—Also, an episcopal town of Africa, according to Ortelius, who cites St. Augustin.

BADIS, in *Geography*, a fortress of Livonia, on the south side of the gulf of Finland, about seven leagues east from Revel, in N. lat. $59^{\circ} 15'$. E. long. $24^{\circ} 36'$.

BADIUS, in *Entomology*, a species of CERAMBYX (*Stenocorus*) that inhabits Siberia. It is of a bay colour, with the thorax and wing-cases striated. Lepech, It.

BADIUS, in *Ornithology*, a species of FALCO, about thirteen inches in length; a native of Ceylon; and described in Brown's illustrations under the name of the *brown hawk*. The legs are pale; head and body above brown, beneath white with yellow lunar spots; tail pale brown, with four dusky lines. Gmelin, &c.

BADKIS, in *Geography*, a town of Persia, in the province of Korasan, thirty-six miles north of Herat. N. lat. $35^{\circ} 26'$. E. long. $60^{\circ} 35'$.

BADOGI, a town of Russia, on the north coast of lake Bielo, in the government of Novogorod, 196 miles north-east of Novogorod.

BADOUCE, in *Natural History*, the East Indian name of a fruit very common in that part of the world. It is round, and of the size of one of our common apples; it is yellow on the outside, and white within. It resembles the *mangoustan*, but its pulp is more transparent; its taste is very agreeable, and has some resemblance to that of our gooseberries.

BADRACHILLUM, in *Geography*, a town of Hindostan, in the Moodajee Boomsia country, 72 miles N. E. of Rajamundry, and 50 east of Byarem.

BADRAI, a town of European Turkey, in Moldavia, ten miles north of Stephanowze.

BADRINUS, in *Ancient Geography*, *Fossato Grande*, a river of Italy, in the territory of the Baii.

BADRIS, a town of Africa, in Marmorica. Anton. Itin.

BADUCCA, in *Botany*. See CAPPARIS.

BADUEL, CLAUD, in *Biography*, a protestant divine of the sixteenth century, was a native of Nismes, and under the patronage of the queen of Navarre was appointed rector of the university in that city. In 1557 he became the pastor of a church in the neighbourhood of Geneva, and taught mathematics and philosophy till his death in 1561. He translated into Latin, the sermons and some other works, of Calvin, published at Geneva in 1557, 8vo. He also wrote "De ratione vitæ studiosæ ac literatæ in Matrimonio collocandæ ac degendæ," 4to. printed at Lyons in 1544, and translated into Latin in 1548; "De Collegio et Universitate Nemaufensi," printed at Lyons in 1554; "Acta Martyrum nostri Sæculi," Genev. 1556; and also Latin orations and epistles. His Latinity is commended; and he was much esteemed for his learning and piety. Gen. Dict.

BADUENNÆ LUCUS, or BADUHENNA, in *Ancient Geography*, the name of a forest in Germany, mentioned by Tacitus. Its situation is not ascertained. This was the place where Civilis formed his conspiracy against the Romans.

BADULATO, in *Geography*, a town of Italy, in the kingdom of Naples, and province of Calabria Ultra, fourteen miles S. S. E. of Squillace.

BADY, a river and an adjacent place of Peloponnesus, in the territory of Elis, mentioned by Pausanias. After a war which depopulated the country, the women, it is said, presented their supplications to Minerva, that they might supply the waste by a new progeny in consequence of their first intercourse with their husbands; their petitions were granted; and they erected a temple in honour of the goddess, and hence the name *Bady* or *Badu*, *Badu*, or in the Dorian dialect *Adv*, i. e. pleasant or agreeable.

BÆA, the name of a mountain in the island of Cephalonia.

BÆBÆ, a small town of Asia, in Caria. Steph. Byz.

BÆBARZANA, or BABARNANA, a town of Asia, in Aria.

BÆBRO, the name of a town of Spain, mentioned by Pliny.

BÆCKIA, in *Botany* (named in honour of Dr. Bæck physician to the king of Sweden). Linn. g. 491. Schreb. 670. Juss. 321. Class, *oëlandria monogynia*. Nat. Ord. *calycanthemæ*. *Onagræ*, Juss. Gen. Char. *Cal.* perianth one-leafed, funnel-form, five-toothed, permanent. *Cor.* petals five, roundish, patulous, inserted into the calyx. *Stam.* filaments eight, of which six are equal, two solitary, very short, bent in; anthers subovate, small. *Pist.* germ roundish; style filiform, shorter than the corolla; stigma capitate. *Per.* capsule globular, crowned, four-celled, four-valved. *Seeds* roundish, angular on one side.

Ess. Gen. Char. *Cal.* funnel-form, five-toothed. *Cor.* five-petalled; caps. globular, four-celled, crowned.

Species, *B. frutescens*. Reich. 2. 200. Obs. It. 231. t. 1. This shrub has the habit of southernwood, with wand-like branches, and opposite short simple twigs; leaves opposite, linear, sharp, smooth, entire; flowers axillary, solitary, on a naked peduncle the length of the flower, much shorter than the leaves. A native of China, where it is called Tiongina.

BÆCOLICUM, or BIACOLICOS, in *Ancient Geography*, a mountain of Africa, in the Pentapolis. Ptolemy.

BÆCOR, a place of Spain, in Bætica, where Viriatus wintered after having been defeated by Fabius Maximus Æmilianus. Appian.

BÆCULA, a town of Hispania Tarragonensis, in the territory, or at least in the vicinity of the Authetani. Ptolemy.

BÆDOO, in *Geography*, a district of Africa, to the west of the river Niger, mentioned by Mr. Park in the narrative of his journey.

BÆLAMA (*Clupea Belama*), in *Ichthyology*, the name of a fish found in the Red Sea, and described by Forsk. Fn. Arab.—It is *clupea setirostris* of Gmelin.

BÆLON, in *Ancient Geography*, a town of Spain, north-west of Mellaria, upon the straits of Gades, which carried on a considerable commerce in salt with Tingis, on the opposite shore.

BAEN, in *Geography*, a town of European Turkey, in Moldavia, sixteen miles N. N. W. of Niemez.

BÆNUM, in *Ancient Geography*, a town of Arabia Felix. Ptolemy.

BÆOBOTRYS, in *Botany*, from *Bæos*, small, and *Botrys*, a raceme, the fructifications being in thin racemes). Lin. gen. Schreb. 318. Forster, Gen. 11. Class, *pentandria monogynia*. Gen. Char. *Cal.* perianth double; exterior three-leafed; leaflets roundish, concave, smaller; inferior one-leafed, bell-shaped, short, five-cleft, growing to the germ; clefts ovate, permanent, converging after flowering, and crowning the fruit. *Cor.* one-petalled, tubular; tube very short; border five-cleft, erect; clefts rounded, very short.

short. *Stam.* filaments five, very short, in the middle of the tube; anthers heart-shaped. *Pist.* germ globose, half-superior; style cylindric, very short, permanent; stigma obtuse, tuberculated. *Per.* berry globose, somewhat dry, one-celled, growing to the calyx. *Seeds* several, angular, affixed to a columnar receptacle in the bottom of the berry.

Species, *baobotrys nemoralis*. Forst. Flor. Aust. 97. A native of the isle of Tanna, in the South seas.

BÆONES, in *Geography*, the name given by Arrian to an island in the Indian ocean, on the other side of the river Indus.

BAER, and WEISSE BAER, in *Zoology*, the names of the black bear, and Polar bear, in "Ridinger's Animals."

BÆRENBEISSER, the BULL DOG, Ridinger. *Canis molossus*, Gmel.

BAERSIUS, or VEKENSTIL, HENRY, in *Biography*, a mathematician, flourished in the beginning of the sixteenth century. He was a printer at Louvain, and the author of the following curious mathematical treatises; "Tabula perpetua Longitudinum ac Latitudinum Planetarum," 1528; "De compositione et usu Decretorii Planetarum," 1530; "De compositione et usu Quadrantis," 1537. Moreri.

BÆRSTRAT, a painter of sea-ports, sea-shores, and fish, was an eminent master, whose works were much esteemed, though the place and time of his nativity are unknown. His pictures are easily distinguished by a general brightness diffused through the whole, and particularly in his skies. His drawings were correct, and perfective true; he copied every object from nature, and was exact in his representations of sea-ports, ships of war, and vessels of a smaller size, which he distributed with judgment, so as to produce a very pleasing effect. His pencil is light and clean, his touch spirited, and his colouring always transparent; and he generally finished his pictures very neatly. He died in 1687. Pilkington.

BÆRUS, in *Ancient Geography*, a town of Macedonia. Ptolemy.

BÆSAMPSEA, a town situated in the Arabian gulf, supposed by some interpreters to be the same with the Beth-Shemesh, or the house of the sun, mentioned by Joshua.

BÆSIPPO, a town of Spain, situate about twelve miles from Bælon, and at a somewhat less distance eastward from the promontory of Juno. Anton. Itin.

BÆTANA, a town of India, on this side the Ganges, seated on the river Nanaguna, and said by Ptolemy to be the capital and residence of the Siropolemii.

BÆTERRÆ, BEZIERS, a town, which was a Roman colony, situate in Narbonnensis Prima, a southern province of Gaul, at a small distance north-east from Narbo. It was the station of the veterans of the seventh legion, who built two temples, one dedicated to Augustus, and another to his daughter Julia. Tiberius also adorned this city; and in the fourth century it was one of the most considerable in Gaul. But in the fifth century it was taken by the Visigoths, who demolished its splendid edifices. It was afterwards re-established; but taken possession of by the Saracens in 736. In the next year Charles expelled them, and destroyed the city, so that they might not be able to re-fortify it.

BÆTHAUTA, a town of Asia, in Mesopotamia. Ptolemy.

BÆTICA, a province comprehending the southern part of Spain, and corresponding to the present Andalusia and Grenada. This was one of the three provinces into which Augustus divided Spain; the other two being Lusitania

and Tarraconensis. It derived its name from the river Bætis, since called Tartessus, and now Guadalquivir, or the great river; and was bounded on the west side by Lusitania, on the south by the Mediterranean and gulf of Gades, and on the north by the Cantabric sea, now the sea of Biscay. Its limits towards the north-east were fluctuating, and cannot be easily ascertained. The Bætis divided this province into two parts; on the one side of which, towards the Anas, were situate the Turdetani, whence the kingdom was called Turdetania, but it was better known by the name of Bætunia. On the other side were situated the Bastuli, Bastitani, and Conteitani, along the Mediterranean coasts. It was the richest and the best known province of Spain. It was famous for its wool; and its fertility was such, that its produce, according to Pliny (l. xviii. c. 10.), was an hundred fold. It is well known that the Phœnicians were long ago established on these coasts, and that the Carthaginians had settlements in this country. Polybius speaks in high terms of the wealth of Bætica, and of the magnificence of the court of one of its sovereigns. Bætica, according to this author, contained 175 cities: of which eight were colonies, eight municipal, twenty-nine enjoyed the jus Latii, four were allied, six free, and 120 stipendiary or such as paid taxes. The chief mountains were Marianus, now Sierra Morena, and Orospea being a part of the present Sierra Nevada. The principal rivers were the Anas and Bætis; and the chief towns were Basti, Acei, Eliberis, Castulo, Corduba, Astigi, Hispalis and Gades.

BÆTIS, now GUADALQUIVIR, a river of Spain, in Bætica, which had its source, according to Pliny, in the mountains called Saltus Fugienfis; or to the north-east of Orospea, pursued its course towards the west, washing Castulo, Corduba, and Hispalis, and discharged itself by many outlets or mouths into the sea. The inhabitants of the country called it Cirtium and Certis, and the Arabs Ciritus, derived, according to Mariana, from the oriental term *kiriath*, a town, and denoting the river of towns, on account of the number of those which it watered. See GUADALQUIVIR.

BÆTIUM, the name of a town of Macedonia.

BÆTIUS, a river of Arabia Felix.—Also, a mountain of Asia, in Drangiana. Ptolemy.

BÆTULO, a town of Spain, belonging to the Laetani, at a small distance south-east from Barcino; now *Badellona*.

BÆTURIA. See BÆTICA.

BÆTUS, in *Ichthyology*, a name given by Aristotle and other of the ancient Greeks, to the fish called by some Latin writers *cottus*; and particularly to one kind supposed to be that described by Linnæus under the name of *gobio*; and called the *bull-head*, or *miller's thumb*, in England.

BÆTYLOS, or BÆTYLION, in *Antiquity*, a kind of stones worshipped among the Greeks, Phrygians, and other nations of the East; supposed by some modern naturalists to be the same with our *ceraunia*, or thunder-stone.

The priests of Cybele carried a bætylos on their breast, representing the mother of the gods.

According to Damascius, cited by Photius, they had many of these bætylia, which were consecrated to different gods, as Saturn, Jupiter, the sun, &c. Bochart (*Chanaan*, l. ii. c. 2. vol. i. p. 708.) derives the origin of this superstitious practice from the stone which Jacob erected at Bethel. Whencesoever the practice was deduced, it was very extensive and prevalent; for in the eastern countries no idol was more common than oblong stones, which were denominated by the Greeks *κίονες*, pillars. In some parts of Egypt, they were planted on both sides of their roads. In the temple of Heliogabalus, in Syria, there was one which they

pretended to have fallen from heaven : and a black stone of this kind was fetched from Phrygia, with great ceremony, together with the priests that belonged to it, by a Roman embassy, at the head of which was Scipio Nafica.

BÆZA, in *Geography*, a town of Spain, in the province of Andalusia, and country of Jaen, seated on a high hill three miles from the river Guadalquivir. It was anciently the see of a bishop, which was removed to Jaen in 1249, and a kind of university founded by John d'Avila. It was taken by the Moors about the end of the fifteenth century. N. lat. $37^{\circ} 45'$. E. long. $3^{\circ} 15'$.

BÆZA, a town of South America, the capital of the government of Quixos, in the province of Quito, in Peru, was founded by Gil Ramirez D'Avalos in the year 1559. Bæza, though the first built town in this country, has remained very small, which is owing to the building of the two cities of Avila, and Archidona, which became the chief objects of the attention of the settlers. But these places have not increased to the title of cities, which was given them, when they were founded ; because the country is much inferior to Quito with regard to its air and fertility and the other enjoyments of life. Bæza is much declined, and consists only of eight or nine thatched houses, with about twenty inhabitants of all ages ; so that from being the capital as it once was, it is now annexed to the parish of Papallacta, in which town resides the priest, who has also under his care another town called Maspu. This decay was the unavoidable consequence of the removal of the governor, who has of late resided at Archidona. See **QUIXOS**.

BÆZILLO, a town of Spain, in Old Castile, three leagues from Valladolid.

BAFETAS, or **BAFTAS**, a cloth made entirely of coarse white cotton thread, which comes from the East Indies. Those of Surat are the best.

BAFFA, or **BOFO**, in *Geography*, a neat village of Africa, on the Grain coast, about a mile east of Sanguin ; which supplies ships with ivory and pepper. It is easily distinguished by a long sandy point, surrounded with rocks, that project into the sea. The language spoken in this place is a kind of corrupt Portuguese, or rather a mixed language.

BAFFA, *Cape*, is the south-west point of the island of Cyprus in the Mediterranean, in N. lat. $34^{\circ} 37'$. E. long. $32^{\circ} 18'$. Near this harbour stood the ancient Paphos, where was a temple consecrated to Venus (see **PAPHOS**) ; it is now succeeded by ruins, a village, a mean castle, and equally mean houses, and a few Greek churches of the same description ; and the name Paphos is converted into Baffa or Baffo. In the rocks is found a very fine rock-crystal, which is called the Baffa diamond, because it is procured from the environs of Baffa.

BAFFIN'S BAY, is the largest gulf or bay of North America, and was called from William Baffin, who, accompanied by captain Robert Bylot, attempted, in 1616, to find a passage through Davis's straits. In a large sense it extends nearly north and north-west from cape Farewel in West Greenland, as far as Whale sound, passing through the part of it called Davis's straits, and reaches from the parallel of 60° to that of 80° N. lat. In a more confined sense it comprehends from 70° to 80° , being bounded on the north by the Arctic continent or lands approaching towards the north pole, on the east by Greenland, on the south by Davis's straits, the ocean, and several islands which lie between this gulf and Hudson's bay, and on the west by a part of North America. Baffin seems to have restricted this appellation to the sea between 72° and 78° N. lat. and says that he traded with the Greenlanders at Horn sound,

in the seventy-third degree, but in the seventy-fourth degree he found no natives, but several plains where tents had been set up, from which he concluded, that at certain seasons of the summer people resided there. The sea was full of seals and unicorn fish ; and in sir Thomas Smith's found, in the seventy-eighth degree, he found the largest whales. See Crantz's Hist. of Greenland, vol. i. p. 16. In our maps it opens into the Atlantic ocean through Baffin's and Davis's straits between the broken land on the American coast, and that west of New Greenland, and between cape Chidley on the Labrador coast and cape Farewel on that of West Greenland ; and on the south-west of Davis's straits it has a communication with Hudson's bay, through a cluster of islands. Some maps shew a communication with Hudson's bay, in the 70th degree of N. lat. and the 70th of W. long. Baffin's bay is laid down as extending from 46° W. long. to 94° , which, allowing only sixteen geographical miles for the degree, would give a length of 768 geographical miles ; and the breadth on the west side is represented as little inferior. But the extent and limits of this sea have not yet been accurately ascertained : nor has the west coast of Greenland been explored beyond N. lat. 72° or Sanderfon's Hope, and an old Danish settlement called Opernerig. In the midst of Baffin's bay many maps present a large tract called James island, which some have imagined to be a promontory passing from Greenland ; or it is probably a large isle in the north of Hudson sea, laid down from erroneous observations. This bay has been sometimes called Bylot's bay.

BAFFIN'S Strait, is a passage between James island and the most eastern of Cumberland islands, from the gulf of the ocean into Baffin's bay. This, and Davis's strait on the east of James island, and Cumberland strait on the south-west between the Cumberland islands, seem to shew that the proper boundary of Baffin's bay does not reach so far south as to cape Farewel.

BAFING, or **BLACK**, *River*, a principal branch of the Senegal river in Africa. Mr. Park, in his " Travels in the Interior Districts of Africa," describes a singular bridge erected by the Tallonkas over this river. It consists of two tall trees, which, when tied together by the tops, reach from one side of the river to the other ; the roots resting upon the rocks, and the tops floating in the water. When a few trees have been placed in this direction, they are covered with dry bamboos, so as to form a floating bridge, with a sloping gangway at each end, where the trees rest upon the rocks. In the rainy season the bridge is carried away by the swelling of the river.

BAFWEN LAKE lies in that part of Sweden called Sudermanland ; it is extensive, and contains many islands.

BAG, in *Commerce*, a term used to signify different quantities of certain commodities : a bag of almonds, for instance, is about 3 cwt. ; of aniseeds, from 3 to 4 cwt. ; of pepper, from $1\frac{1}{4}$ to 3 cwt. ; of goats-hair, from 2 to 4 cwt. ; of cotton-yarn, from $2\frac{1}{2}$ to $4\frac{1}{2}$ cwt. &c.

BAG, *Sacculus*, in *Medicine* and *Pharmacy*, denotes a kind of fomentation, prepared of proper ingredients, inclosed in a bag, to be applied externally to a part diseased for present relief. Dispensatory writers describe cordial bags, used in deliquiums ; bags for the side, for the stomach, in weaknesses of the stomach ; anodyne bags to ease pain in any part. Wines and ales are frequently medicated by putting into them bags full of proper ingredients.

Sweet bags are compositions of perfumes, scented powders, and the like, inclosed in bags, to give a fragrancy to clothes, &c.

BAG, in *Farriery*. See **CHEWING-BALLS**.

BAG,

BAG, *Oil*. See OIL.

BAG, *Petty*. See PETTY.

BAGS, *Sand*. See SAND.

BAG, or *Boggy Point*, in *Geography*, is a noted promontory among seamen on the north coast of Devon, at the north-west point of the entrance into Barnstaple bay. N. lat. $51^{\circ} 10'$. W. long. $4^{\circ} 32'$.

BAGA, in *Ancient Geography*, a town of Africa Propria, being one of those which were re-established by the emperor Justinian, according to Procopius.

BAGA, or *Boga*, a town of Asia, in Pisidia.

BAGADA, a town of Ethiopia, near Egypt. Pliny.—Also, a small town of Asia, in Sufiana. Diod. Sic.

BAGADANIA, a large plain of Asia, in Cappadocia, placed by Strabo between mount Taurus and mount Argea, about 3000 stadia more southerly than the Euxine sea.

BAGADAT, a name by which some call the carrier pigeon, the *columba tabellaria* of Moore. This name is probably a corruption of the word Bagdat, the name of a city from whence they are sometimes brought to Europe; being originally brought thither from Bassora.

BAGADUCA POINT, in *Geography*, a head-land of America, within Penobscot bay, in the district of Maine.

BAGAGNANA, in *Ancient Geography*, a mountain of Asia, in Armenia, where they obtained, according to the ancient physician Ætius, the Armenian bole.

BAGAN, in *Geography*, a town of Servia, twenty miles north from Nissa.

BAGANZA, a river of Italy, which joins the river Parma, at the city of Parma.

BAGANZOLA, a town of Italy, in the duchy of Parma, four miles north of Parma.—Also, another town in the same duchy four miles south of Parma.

BAGARACA, in *Ancient Geography*, a town of Thrace, Anton. Itin.

BAGARD, CHARLES, in *Biography*, born at Nanci, in Jan. 1696, was early initiated into the practice of physic by his father Anthony, who had acquired considerable reputation in that art. To the influence our physician had with Stanislaus the first titular king of Poland, and duke of Lorraine, we are indebted for the botanic garden and the college of medicine at Nanci, of which he was the first president. He died of apoplexy in December 1772. Besides numerous dissertations on medical and philosophical subjects, we have the following, by this author: "Discours sur l'histoire de la Theriacque," published 1755; "Dispensatorium Pharmac. Chymicum," Paris, 1771, fol; "Pinax Materiarum Medicinalium," &c. 1771, 8vo. "Discours sur les Monstres du Regne Vegetal," Nancy, 1708, 8vo. Eloy. Diction. Hist. Haller. Biblioth. Botan.

BAGARDA, in *Ancient Geography*, a town of Asia, in Paropamisus. Ptolemy.

BAGASÆ, a town of Africa, in Libya Interior. Ptolemy.

BAGASIS, *Baggai*, a town of Africa, situated on a river at the foot and to the east of mount Audus.

BAGAT, in *Geography*, a town of France, one league west from Paris.

BAGATHUSA, CAPE, lies on the south-east coast of Arabia, fifteen leagues east from Shahr. Under the lee of this cape there is good anchorage; but the sea rages on this coast from April to July to such a degree that no ship can live in it.

BAGATINS, or COURIERS, a name given to the pigeon-carriers.

BAGAUDÆ, or BACAUDÆ, in *History*, an ancient faction of peasants, or malecontents, who ravaged Gaul, and assumed the name *bagaudæ*, which, according to some au-

thors, signified, in the Gallic language, *forced rebels*; according to others, *tribute*; according to others, *robbers*; which last signification others allow the word had, but then it was only after the time of the *bagaudæ*, and doubtless took its rise from them. Du-Cange.

The *bagaudæ* were a rustic troop of plowmen and shepherds, whom the grievous weight of their taxes induced to take up arms under the reign of Claudius II., about A. D. 269, in order to rid themselves of a tyranny which seemed to them worse than death. Irritated by oppression, they resembled by their ravages the fury of the barbarians, and laid waste the countries which they ought to have cultivated. At this time their strength must have been considerable, as they laid a siege of seven months to the city of Autun, and at length took it by force. Under Aurelian and Probus no mention of them occurs, because it is probable that the valour and activity of these warlike princes kept them in awe. But under the reign of Dioclesian, about the year 286, exasperated by the injustice, violence, and cruelty of Carinus, they renewed their revolt, and they were commanded by two men, whose names were Ælianus and Amandus, each of whom had the boldness to assume the title of Augustus. Maximian, who was admitted by Dioclesian as a colleague in the government, A. D. 286, subdued the *bagaudæ* partly by clemency and partly by force. It does not appear what became of the two chiefs of the rebels; but Salvianus informs us, that the name and the faction of the *bagaudæ* were revived in the fifth century. Crevier's Hist. Emp. vol. ix. p. 282.

BAGAUZE, is the name which is given, in the Antilles islands, to the sugar-canes after they have passed through the mill. They are dried, and used for boiling the sugar.

BAGDAD, in *Geography*, a large and populous city of Asiatic Turkey, in that division of Diarbeck called Irak-Arabi, is seated on the eastern banks of the Tigris, N. lat. $33^{\circ} 22'$. E. long. $44^{\circ} 21'$. It has been erroneously supposed by several geographers to be the old Babylon, though it be at a distance from the ruins of this ancient metropolis. It is computed to be about 1500 paces in length, 7 or 800 in breadth, and 3000 in circumference. Mr. Jackson, in his "Journey from India to England" in 1797, says, that it extends three miles along the eastern bank of the river; and the length of the walls from the river being about two miles, it has the form of an oblong square. Its walls are all of brick, with terraces and large towers at proper distances, in form of bastions, and defended by about 60 pieces of cannon. The castle is large, and flanked by some small towers with cannon; and the garrison usually consists of 900 foot, 4000 horse, and 60 gunners. The number of inhabitants, if we may credit the accounts of the Arabian writers, was formerly very considerable; but it is now reduced to fifteen or twenty thousand, including those who live in a suburb on the other side of the Tigris, at the end of the bridge of boats, which are separated every night to prevent surprise. But notwithstanding this number of inhabitants, the town has still many empty spaces within its walls, and it is for the most part but indifferently built. Many of the public buildings, however, such as the mosques, minarets, and hummums, are constructed of hewn stone, and make a very handsome appearance. Here is also an extensive bazar, which is well supplied with a variety of articles. Several of these buildings are arched, in order to guard against the excessive heat of the sun; and as scorpions, tarantulas, and other noxious insects, are numerous, persons, in order to avoid them, in the summer season, sleep on the tops of their houses. The environs of Bagdad to the west and north are altogether barren; to the east there are excellent gardens; and the opposite bank of the river sup-

plies

plies a great variety of fruit and vegetables. The city itself, though much reduced in extent, magnificence, and wealth, as well as population, is now supposed to contain more treasure than any other city of equal size in the world; and the immense quantity of specie and bullion, says Johnson (*ubi supra*), found in the coffers of the late Kya, or prime minister, amounting to upwards of three millions sterling, seems to warrant such a conjecture.

This city, which was for many ages the capital of the Saracen empire and the stated residence of the caliphs, was founded by Al-Manfor, the second of the family of the Abasides, in the 145th year of the Hegira, A. D. 762. The Rawandians having attempted to assassinate him in the city of Al Hashemiyah, he determined to build a new city; and he selected for the site of it, a spot, sufficiently distant from Cufa, the inhabitants of which were treacherous and inconstant in their attachment, secure against the attacks of those who might wish to dispute the caliphate with him, and situate in the middle of a tract which would furnish an ample supply of provisions by means of the rivers to which it gave easy access. Having consulted his astrologers and engaged skilful workmen, he commenced his undertaking. As to the name by which it was to be distinguished, some have derived it from the Persian *Baghdod*, which signifies the *gift* or *present of Bagh*, pretending that the plain on which it stood was given by Chosru, named Anushirwan, to one of his wives, and that she had there erected a chapel or oratory dedicated to her favourite idol called *Bagh*. In process of time this chapel became the chosen residence of a venerable hermit, who reported to Al-Manfor a tradition that a city was to be built in this place: but it is needless to recite any further particulars. Others say, that the verdant plain on which the city was built, had been the cell of a Christian monk, called Baghdad; and others say, that this monk was called Dad, and that he possessed a beautiful and extensive garden, whence the place where the city was founded received the appellation of Baghdad, or "the garden of Dad." The new metropolis was also denominated *Medinat Al Salam* "the city of peace," either in allusion to the name of Jerusalem, or because, at the time when it was finished, all the commotions in the empire were appeased, and almost every nation in Asia had submitted, or was become tributary. The first city erected by Al-Manfor was situated on the western bank of the Tigris; but the Persians taking offence at the erection of a city so near their frontiers, a new city was afterwards built on the eastern banks of the river called "the camp, or fortress of Al Mohdi;" and both these cities being united, formed the ancient Baghdad. The caliph had a superb and magnificent palace in each portion of the new city. Baghdad was erected on the ruins of Selencia, the remains of which, as well as of Ctesiphon, furnished the materials; and it seems to have been divided by the Tigris, as ancient Babylon was by the Euphrates. In the 149th year of the Hegira, A. D. 766, this famous capital of the Moslem empire was finished. It was of a circular form, inclosed by a double wall, and flanked with a considerable number of towers. The castle, or citadel, was in the middle of it, and commanded every part of the town. Between the eastern and western parts of the city a bridge was constructed in order to facilitate a communication between them. Besides several public buildings erected by the caliph Al Monstauser Billah, there was a famous college founded by this prince, which has been extolled by Abulpharagius, on account of the beauty and elegance of its structure, the number of students it contained, as well as the learned men it produced, and the ample revenues settled upon it, and superior in his time to every other house of learning in the known world. Among the students there

were 300 who devoted themselves entirely to the study of the Mahometan law, according to the decisions of the four chief sects of the Sunnites, each of which sects had a professor in this college. For several ages Bagdad, besides being the seat of power, abounded more with learned men than any other place in the Mahometan dominions, except Mecca and Medina. It was also extremely populous, and contained several forts and castles, capable of making a tolerable defence, and deriving their respective names from their founders. The language spoken in this city was one of the most polite and elegant dialects of the Arabic, as there was a greater concourse of nobility and learned men, who excelled in many branches of literature, for several ages, in this city than in almost any other of the east. The city had also a mint, in which were coined a great number of dirhems and dinars. Bagdad continued to be the seat of the caliphs of the race of Al Abbas for 500 years; but at length, in the year of the Hegira 656, A. D. 1258, the conquest of Iran, or Persia, was atchieved by Holagou Khan, the grandson of Zingis, the brother and lieutenant of the two successive emperors Mangou and Cublai. After a siege of two months, it was stormed and sacked by the Moguls; and their savage commander pronounced the death of the caliph Mostafem, the last of the temporal successors of Mahomet; and thus the family of the Abasides was extinguished. The Tartars or Moguls having plundered and set it on fire, and massacred many of the inhabitants, enriched themselves by its spoil, as it was then reckoned one of the most considerable cities in the world; and they retained possession of it till the year of the Hegira 795, A. D. 1392, when it was taken by Tamerlane, for the first time, from sultan Ahmed, the son of Avis, who conveyed his baggage beyond the Tigris, and abandoned the capital to the conqueror; and it was taken a second time in the year of the Hegira 803, A. D. 1400, from the same sultan, who had recovered possession of it. After this capture, it was restored by Tamerlane to the sultan; but in the year 815, A. D. 1412, the sultan was finally expelled by the Turcoman Cara Josef. The descendants and successors of Tamerlane remained masters of Bagdad till the year of the Hegira 875, A. D. 1470, when they were expelled by Hassan, surnamed Uzun, or Ufun-Cassan. The princes of his family possessed it till the year of the Hegira 914, A. D. 1508, when Shah Ismael, surnamed Sofi, the first prince of that race which afterwards reigned in Persia, made himself master of it. From that time it was an object of contest in the wars between the Persians and the Turks, for 100 years. The Turks took it under sultan Soliman, and the Persians retook it under Shah Abbas the Great, king of Persia; but being at length besieged by a formidable army under Amurath III. it was surrendered to him by Shah Sofi, king of Persia. A. D. 1638; and from this time it has remained in the possession of the Turks. Herbelot Bib. Or. p. 154. From this disastrous period the trade of the place has considerably decayed, as the sultan rifled all the rich merchants. However, though it groans at present under the Turkish yoke, Bagdad is a celebrated emporium and frontier of the Ottoman empire, on the side of Persia, to which not only many merchants, but likewise an incredible number of passengers, travelling from Natolia, Syria, Palestine, and Egypt, into Persia, continually resort. Its situation on the banks of the Tigris renders it convenient for trade; but the heat of the climate is so excessive, that the inhabitants are obliged to keep their markets in the night during the summer, and to sleep, as we have already said, on their terraces. The military government is under a pacha or basha, who uses various despotic methods to extort money from the inhabitants, and particularly from the Jews and Christians, who are the principal merchants of the city, and

who have been in a great measure driven from it by the oppression they have suffered. The civil administration is exercised by a cadi, who acts as judge, president, and mufti, with a tefterdar or treasurer under him, who collects the revenue of the grand signior. The pilgrims that visit Mecca by land are obliged to pass through Bagdad, and every one of them pays a tribute or toll, equivalent to four piastres, to the bashaw, which branch of the revenue yields annually a considerable sum to the grand signior. The revenues are computed at 125 lacksof piastres, amounting to about 1,562,500l. sterling: but of these, not more than one quarter are collected, by reason of the indolence of the Turks. As the bashaw lives in all the splendor of a sovereign prince, and maintains a very large army, he has recourse to great injustice and oppression, in order to obtain the necessary supply. The inhabitants of this city are chiefly Persians, Armenians, Turks, Arabs, and Jews, and of these the last act as schoolmasters, or bankers to the merchants. The Jews, notwithstanding the severity with which they are treated, are induced to live here from a reverence to the prophet Ezekiel, whose mausoleum they pretend is a day's journey from the city. Many of them likewise annually resort hither from other parts to visit the prophet's tomb. Two chapels are allowed for those of the Romish and Greek persuasion. In this city there are several beautiful mosques, into which Christians are not suffered to enter, for fear of their being defiled. The Mahometan women are very richly dressed, wearing bracelets on their arms and jewels in their ears. The Arabian women wear rings in the partition between their nostrils, which are bored for this purpose.

The ruins of ancient Babylon are situated about fifteen leagues to the south of Bagdad. See BABYLON.

BAGDEDIN, MAHOMET, in *Biography*, an Arabian mathematician, lived in the tenth century, and is reported to be the author of several treatises in geometry, among which is one "On the division of superficies," translated into Latin by John Dee of London, and by Frederic Commandini of Urbino, who published this treatise at Pefaro in 1570. Some have supposed that Bagdedin was merely the translator of this work from Greek into Arabic, and that it was written by Euclid, or some other ancient mathematician. Moreri.

BAGE'LE-CHATEL, in *Geography*, a town of France, in the department of Ain, and chief place of a canton, in the district of Bourg. The place contains 745, and the canton 10,111 inhabitants; the territory includes 127½ kilometres, and 11 communes.

BAGENBON HEAD, a cape of Ireland, in the Atlantic ocean, on the coast of Wexford. N. lat. 52° 9'. W. long. 6° 48'.

BAGGAGE, is particularly used, in the *Military Art*, for the necessaries, utensils, apparel, &c. of the officers and soldiers. The baggage includes also women, children, sutlers, &c.

The baggage is well called by the Roman writers, *impedimenta*, on account of the great trouble and expence attending it. Unless strict discipline be kept, great inconveniences may arise from it; whence several military laws and ordinances relating to the baggage.

The baggage-waggons, before a march, are appointed a rendezvous, where they are marshalled by the waggon-master-general, according to the rank the several regiments bear in the army. On a march, they are sometimes ordered to follow the respective columns of the army, sometimes to follow the march of the artillery, and sometimes to make a column of themselves. The general's baggage is generally first. If the army march from the right, the baggage of that wing has the van; if from the left, the baggage of the

left has the van. Each waggon has a distinguishing flag, to shew to what regiment it belongs.

BAGGAGE, *Packing up the, vasa colligere*, was a term among the Romans, for preparing to go to war, or to be ready for an expedition.

The formula by which the soldiers declared they were in readiness, was *vasa conclamare*.

The Romans distinguished two kinds of baggage, a greater and less; the lesser was carried by the soldier on his back, and called *sarcina*; consisting of the things most necessary to life, and which he could not do without. Hence *colligere sarcinas*, packing up the baggage, is used for decamping, *castra movere*. The greater and heavier was carried on horses and vehicles, and called *onera*. Hence *onera vehiculorum, sarcinae hominum*. The baggage-horses were denominated *sagmentarii equi*.

The Roman soldiers in their marches were heavy laden, inasmuch that they were called, by way of jest, *muli, mariani*, and *arumnae*. They had four sorts of luggage, which they never went without, viz. corn, or *buccellatum*, utensils, *valli*, and arms.—Cicero observes, that they used to carry with them above half a month's provisions: and we have instances in Livy, where they carried provisions for a whole month. Their utensils comprehended those proper for gathering fuel, dressing their meat, and even for fortification, or intrenchment; and what is more, a chain for binding captives.

For arms, the foot carried a spear, shield, saw, basket, *rutrum*, hatchet, *lorum, falx*, &c. Also stakes or pales, *valli*, for the sudden fortifying a camp; sometimes seven, or even twelve of these pales were carried by each man, though generally, as Polybius tells us, only three or four. On the Trajan column we see soldiers represented with this fardle of corn, utensils, pales, &c. gathered into a bundle, and laid on their shoulders.

Thus inured to labour, they grew strong, and able to undergo any fatigue in battle; the greatest part of which never tired them, or put them out of breath. In after-times, when discipline declined, this luggage was thrown on carriages, and porters' shoulders.

The Macedonians were not less inured to hardship than the Romans; when Philip first formed an army, he forbade all use of carriages; yet with all their load, they would march in a summer's day, twenty miles in military rank.

BAGGER, JOHN, in *Biography*, a Danish divine, and bishop of Copenhagen, was born at Lunden in 1646. After prosecuting his studies under the ablest masters in Germany, the Netherlands, and England, he settled in his native place, and was appointed professor of the oriental languages. At the age of twenty-nine years, he was advanced to the episcopal see of Copenhagen, and discharged the duties of his office with distinguished approbation. He revised the ritual of public worship established by Christian IV., and published several learned and eloquent discourses in Latin and Danish. He died at the early age of forty-seven. A logical treatise of Bagger, under the title of "De principis perfectivis Syllogismorum," was printed in 4to. at Copenhagen in 1665. Moreri.

BAGGING of Hops. See HOPS.

BAGHYRETTY, in *Geography*, a river of India, supposed by major Rennell, to be the true head of the Ganges, which joins the Alucknundra river, the former proceeding from the north, and the latter from the north-east, at Deuprag, or the middle Gangoutra, i. e. the fall or cascade of the Ganga, or Ganges, at a few miles distance below Sirinagur; and then they form the proper Ganges of Hindostan, which
after-

afterwards issues through mount Sewalick, at Hurdwar, the lower Gangoutra. Of these two streams Alucknundra is the largest; and at Sirinagur, seated on its banks, being confined in a channel 100 yards wide, it runs with astonishing rapidity, and is crossed by means of rope bridges of singular construction. This river has its source in the snowy mountains of Thibet; and it is probably the same river which Du-Halde mentions under the name of Manchou. The Baghyretty river has its source far more remote; but the direction of its course above the upper Gangoutra is unknown. According to the information of Mr. Daniel, the Baghyretty river separates, at a considerable distance below the Cow's Mouth, into two branches; the eastermost of which is said to be the Alucknundra. But this depends upon a vague report of travellers, which, says major Rennell, cannot be depended upon. Rennell's Memoir, p. 371.

BAGIA, in *Ancient Geography*, a promontory of Carmania, near which was a rock consecrated to the sun. Ptolemy.

BAGIA, in *Geography*, a town of Persia, in the province of Farfistan, 120 miles north-east of Schiras.

BAGIENNA, in *Ancient Geography*, a town of Asia, in Armenia Major. Ptolemy.

BAGIEU, JACQUES, in *Biography*, surgeon to a regiment of cavalry, in the middle of the last century, and author of several valuable works on surgical subjects, particularly on the method of treating gun-shot wounds. He opposes the frequent amputation of limbs, so common in France, and reduces the cases, rendering that operation necessary, to a very small number. He defends experience, as more valuable than theory; no course of reading, or study, being competent to supply the place of practice, the light or knowledge obtained from which is often incommunicable. He commends Amb. Parey's practice in gun-shot wounds, of first using emollient applications, and then making large openings for discharging the confined matter. He does not admit the efficacy of the Peruvian bark in checking the progress of gangrene, which he thinks has its boundaries affixed by nature. He is supposed, by Portal, to be the author of "Lettre de M. Chirurgien de Province, a M. Chirurgien de Paris," 8vo. 1740.—Also, "Deux Lettres d'un Chirurgien de l'Armée, l'une sur plusieurs chapitres du tr. de la gangrene de M. Quesnai, l'autre sur le tr. des armes a feu, de M. Desportes;" Paris, 1750, 12mo. "Nouvelle Lettre de M. Bagieu, &c." 1751, 12mo. "Examen du Plusieurs parries de la Chirurgie, &c." 2 vols. 1756. Haller Bib. Chirurg.

BAGISARA, in *Ancient Geography*, a port of Carmania. Arrian.

BAGISTANA, a town of Asia, in upper Media, at the foot of the mountains in which are the sources of the river Gyndes; south-west of Ecbatana.

BAGISTANUS, a mountain of Asia, between Babylonia and Media, consecrated to Jupiter. Diod. Sicul.

BAGITAN, in *Geography*, a town of Persia, in the province of Segestan, 110 miles north of Zareng.

BAGIURA, a town of Egypt, twenty-five miles south of Girgê.

BAGLAFECHE, in *Ornithology*, the name of Gmelin's *loxia philippina*, var. β , in Buffon's history of birds.

BAGLANA, or BUGLANEH, in *Geography*, a province of the Mogul empire, in the peninsula of India, encompassed by Guzerat, Dowlatabad, and Candeish. It is included within a ridge of the Gaults, and is exceedingly mountainous, but contains also many fertile and pleasant tracts. Few countries possess greater advantages, with regard to natural

strength: and these are augmented by no fewer than nine strong fortresses, seated on the summits of rocks, of which Salheir and Mulheir are accounted impregnable. According to Abdul Humeed, Baglana extended from the sea-coast near Surat, which was its western boundary, to the borders of Dowlatabad (or Aurungabad) eastward; being in length 100 common cosles, and in breadth, from Naderbar and Sultanpour on the north, to Nassuck Trimbuck on the south, 70 cosles. Shahnawaz, though he agrees with Abdul Humeed, with respect to the length, allows about 30 for the breadth; and major Rennell says, that it certainly is not 70 cosles, and yet much more than 30, in distance between the assigned limits on the north and south. It has owed its independence, not merely to its natural strength, but to the address of its rajahs, who courted the princes of the kingdoms of Guzerat, Dowlatabad, and Candeish, by which it was surrounded. Whenever the conquest of it was attempted by any one of these princes, the other two armed in its defence. When the surrounding kingdoms successively fell under the Mogul power, the rajah, for the first time, acknowledged a superior, and visited the court of Acbar. But even then the Moguls contented themselves merely with a tribute, until the rapid progress of Aureng-Zebe's conquests and power in the Deccan. Its revenue, previously to the Mogul conquest, was about 80,000l. Rennell's Mem. p. 259.

BAGLIONE, COSTANZA, in *Biography*, a most pleasing singer, and excellent actress, in the comic opera at Milan in 1770, at the head of a Bolognese musical family, of which six sisters were all singers, doubling the number of our Abrams's, but not the merit. Three of these sisters went afterwards to Paris, "who pleased there so much (says M. La Borde), as to make us wish to hear the rest." *Essai sur la Musique*.

BAGLIVI, GEORGE, born, Haller says, in Ragusa, a city in Dalmatia, in the year 1668, applied himself early to the study of medicine. After attending the lessons of the professors at Naples and at Padua, at which latter place he graduated, to improve himself further, he travelled over Italy, and settling at length at Rome, viz. in 1692, was advanced to the chair of professor of the theory of medicine and of anatomy, by pope Innocent XII. to whom he dedicated his first work, "De Praxi Medica, ad priscam observandi rationem revocanda;" lib. iv. printed in 1696, 8vo.

In this work the author laments the degraded state of medicine in his time, which he attributes to the neglect of observation and experiment, and of the study of the writings of the ancient Greek physicians, particularly of Hippocrates, joined to an inordinate passion for speculative reasoning. He acknowledges, however, the improvements that had been made in anatomy and physiology, and that the theory of the moderns, founded on these improvements, far excelled the hypothetical reasoning of the ancients; and thence conjectures, that when we shall sedulously bend our minds to practical observations, we shall as far excel the ancients in our knowledge of the true method of treating diseases, as we then excelled them in theory.

Examining the question, whether theory or practice conduce most to a knowledge of the method of curing diseases, he determines in favour of practice, but recommends both; "Quæcumque," he says (*Opera omnia*, 4to. p. 127.), "de medicina meditatatus fueris, pro veris non habes, nisi prius ad lydeum praxeos lapidem revocaveris; quod si repetita experientia inveneris vera, pro veris semper habeto. De bono, aut malo vino, judicare non poteris, nisi gustaveris; perfectus musicus non erit, nisi cecinerit; nec miles strenuus, nisi bella gesserit." Baglivi is accused of plagiarism, and

of being himself too much addicted to theory; his credulity is also censured, for suffering himself to be imposed on by vagabonds, pretending to labour under various nervous affections, in consequence of having been bitten by a tarantula, a species of spider common in some parts of Italy, and that they could only be cured by certain musical sounds. But we shall be disposed to moderate our censure of Baglivi, when we find our countryman Dr. Mead (who, though born about the same time, lived nearly fifty years after him) attempting to account for these extraordinary effects of the bite of the insect, attributing them to the temperature of the climate, and of the inhabitants of Apulia, where the spider is most frequent, and explaining on philosophical principles, the manner in which music operates in allaying the tumult in the constitution occasioned by the poison. Mead seems to think it not improbable that Pythagoras first introduced this mode of practice, in curing the effects of the bite of the tarantula. See his *Medical Works*, 4to. p. 66, &c. The same year, viz. 1696, Baglivi published his dissertation "De Anatomie, morfu, et effectibus Tarantulæ;" then followed his treatise "De Fibra motrice et morbosa." In this work is contained the author's theory, borrowed from Pachioni (to whom, however, he says, Op. Om. p. 258, he communicated his lucubrations), of the origin of the motion of the solids; which he attributes, cap. iv. to a consent between the heart and the dura mater. In 1704 he published at Rome "De Medicina solidorum ad rectum statum usum Canones;" and in 1705, "De progressionem Terræ motus." These, with various other dissertations, have been collected and published under the title of "Opera Omnia," which has passed through numerous editions; and though his theory has long since given place to others, in their turn to yield to theories perhaps equally fallible, the work will always deserve the attention of the medical students, for the numerous and valuable observations with which it abounds. Baglivi died in the year 1707, aged only 38 years. Haller. Bib. Med. Pract. and Bib. Anatom.

BAGNA, in *Geography*, a town of Servia, twenty miles north-east of Parakin.

BAGNACAVALLLO, a town of Italy, in the state of the church, and duchy of Ferrara, on the river Seno, forty miles west of Ravenna.

BAGNAGAR. See HYDRABAD.

BAGNALET, a town of France, one league east of Paris.

BAGNARA, a sea-port town of Italy, in the kingdom of Naples, and province of Calabria Ultra, destroyed by an earthquake in the year 1783; fourteen miles west of Oppido. N. lat. 38° 15'. E. long. 16° 8'.

BAGNAREIA, a town of Italy, in the state of the church, and province of Patrimonio, with a bishop's see; six miles south of Orvieto. N. lat. 42° 36'. E. long. 12° 10'.

BAGNERES, *De Luchon*, a town of France, in the department of the Upper Garonne, and chief place of a canton in the district of St. Gaudens, near the source of the river Garonne, at the foot of the Pyrenées, possessing some medicinal springs; seven leagues south of St. Gaudens. The place contains 1256 and the canton 6074 inhabitants: the territory includes 362½ kilometres and 31 communes.

BAGNERES en Bigore, a town of France, and principal place of a district in the department of the Higher Pyrenées, seated on the Adour; celebrated for its baths, which are much frequented in spring and autumn; a small but neat town; ten miles south of Tarbes. The place contains 5962 and the canton 13,475 inhabitants: the territory includes 122½ kilometres and 18 communes. N. lat. 43° 3'. E. long. 0° 12'.

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BAGNEUX, a town of France, 1½ league S. S.W. of Paris.

BAGNI, a town of European Turkey, in Romania, forty miles west of Filippopoli.—Also, a town of Italy, in the kingdom of Naples, and country of Lavora, eight miles south of Sezza.—Also, a town of European Turkey, in the province of Macedonia, on the river Vardar, forty-four miles N. N. E. of Akrida.

BAGNIALACK, a town of European Turkey, in the province of Bosnia. N. lat. 44°. E. long. 18° 10'.

BAGNIO, an Italian term signifying a *bath*; it is used by us for a house with conveniences for bathing, sweating, and otherwise cleansing the body; and sometimes for worse purposes.

BAGNIO is also become a general name in Turkey for the prisons where their slaves are inclosed; it being usual in those prisons to have baths.

BAGNOLENSES, or BAGNOLIANS, in *Ecclesiastical History*, a sect in the eighth century, who were thought Manichees, though they denied their errors.—They rejected the Old Testament and part of the New; held the world to be eternal; and affirmed, that God did not create the soul when he infused it into the body.

They derive their name from *Bagnols*, a city in Languedoc, where they were chiefly found.

BAGNOLS, in *Geography*, a town of France, in the department of the Gard, and chief place of a canton in the district of Uzès, two leagues south of Pont St. Esprit. The place contains 4,800 and the canton 12,971 inhabitants: the territory includes 230 kilometres and 16 communes.

BAGNOLS, *les Bains*, a town of France, in the department of the Lozerre, and chief place of a canton in the district of Mende, eight miles east of Mende.

BAGNUOLO, a town of Italy, in the kingdom of Naples, and Principato Ultra, twelve miles west of Conza.

BAGOI, among the *Ancient Persians*, were the same with those called by the Latins, *spadones*, viz. a species of eunuchs, in whom the canal of the penis was so constricted by a tight vinculum, that they could not emit the semen.

BAGORODITZ, in *Geography*, one of the twelve districts of the government of Tula, in Russia, seated on the river Upa.

BAGOUS, in *Ancient Geography*, a name given to a ridge of mountains which were part of mount Imaus, towards the source of the river Indus.

BAGPIPE, a musical instrument of the wind kind, chiefly used in country places, especially in the North.—It consists of two principal parts; the first a leathern bag, which is blown up like a foot-ball, by means of a port vent, or little tube, fitted to it, and stopped by a valve.

The other part consists of three pipes or flutes; the first, called the great pipe or drone; and the second, the little one, which passes the wind only out at the bottom; the third has a reed, and is played on by compressing the bag under the arm when full, and opening or stopping the holes, which are eight, with the fingers. The little pipe is ordinarily a foot long, that played on thirteen inches, and the port vent six.

The bagpipe takes in the compass of three octaves.

This instrument was not unknown to the ancients. It was called by the Greeks *σακκυλος*; by the Romans *tibia utricularis*. The Italians call it *piva*, *cornumusa*; the French *musette* and *chalumeau*. In the first edition of the French Encyclopedie, there is a minute and elaborate description of the instrument, its construction, scale, &c. By the ornaments mentioned, it must have been admitted into good company.

The invention of it is derived by some from Tubal; others ascribe it to Pan; others to Mercury, to Faunus, to Marsyas, and to the young Sicilian shepherd Daphnis, who first composed pastorals.

An anonymous French author has published a treatise of the bagpipe, "*Traité de la Mufette*," with a new method of learning to play on it without a master. Fol. Par. 1672.

BAGPIPE the *Mizen*, in *Sea Language*, is to lay it aback, by bringing the sheet to the mizen-threads.

BAGRADA, or BRAGADA, now *Mejerda*, in *Ancient Geography*, a river of Africa Propria, the source of which Ptolemy fixes in mount Mampfarus, erroneously representing its course to have been from north to south; whereas it flows in a direction from west to east. It is equal, says Dr. Shaw (*Travels*, p. 77.), to the Isis united with the Cherwell, and continues winding, through its whole course, along a rich and fertile country, with the soil of which it becomes so well saturated, that it is of the same colour with the Nile, and has the same property of making encroachments on the sea. To this circumstance may be ascribed the many changes which appear to have been made at one time or other in the channel of it; and to this also it is owing that an open creek of the sea, into which the Mejerda about a century ago discharged itself, is now circumscribed by the mud, and become a large navigable pond, the anti-harbour, as Dr. Shaw calls it, to port Farina. The situation of Utica and of Carthage, with respect to this river, are materially altered. (See *CARTHAGE*, and *UTICA*.) Bochart (l. i. c. 24.) deduces the name Bagrada, from כרבך or כרבכתה *barakla*, a pond, agreeably to the description of Silius Italicus, l. vi. 140:—

"Turbidus arentes lento pede fulcat harenas
Bagrada, non ullo Libycis in finibus amne
Victus limosas extendere latius undas,
Et stagnante vado patulos involvere campos."

BAGRADAS, a river which flowed on the confines of Persia and Carmania, and discharged itself into the Persian gulf. Ptolemy.

BAGRE, in *Ichthyology*, a species of *SILURUS*, that inhabits South America. The posterior dorsal fin is fat or fleshy; first ray of the dorsal and pectoral fin setaceous; beards four. Gmel.

BAG-REEF, in *Sea Language*, denotes a fourth or lower reef of sail, sometimes used in the royal navy.

BAGSZELAR, in *Geography*, a town of European Turkey, in the province of Bulgaria, 20 miles north-east of Ternova.

BAGUETTE, in *Architecture*, a little round moulding, less than an astragal; sometimes carved and enriched with foliage, pearls, ribbands, laurels, &c. According to M. Le Clerc, when the baguette is enriched with ornaments, it changes its name, and is called *chaplet*; and unornamented, it is a *bead*.

BAHAMA ISLANDS, in *Geography*, a name commonly applied by the English geographers to that cluster of small islands, reefs, and rocks of sand, which stretch in a north-westerly direction for the space of near 300 leagues from the northern coast of Hispaniola to the Bahama strait, opposite to the Florida shore; or from about 20° to 28° N. lat. and from about 70° to 80° W. long. This whole group is called by the Spaniards *Lucayos*. The island of Bahama, which gives name to the rest, N. lat. 26° 45'. W. long. 78° 35'; is about 25 leagues distant from the continent of Florida; it is about 50 miles long, and scarcely any where 16 broad. The number of these islands is said to be about 500, of which, however, some are merely rocks. Though their number is considerable, and some of them are

of a large size, our knowledge of them is very imperfect. They were first discovered by Columbus, A.D. 1492; and the first land he discovered was that of Guanahani, on which he landed to return thanks for his success, and to erect a cross; and he denominated the island San Salvadore, taking possession of it in the name of his Catholic majesty. This island, in the vicinity of Providence island, is known to the English navigators by the name of Cat island. Columbus, however, made no settlement in these islands. About the year 1629, it is said (see *Anderfon's Comm.* vol. ii. p. 37.), the English began to plant on the island of Providence, which till then was uninhabited; and after the conclusion of peace with Spain, king Charles I. renewed his grant of this and the other Bahama islands. In the year 1666, captain Sayle, an Englishman, was forced in his passage to Carolina, by stress of weather, to land upon one of these islands; and upon his return to England, he made so favourable a report of them, that six of the proprietaries of Carolina solicited, and obtained a grant of them. Captain Sayle, in a second visit to the island of Providence, which was one of them, discovered the advantage which England might derive from it; and he made the government of England so sensible of it, that about the year 1672 they sent thither a governor and a colony. But the settlement was disturbed by Spanish pirates; and the island of Providence, and the other Bahamas, were abandoned. The chief town of Providence, called Nassau, consisted at this time of 150 houses. The island afterwards became a nest of pirates, who interrupted the American navigation; and on this account, an order was issued by his majesty king George I. on the conclusion of a peace with Spain in 1721, to fortify and settle the island, and to dislodge these outlaws. The English in the Bahama islands have been computed at three or four thousand; half being settled in Providence, where is the fort called Nassau; and a small harbour. But the natural barrenness of the soil, and the narrow length of these isles, which exposes them to the heat and to the winds, account for their comparative insignificance in this grand commercial archipelago. Of their present state, little satisfactory information has been obtained even by the lords of the committee of council for the affairs of trade and plantations. To the inquiries of their lordships in 1789, as to the extent of territory in these islands, the quantity of land in cultivation, the number of white inhabitants, productions, and exports, &c. the only answer that could be obtained from the governor was this, "that it was at that time impossible to ascertain any of those particulars." It appears, however, from the testimony of other persons, that these islands in general are rocky and barren; that the only article cultivated for exportation is cotton, of which the medium export is 1500 bags of two hundred weight; that the inhabitants, who in 1773 consisted of 2052 whites and 2241 blacks, have been of late years considerably augmented by emigrants from North America; but of their present number no precise account is given. *Edward's Hist. of the West Indies*, vol. i. p. 470.

BAHAMA Straits, called the *gulf of Florida*, the narrow sea between the coast of America and the Bahama islands, about 45 leagues long, and 16 broad.

BAHAMA Bank, *Great*, a bank of sand extending from near the island of Cuba, N. lat. 22° 20', to the Bahama islands, N. lat. 26° 15'. The sand which lies to the north of the island Bahama is called *Little Bahama Bank*.

BAHAR, or BARR, in *Commerce*, a weight used at Ternate, Moca, in the Moluccas, Achem, and divers other parts of the East Indies. There are two kinds, the great, with which picc is weighed, equal to 524 lb. 9 oz. avoirdupois. The little bahar served for the weighing quicksilver,

ver, vermilion, ivory, silk, musk, and other precious wares, equal to 437lb. 9oz. avoirdupois weight.

BAHAR, in *Geography*, one of the eleven soubahs, or provinces, into which Achar divided Hindoostan proper; bounded on the east by Bengal, on the north by Napaul and Bootan, on the south by Orissa, and on the west by Oude, Benares, and Allahabad. It has been estimated at 250 miles from north to south, and at 200 miles from west to east. It produces wheat, rice, peas, &c.; but the principal article of export is saltpetre; most of that which is imported by the East India company being manufactured within this province. The capital is Patna. Mr. Fraser, in his "Life of Nadir Shah," states the revenues of this province, under Aureng-Zebe, at 101½ lacks of rupees. The greatest part of Bahar is possessed by the British nation; but there are several purgunnahs, or hundreds, on the south-west of Little Nagpour, that were formerly classed as belonging to Bahar, which are now in the possession of the Mahrattas.

BAHAR, a town of Hindoostan, in the province of the same name; remarkable for its number of funeral monuments; 30 miles south-east of Patna, and 220 north-west of Calcutta. N. lat. 25° 14'. E. long. 85° 45'.

BAHAR, or *Bazen*, a town of Persia, in the province of Kerman; 40 miles south-east of Sirgjan.

BAHARITES, derived from the Arabian *bahar*, or *sea*, and denoting *maritime*, in *History*, the denomination of a class of persons in Egypt, who having assassinated Touran Chah, the last of the family of the Aioubites, reigned over Egypt and Syria for 136 years, and had 27 kings. The Baharites were of Turkish origin. Nejm Eddin purchased them of the Syrian merchants. They were dethroned in their turn by the Mamalukes or Circassian slaves, in the year 784 of the Hegira, A. D. 1382; who formed a new dynasty which kept possession of Egypt until the conquest of Selim, emperor of the Ottomans, in the year 923 of the Hegira, A. D. 1517.

BAHARNAGASH, a country of Abyssinia, adjoining to the province of Tigré, and situate between the river Atsufapes and the Arabian gulf. Its capital is Dobarwa, in N. lat. 15° 22'. E. long. 39°.

BAHAS, in *Geography, a town of Arabia, sixteen miles N.N.W. of Lohia.*

BAHBELGONG, a town of Hindoostan, in the country of Baglana; 65 miles west of Arungabad. N. lat. 20° 45'. E. long. 74° 51' 30".

BAHI, a province of the island of Luzon or Manilla, one of the Philippine islands. It produces excellent betel, which the Spaniards are continually chewing; and it is the place where most of the ships are built. The province is about 30 leagues in circuit, and contains about 6000 tributary natives.

BAHIA, DE TODOS LOS SANTOS, a province of Brasil, in South America, and the richest in the whole country; but the air and climate do not correspond with other natural advantages. The province is so fertile in sugar and other articles of commerce, that the Portuguese resort in great numbers to it, as the seat of affluence, and also of pleasure and grandeur. The capital called *St. Salvador*, or *Ciudad de Bahia*, is populous and magnificent, and by far the most gay and opulent city in Brasil. It stands in a bay in S. lat. 12° 11'; it is naturally strong, and is also well fortified and defended by a numerous garrison. See **ALL SAINTS**, and **ST. SALVADOR**.

BAHIR, in *Literary History*, denotes *famous* and *illustrious*, and is particularly used for a book of the Jews, treating of the profound mysteries of the cabbala; being the most ancient of the Rabbinical works.

BAHIRA, or *Rif*, in *Geography*, the northern district of Egypt, extending from the division of the Nile to the east and west branches, on both sides to the Mediterranean. The principal towns are Alexandria, Rosetta, Damietta, Menuf, Mansoura, Tinch, Catieh, and Foueh.

BAHIRA, among the *Ancient Arabs*, a name given to one of the four kinds of camels or sheep, which, for some reasons of their religion, were turned out at liberty with an earmark, no longer to be used for service like other cattle.

The bahira, with the *fabai*, *wafita*, and *bami*, were abolished by Mahomet as no ordinance of God.

Authors are not agreed as to the characters of the bahira.

BAHRAITCH, in *Geography*, a town of Hindoostan, in the province of Oude, 55 miles N.N.E. of Lucknow. N. lat. 27° 30'. E. long. 81° 57'.

BAHRDT, CHARLES-FREDERIC, in *Biography*, a theological and satirical writer, was born at Bischofswerda, Aug. 25th, 1741. Having commenced his education, without much improvement, under private tuition at Leipsic, where his father lived, he was removed to a public school, and afterwards to the grammar school at Pforte. From hence he returned to Leipsic, where, after receiving some private instruction in the Greek and Latin from Ernesti, he was entered in the university, and quitting it after two years, he commenced preacher in the vicinity of Leipsic. In 1761, he was admitted to the degree of master of arts, and some years after he was appointed extraordinary professor of sacred philosophy. In 1763, he published a work, intitled, "The true Christian in Solitude;" and also his "Commentary on Malachi," in which he endeavoured to display his talents in biblical criticism, and his knowledge of oriental literature. An intrigue which rendered him a father, defeated all his expectations at Leipsic, and obliged him to retire to Halle; and he was appointed professor of biblical antiquities at Erfurt. Having no salary, but supplied with money by his father, he found his situation agreeable; however he introduced some remarks of a theological kind, which were not thought orthodox; and complaints were preferred against him by Schmidt and Vogel, two clergymen of that city. In order the more successfully to repel the accusation of his antagonists, he purchased the degree of doctor in theology from the university of Erlangen, which gave him a right to read public lectures in divinity; and in 1769, he published in his defence the first part of his "Essay towards a System of the Doctrines contained in the Bible." About this period he also published "The earnest Wishes of a dumb Patriot," in which he attacked the weakest proofs of the fundamental truths of the theological system, and endeavoured to raise suspicions against professor Schmidt of being a Jesuitical sectarian. His conduct in this respect was reprobated by the faculty of divines at Wittenberg, and those of Gottingen recommended reconciliation. In 1770, Bahrdt published at Eisenach his "System of Moral Theology," which was favourably received, and he embarked, from a desire of fame and love of money, in some other projects and undertakings. The approbation generally bestowed on his critical performances induced him to undertake an edition of the Old Testament similar to that announced by Dr. Kennicott; but neither his knowledge nor situation promised success, and his intentions were never fulfilled. He afterwards thought of improving his finances by marriage, and espoused a young widow of Mulhausen with a fortune of 6000 dollars. In 1771, he entered on the office of fourth professor of philosophy at Gieffen in Hesse; and here, in the space of four years, he published two "Collections of Sermons," a "Book

of Homilies," his "Apparatus Criticus Veteris Testamenti," "A general Theological Repository," "Outlines of an Ecclesiastical History of the New Testament," "Proposals for explaining the Doctrines of the Church," "A Critical Examination of Michaelis's Translation of the Bible," and "The purest Revelation of God," i. e. a translation of the New Testament with notes. The heterodoxy of his opinions raised a violent storm against him at Gießen: but he escaped it by a removal to the office of director of the philanthropinum of Von Salis at Marbachlinz, in Switzerland, with a salary of 2000 florins. He soon however changed his situation, and in 1776 removed to Durkheim, and established a seminary of education at Heidesheim. His philanthropinum was opened in 1777, and for some time it prospered; but he involved himself in debt, and being under a necessity of removing, he determined to visit Holland and England for the purpose of procuring pupils in those countries. On his return to Heidesheim with 13 pupils, he was informed that he had been suspended from all his employments by a conclusion of the imperial council. Bahrdt had now no other resource besides that of quitting the empire, and seeking refuge in Prussia. Accordingly, in 1779, he retired with his family to Halle; and had again recourse to his pen. Here he published extracts from the sacred scriptures, under the title of "The Bible in Miniature," which was printed in 1780; and he delivered private lectures on philosophy, humanity, and rhetoric; and he also read lectures on Tacitus and Juvenal. Upon his first arrival at Halle, he acknowledges, in his life, that there were some latent sparks of religion in his mind; but that they were soon totally extinguished by his intercourse with deists. In the works, therefore, which he now published, he endeavoured to teach the doctrine and history of Christianity separate from every thing supernatural, accommodated to reason, and agreeable to his own ideas of its original simplicity. But his health declining, he was under the necessity of altering his mode of life, and he purchased a vineyard with a small farm attached to it in the neighbourhood of Halle. Part of his mansion was fitted up as a tavern and coffee house; and in this situation Bahrdt acquitted himself as a landlord and a pleasant companion. But his affection and confidence being directed towards a maid servant who managed his house, he obliged his wife, by the most cruel treatment, to leave him; and when she afterwards returned to him, she became a victim to still greater barbarities.

Bahrdt, whilst he was in England, had been initiated in masonry; and in the year 1781, upon the perusal of Stark's book on the mysteries, he adopted the notion that Jesus Christ must have intended, by establishing a secret society, to preserve and diffuse among mankind truth almost banished from the world by priests. This idea he propagated in his "Accomplishment of the Plan and Object of Jesus," and in the third edition of his "Translation of the New Testament." In the year 1784 or 1785, a society of twenty-two united masons was established in Germany, with a view of improving the arts and sciences, commerce, and above all, religion, among the common people. Bahrdt became a member of this society, and proposed that it should engross the business of book-selling, partly with a view to gain money, and partly for obtaining the complete sovereignty of the republic of letters in Germany. This plan, however, not being approved, failed. In 1785 or 1786, he formed another project, which was that of making himself the founder of an avowed deistical sect in Prussia; but it does not appear that he ever seriously attempted it. In 1787, he exerted himself with zeal in supporting the union, and assembled the members; but after a second meeting, he re-

ceived notice to discontinue these assemblies. But his own activity was unintermitting, and he continued to propagate his ideas by an epistolary correspondence during the whole of the year 1788. He also published several works calculated to promote his views, and relating to the union, such as "Observations on the Liberty of the Press and its Boundaries," and "Zamoor, or the Man of the Moon," in which he delineates free-masonry in Germany, as corrupted by the wildest fanaticism and the darkness of popery. There also appeared about this time a comedy called "The Edict of Religion," universally ascribed to him, on account of which he was arrested, and confined at Halle; and during his imprisonment, he wrote "Morality for the People," which has been represented as the best finished and most valuable of his works, though he completed it in the course of three weeks. Upon his trial, he was acquitted with regard to the charge that related to the union, but declared guilty of having written the comedy, and sentenced to two years imprisonment in the fortress of Magdeburg, which term was mitigated by the king to half that period. During his confinement, his leisure moments were employed in writing the "History of his own Life." After his release, he returned to his vineyard, and renewed his barbarities towards his wife, who abandoned him, and left him at liberty to take home his maid-servant and her children. Here he continued his former life as landlord and writer. Being attacked by a disorder in his throat, he recurred to the too liberal use of mercury, and a fever ensuing, he expired on the 23d of April 1792. His works on morality and religion, besides those already mentioned, were very numerous. His satirical pieces, being of a temporary nature, have sunk into merited oblivion. The genius of Bahrdt was comprehensive and versatile; but his principles and his conduct were licentious; and his history exhibits the perversion of talents, which properly employed and accompanied with integrity, might have rendered him respectable and useful. Gen. Biog.

BAHREIN, BAHHREIN, or BAHRIN, a fortified town of Arabia, situate on an island of the same name, called also AVAL; which see. The name is extended to a group of small islands adjacent to one another, the largest of which is Bahrein. Bahrein once belonged to the Portuguese. When they were driven out of the Persian gulf it fell into the hands of the scheik of Lachsa; but was taken from him by the Persians. The imam of Oman then made himself master of it; but gave it up again to the Persian monarch for a sum of money. It afterwards changed its owners; but in 1765 it reverted into the possession of the scheik of Abu Schæhr, and he was then sole monarch of the island. It is famous for its pearl fishery. (See PEARL.) N. lat. 26° 43'. E. long. 49°.

BAHREIN is an appellation sometimes given to the province of *Lachsa*; which see.

BAHR EL ABIAD, or the WHITE RIVER, a name given to the real Nile, near its first origin; the sources of which in the African Alps of Kumri remain to be explored.

BAHR EL AZREK, BLUE RIVER, or *Abyssinian Nile*, has its chief spring in a small hillock, situated in a marsh, and joins the Bahr el Abiad, or true Nile, about N. lat. 16°; the latter is tinged, the former is clear. The Bahr el Azrek was mistaken for the real Nile, by the Portuguese writers, Alvarez, Tillez, &c. probably misled by the vain glory of the Abyssinians; though it was well known to the ancients as quite a distinct river, being the Astapus flowing into the Nile from the Coloe Palus, now the lake of Dembea. Mr. Bruce has adopted the same mistake; and it is said, that when M. d'Anville shewed him his mistake, he resolved to expunge the White river from his map, though

though he acknowledges in his work that it is the largest stream. The Bahr el Azrek is styled Abawi by the Abyssinians. The sources of this river were accurately described in the seventeenth century by Payz, a Portuguese missionary, whose account was published by Kircher and Isaac Vossius; and has been not long ago minutely copied by Bruce, as Hartman has shewn by printing the two accounts in parallel columns. Pinkerton's *Mod. Geog.* vol. ii. p. 725.

BAHRENBURG, in *Geography*, a town of Germany, in the circle of Westphalia, and county of Hoya, on the river Suhlingen, fourteen miles S. S. W. of Hoya.

BAHUS, a river of France, which runs into the Adour, about a league above the Sever.

BAHUS. See **BOHUS**.

BAJA, in *Entomology*, a species of *PHALÆNA* (*Noctua*), of the middle size, that inhabits Europe. The wings are ferruginous, with a small black dot at the base, and a double one at the apex. This is produced from a variegated grey and brown caterpillar, having three dorsal white lines, and yellowish sides. Feeds on the deadly night shade. Gmel. Fabr.

BAJA, in *Ancient Geography*. See **BAYJA**.

BAJA, in *Geography*, a town of Hungary, on the river Danube, 50 miles N. N. W. of Peterwaradin. N. lat. 46° 40'. E. long. 19° 50'.

BAJA, a sea-port town of Italy, in the kingdom of Naples, and country of Lavara, eleven miles west of Naples. See **BAIÆ**.

BAIABAD, a town of Asiatic Turkey, in the province of Caramania, 28 miles south-east of Kastamon.

BAJAD, in *Ichthyology*, a species of *SILURUS*, having the posterior dorsal fin fleshy or fat; twelve rays in the anal fin; and beards of the mouth eight. Forsk. Fn. Arab. Inhabits the Nile; colour glaucous; length one foot or more.

BAJADOR, or **BAJADORE**, *Cape*, in *Geography*, a cape on the west coast of Africa, in the Atlantic ocean; 120 leagues distant from Cape Geer. N. lat. 26° 29'. W. long. 14° 36'.—*Bajador* is also a cape at the north-western extremity of the island of Luçon, one of the Philippine islands.

BAIÆ, in *Ancient Geography*, now **BAIA**, an ancient village of Campania, in Italy, situate between the promontory of Misenum and Puteoli, on the Sinus Baianus; famous for its hot baths, which served the Romans for the purposes both of medicine and pleasure. The hot springs and medicinal vapours that abounded in the environs of this place must, at a very early period, have excited the attention of valetudinarians, as bathing was the constant amusement and refreshment of the Greeks while in health, and their remedy when diseased; but Baiæ does not seem to have attained a degree of celebrity superior to that of other baths, till the Roman commonwealth began to decline. As soon as the plunder of a conquered world was transferred from works of public use and ornament to objects of private luxury, the transcendent advantages which Baiæ offered to Roman voluptuaries, flying from the capital in search of health and pleasure, became an object of peculiar attention. The variety of its natural baths, the softness of its climate, and the beauties of its landscape, captivated the minds of those whose passion for bathing knew no bounds. The ablutions which they might wish to practise at Rome required an enormous expence in aqueducts, stoves, and attendants; but here they found a place, most delightfully seated, where waters naturally heated to any degree of necessary warmth bubbled spontaneously out of the ground; and its easy communication with Rome was also a circumstance that recommended it. Hither the mighty rulers of the empire retired at first for a temporary relaxation, after the fatigue of bloody campaigns and civil contests. Their habitations were small and modest; but increasing luxury soon added palace

to palace, with such expedition and sumptuousity, that space was wanting for the vast demand. Accordingly architects, supported by boundless wealth, extended their foundations into the sea, and drove that element back from its ancient limits, as Horace expresses it:

“ Marisque Baiis obstrepentis urges
Summovere littora.”

But the sea has since recovered much more than it lost. From being a place of resort for a season, Baiæ grew up to a permanent city; and its wealthy inhabitants rendered it as much a miracle of art as it was before of nature. Its splendour may be inferred from its innumerable ruins, heaps of marble, mosaics, stucco, and other precious fragments of taste. It flourished in full glory to the days of Theodoric the Goth; but the destruction of these enchanted palaces soon followed the irruption of the northern conquerors, who overturned the Roman system, sacked and burnt all before them, and destroyed or dispersed the whole race of nobility. No sooner had opulence withdrawn its support, than the unbridled sea rushed back upon its old domain; moles and buttresses were torn asunder and washed away; whole promontories, with the sacred towers that once covered their brows, were undermined and tumbled headlong into the deep, where, many feet below the surface, pavements of streets, foundations of houses, and masses of walls, may be discovered. Internal commotions of the earth contributed also in a great degree to this general devastation. Mephitic vapours and stagnated waters have converted this favourite seat of health into the den of pestilence, at least during the summer heats; and yet Baiæ in its ruined state, and stripped of its ornaments, still presents many beautiful and striking subjects for the pencil of the artist. N. lat. 41° 6'. E. long. 14° 45'. Swinb. Trav. vol. iii. p. 42, &c.

BAJANA, in *Conchology*, a species of *VENUS* found on the shores of Brasil. The colour is ochraceous, varied with black; and the shell is specifically distinguished by being fragile, glabrous, and marked transversely with a few transverse striæ. Figured by Bonnani.

BAJANUS SINUS, in *Ancient Geography*, a bay of Italy in the kingdom of Naples, so called from *Baiæ*, *Portus Baiarum* of Pliny, which was enlarged by Augustus, by giving entrance to the sea into the Lacus Lucrinus, and Avernus, ordering it to be called *Portus Julius apud Baias*. (Suetonius.) We also read in Tacitus of *Baianus Lucus*, which some have interpreted *Lucrinus*. This gulf is denominated *Crater* by Strabo; and he places it between the cape of Minerva and that of Misenum. The modern name is *Golfo di Pozzuolo*. From the highest point that forms the bay, a large castle commands the road, where foreign ships of war usually ride at anchor, the harbour of Naples not being sufficiently spacious for the reception of a fleet; here they enjoy good shelter, watering, and victualling; but in summer, risk the health of their crews, on account of the unwholesomeness of the air. At the bottom of the bay, and at the foot of the steep rocks which serve as a foundation to the ruins called “Nero's house,” are some dark caves of great depth, leading to the hottest of all vapour baths. These baths are thirty in number; and they are said to have been adorned with Greek inscriptions and statues denoting, by their expressions, and attitudes, what particular part of the human frame was affected and relieved from its pains by each particular bath. The springs at the bottom of the grotto are so hot as to boil an egg hard almost instantaneously. These caverns seem to be the spot where Nature has opened the readiest access to the focus of a volcano, which has been within the two last centuries most outrageous in its operations; for to them must be attributed the overturning of the adjacent country, and the total alteration of its surface by the birth

of Monte Nuovo, which now blocks up the valley of Averno. Swinb. Trav. vol. iii. p. 48.

BAJAZET I., in *Biography*, sultan of the Turks, was the son and successor of Amurath I., and denominated "Il-derim," or lightning, on account of the fiery energy of his soul, and the rapidity of his destructive march. He succeeded Amurath in the year 1389, being then about 44 years of age; and having secured his authority at home by the execution of his younger brother, who attempted to excite a revolt against him, he prosecuted the ambitious designs of his father. During the fourteen years of his reign, he incessantly moved at the head of his armies, from Bourfa to Adrianople, from the Danube to the Euphrates; and though he strenuously laboured for the propagation of the law, he invaded, with impartial ambition, the Christian and Mahometan princes of Europe and Asia. Having reduced to his obedience the northern regions of Anatolia, made himself master of Caramania, and imposed a regular form of servitude on the Servians and Bulgarians, he passed the Danube to seek new enemies and new subjects in the heart of Moldavia. Whatever yet adhered to the Greek empire in Thrace, Macedonia, and Thessaly, acknowledged a Turkish master, and he was led through the gates of Thermopylae into Greece by an obsequious bishop. The Turkish communication between Europe and Asia had been dangerous and doubtful, till he stationed at Gallipoli a fleet of galleys to command the Hellespont, and intercept the Latin succours of Constantinople. While the monarch indulged his passions in a boundless range of injustice and cruelty, he imposed on his soldiers the most rigid laws of modesty and abstinence; and the harvest was peaceably reaped and fold within the precincts of his camp. Having obtained the title of sultan from the caliphs who served in Egypt under the yoke of the Mamalukes, he was ambitious of deserving this title; and accordingly he turned his arms against the kingdom of Hungary, the principal theatre of the Turkish victories and defeats. At Nicopolis, near the Danube, he defeated, in 1396, a confederate army of an hundred thousand Christians, headed by Sigismund, the Hungarian king; most of whom were slain or driven into the Danube: and Sigismund, escaping to Constantinople by the river and Black sea, returned after a long circuit to his exhausted kingdom. Among the captives was a body of French crusaders, and in this number were John count of Nevers, the son of the duke of Burgundy, and some of the noblest lords in France. In the pride of victory, Bajazet threatened that he would besiege Buda, that he would subdue the adjacent countries of Germany and Italy, and that he would feed his horse with a bushel of oats on the altar of St. Peter at Rome. Whilst the military talents of Bajazet, manifested on this occasion by the speed and secrecy of his march, and also by the order and evolutions of the battle, have been acknowledged even by his enemies, he has justly been accused of cruelty in the use of victory. The French captives, who survived the slaughter of the day (the count of Nevers and twenty-four lords excepted, who were afterwards ransomed for two hundred thousand ducats) were led before his throne; and as they refused to abjure their faith, they were successively beheaded in his presence. So absolute was his authority, that his word, pronounced either by way of merey or destruction, was irrevocable. In the treaty, after the battle of Nicopolis, it was stipulated that the French captives should swear never to bear arms against the person of their conqueror; but this ungenerous restraint was abolished by Bajazet himself. "I despise," said he to the heir of Burgundy, "thy oaths and thy arms. Thou art young, and mayest be ambitious of effacing the disgrace or misfortune of thy first chivalry.

Assemble thy powers, proclaim thy design, and be assured that Bajazet will rejoice to meet thee a second time in the field of battle." The progress of Bajazet, notwithstanding his threats, was checked by a long and painful fit of the gout. Before he directed his arms against the feeble remains of the Eastern empire, he rendered the emperor, Manuel Palæologus, tributary, and imposed upon him the humiliating condition of having a Turkish cadi and a mosque in his capital. He next threatened and actually invested Constantinople; but he was called away by the menaces of a more formidable tyrant than himself. This was the great Timour, or Tamerlane, who, in the year 1400, began his march from Georgia towards Asia Minor. In his first expedition, Timour was satisfied with the siege and destruction of Siwas, or Sebasti, a strong city on the borders of Anatolia; and with causing 4000 Armenians, who formed the garrison, to be buried alive for the brave and faithful discharge of their duty. He then turned aside to the invasion of Syria and Egypt, sacked and destroyed Aleppo and Damascus, and took possession of Damascus. To Bajazet he offered peace on moderate terms; but the sultan, confiding in his strength, employed the interval in collecting all the forces of his empire, and these two potentates met on the plains that surrounded the city of Angora, in July, A. D. 1402, to a memorable conflict, which has immortalized the glory of Timour, and the shame of Bajazet. Such was the event of this severe contest, in which two very numerous and powerful hosts were engaged, that the Turks were entirely broken with dreadful slaughter; and Bajazet, afflicted with the gout in his hands and feet, was transported from the field on the fleetest of his horses. He was pursued and taken, and at sun-set brought to the tent of Timour. Bajazet, by the mild expostulation of the conqueror, who, with a soothing pity for his rank and misfortune, mingled just reproaches for his pride and obstinacy, was softened into humiliation. "Had you vanquished," said Timour, "I am not ignorant of the fate which you reserved for myself and my troops; but I disdain to retaliate; your life and honour are secure, and I shall express my gratitude to God by my clemency to man." The "iron age," in which Bajazet is said to have been imprisoned by Tamerlane, so long and so often repeated as a moral lesson, is now rejected as a fable by the modern writers, who smile at the vulgar credulity. It has been suggested, indeed, that Timour might display an ostentatious magnificence and liberality, towards Bajazet; while, with a view to security, he kept his important prize in a "moveable apartment guarded with bars," and indulged his own pride, in carrying him about in triumph. "In the feast of victory," says Gibbon, "to which Bajazet was invited, the Mogul emperor placed a crown on his head, and a sceptre in his hand, with a solemn assurance of restoring him with an increase of glory to the throne of his ancestors. But the effect of this promise was disappointed by the sultan's untimely death; amidst the care of the most skilful physicians, he expired of an apoplexy at Akshehr, the Antioch of Pisidia, about nine months after his defeat," A. D. 1403, in the fifteenth year of his reign, and fifty-eighth of his life. "The victor dropped a tear over his grave; his body, with royal pomp, was conveyed to the mausoleum which he had erected at Bourfa; and his son Moussa, after receiving a rich present of gold and jewels, of horses and arms, was invested by a patent in red ink with the kingdom of Anatolia."

The character of Bajazet was that of a despot with violent passions, but not habitually cruel; a lover of justice in the rough summary way practised by arbitrary princes; insatiably ambitious, and much addicted to the erection of pompous edifices for use or ostentation. Anc. Un. Hist.

vol. xv. p. 202. Gibbon's Hist. vol. xi. p. 321. vol. xii. 17. 28. 30.

BAJAZET II., sultan of the Turks, succeeded his father Mahomet II. in 1481. After being freed from the competition of his brother Zizim, or Jem, he engaged, like his predecessors, in wars, and made conquests in Moldavia and Caramania; and he manifested the ferocity of his own disposition by putting to death, at an entertainment in his palace, his famous general Achmet. His war with the sultan of Egypt terminated in the ruin of the latter power; but at its commencement Bajazet lost a great number of troops in an invasion of Syria. He afterwards overran Circassia, and carried many of its inhabitants into captivity. On the expulsion of the Moors from Spain, Bajazet, at the head of the Mahometan religion, was solicited to revenge their cause: and he sent a fleet into the Mediterranean, which defeated the Christian navy, and ravaged the coasts. He afterwards reduced Croatia and Bosnia. In compliance with the request of Sforza, duke of Milan, he declared war against the Venetians, and invaded and plundered Friuli. Marching in person into the Morea, he took Lepanto, Moden, and Durazzo; but in 1503, peace took place between him and the Venetians, who had taken possession of Cephalonia. Besides these foreign wars, Bajazet encountered many civil commotions, occasioned by the rebellion of his son Selim. The issue of these contests was the resignation of the crown to his son, upon which Bajazet, wishing to live in peace and retirement at Demotica, set out on a journey thither, attended by a few friends. His progress was slow, and his son suspected that he was waiting for some favourable turn in his affairs; and therefore his death, after he had proceeded to the distance of about forty miles from Constantinople, was not without reason ascribed to poison administered by a Jewish physician. He died in 1512, at the age of 62, after a reign of 32 years. He was active and vigorous in body and mind, a patron of the learned, himself a proficient in literature, and well versed in the philosophy of Averrhoes, and a punctual observer of the rites of his religion. At the same time he had the fierceness common to the Ottoman princes, and shed blood without remorse. He is commendable for his attention to the improvement and decoration of his dominions by many edifices of grandeur and utility. *Mod. Un. Hist. Gen. Biog.*

BAIBACHTA, in *Geography*, a town of Siberia, on the river Irtysh, 72 miles N. W. of Tara.

BAIBAZAR, a town of Asiatic Turkey, in the province of Caramania, 48 miles west of Angura.

BAIBOUL, a town of Armenia, 45 miles south of Trebizond.

BAICHA, two rivers of Siberia, which run into the Turuchan; one 32, and the other 56 miles N. W. of Turuchansk.

BAIDARS, the name of a kind of small canoes, used among the natives of the Kurilly islands, and of the north-western coast of America. In Sauer's "Account of a geographical and astronomical Expedition to the northern Parts of Russia, by Billings, in the Years 1785 to 1794," we have the following account of their construction. The keel is eighteen feet long, four inches thick on the top, and not three inches deep, or somewhat less, at the bottom. Two upper frames, one on each side, about $1\frac{1}{2}$ inch square, and sixteen feet long, join to a sharp flat board at the head, and are about sixteen inches shorter than the stern, connected by a thwart which keeps them about twelve inches asunder. Two similar frames are placed near the bottom of the boat, six inches below the upper ones, about one inch square. Round sticks, thin, and about six inches distant from each other, are tied to these frames, and project from the sides;

and for the top thwarts are used very strong sticks, nearly as thick as the upper frames, curved, so as to raise the middle of the boat about two inches higher than the sides. Of these thwarts or beams there are thirteen; one of them is placed seven feet from the stern; another is twenty inches nearer the head; and a hoop is fastened between them, in which the rower is seated. This is made strong, and grooved for fastening an open skin, which is tied round the body, so as to prevent any water from getting into the boat, although it were sunk. The frame is covered with the skin of the seal-ion, drawn and sewed over it like a case. The whole is so extremely light even when sodden with water, that it may be carried with ease in one hand. The head of the boat is double the lower part, sharp, and the upper part is flat, resembling the open mouth of a fish, but thus contrived to keep the head from sinking too deep in the water; and a stick is tied from one end to the other, to prevent its entangling with the sea-weeds. They are easily rowed in a sea, moderately smooth, about ten miles in the hour, and they keep the sea in a fresh gale of wind. The paddles which they use, and which serve for oars and rudders, are double, seven or eight feet long, and are cut in the shape of a peal. If the baidar runs aground, the savage easily sets it afloat again. These baidars are used in the fishery for whales, in the capture of sea-otters, and for other purposes.

BAIDSCHEN, in *Geography*, a town of Prussia, in the province of Lithuania, on the north side of the Pissa, four miles east of Gumbinnen.

BAIER, JOHN JAMES, in *Biography*, born at Iena, in Upper Saxony, in 1677, applied himself early to the study of medicine, and was admitted to the degree of doctor there in the year 1700. In 1704, he was made professor of physiology at Altdorf; and in 1730, president of the academy *Natu. Curiosorum*. Besides numerous dissertations on various branches of medicine, he published, "*Adagiorum Medicorum Centuria*," Altd. 4to. 1718. "*Historia Horti Medici Altdorfii*," 4to. 1727. "*Orationum Varii Argumenti Fasciculus*," 4to. 1727. "*Biographiæ Professorum Medicinæ qui in Academia Altdorf inquam vixerunt*," 4to. 1728. *Nurenb. cum Iconibus, Nummis, et Scriptorum Censu*. His son Ferdinand James was in considerable esteem as physician at Nuremberg, at the time of his death, which happened in 1735. *Haller Bib. Med. Pract. et Botan.*

BAIEU, in *Zoology*, the name of *Cervus Mexicanus* or Mexican stag, in Bancroft's Guiana, &c.

BAIF, JOHN ANTHONY, in *Biography*, was born at Venice, 1532, where he probably acquired and cherished his passion for music. He was the natural son of the French ambassador to that republic; had been a fellow student with the poet Ronfard, and was closely united to him by friendship and kindred arts. *Baif*, like our sir Philip Sidney, wished to introduce the feet and cadence of the dead languages into the living, and with the like success. He set his own verses to music; not to such music as might be expected from a man of letters, or a dilettante, consisting of a single melody, but to counterpoint, or music in different parts. Of this kind he published, in 1561, twelve hymns, or spiritual songs; and in 1578, several books of songs, all in four parts, of which both the words and music were his own. When men of learning condescend to study music *à fond*, professors think the art highly honoured by their notice; but poets are very unwilling to return the compliment, and seldom allow a musician to mount Parnassus, or set his foot within the precincts of their dominions. *Baif*, however, was allowed to be as good a musician as poet; and what entitles him to the more notice here, is the having established an academy, or concert at his house, in the suburbs of Paris, where the performance was frequently honoured with the presence of

Charles

B A I K A L.

Charles IX. Henry III. and the principal personages of the court.

Merfennus, in Genes. p. 1683, has given a particular account of this establishment, the first in France of which we have met with any record. In this academy or concert, dignified by a royal charter, in which voices, viols, and flutes were employed (*vocibus, fidibus, et fistulis constaret*), it was expected to recover the three genera of the Greeks, and all the miraculous powers of their ancient music.

BAIGNES, in *Geography*, a town of France, in the department of the Charente, and chief place of a canton in the district of Barberieux. The place contains 367 and the canton 6945 inhabitants: the territory includes 165 kilometres and 9 communes.

BAIGNEUX, a town of France, in the department of the Côte d'Or, and chief place of a canton in the district of Chatillon. The place contains 440 and the canton 3,307 inhabitants: the territory includes 290 kilometres and 16 communes.

BAIKAL, *Lake, or inland sea*, in *Geography*. In the steepest part of the Sayane mountains (the eastern continuation of the Altay) at the extremity of the chain, where the country changes to a level plain, seeming itself only a lower mountain between the lofty snow-capt summits, lies a monument of one of the greatest revolutions that the surface of our earth has ever undergone. A lake, not less remarkable for its internal constitution than for the space which it occupies, heaves its billows within the craggy cliffs of mountains, through which it is to all appearance impossible that any stream can force its way to supply its enormous basin. Nature, in the remotest periods of antiquity, seems here to have opened, by some tremendous convulsion, an abyss into which she might pour her immense stores of water, and cause a part of it to flow over the western level.

This lake extends from 52° N. lat. to $55^{\circ} 41'$, in a direction from south-west to north and north-north-east. Its most common appellation is Baikal, in the maps mare Baikal; but in the surrounding regions it is generally called the Sea, without farther addition; or sometimes the Holy sea. Both these denominations are extremely natural in a country which to a vast distance round knows no larger mass of waters, and in the mouths of people who so frequently experience the benefits it bestows and the perils it threatens. It is therefore not at all surprising that Gmelin's pilot should have ascribed a sudden storm to the anger of the incensed deity of the waters, who felt himself insulted by the foreign infidel who called his venerable sea a lake. Safe from the like danger, we shall however pay greater respect to geographical justice, by making use of the latter term.

The lake Baikal is 550 versts in length; and in breadth, where it is the narrowest, 30 versts. To the north it widens to between 70 and 80 versts. Its depth is very unequal; proceeding from 20 to 80 and 100 fathom (the fathom at seven foot). In some places, particularly near the isle of Olchon, according to the affirmation of a fisherman, even a sounding-line of 200 fathom would not reach the bottom. A number of brooks and rivulets pour their waters into this basin; on the map in Georgi's travels, we count fifty of them; many indeed very inconsiderable, though several others may be deemed large: for example, the Selenga and the Upper Angara, which pursues a course of more than 700 versts. The lake has only one outlet; the Lower Angara, which flows into the Yenisey. Though its bed at the part where it comes from the Baikal is two versts broad, and has a very rapid current, yet is it not by far capacious enough for carrying off all the water collected in that reservoir. Notwithstanding which, the lake never rises more than three feet above its ordinary level, even in

the spring season; and therefore it probably may have some subterraneous drain. The bottom, at the shores, consists of gradually rounded rocky fragments, piled on one another; in the middle, of gravelly sand. The lake is extremely clear, so that in eight fathom water the bottom is distinctly seen; in five or six fathom the smallest objects are discernible. At a distance it appears of a greenish hue, owing to the verdant moss with which the stony bottom is overgrown. It is pure, and very agreeable to the taste; but in the month of July it gets into a sort of fermentation, which is called its flowering, whence it becomes turbid as if mixed with a fine yellowish sand, and loses its good taste. More danger is to be apprehended when keeping within shore, than out upon the main; for the Baikal is extremely subject to violent gales and storms, which strike and split against the lofty mountains that surround it. The mariners know of no more than three winds, which they denominate after the promontories. The south-west, which is the most constant, and the north-east, are innoxious; the north is more formidable, by reason of its violence, and on account of the shallow shores to the south.

But the agitation of the water is out of all proportion to the wind; since in a very moderate breeze the lake frequently rages with great fury, whereas furious winds only just increase its agitation. There being no rocks or banks in the middle, the waves usually swell seven feet high, almost always quite to the shore. Even when the violence of the storm has abated, the turbulence of the water commonly lasts for several hours. The internal agitations of the lake are still more alarming. With a bright sky, and the surface of the water as smooth as a mirror, all at once the vessel is tossed about with such violent shocks, that the people on board have much ado to save it. In like manner in a particular place a single wave will suddenly arise, which at the same spot is followed by several others. These curious phenomena are supposed to happen in consequence of the contiguity in which the lake is situated below with clefts in the adjacent mountains, the drafts of wind issuing from which force up the water, though not always perceptible above to the same degree.

Thus continually restless, it is very comprehensible that, notwithstanding the severity of the climate, the Baikal is not frozen over till the month of December or January. Ice-fields, sometimes of ten versts in dimension, first form in the bays, and then unite in places, which, previous to the freezing, are covered with a dense cloud. The surface being at length thoroughly consolidated, frequently presents one vast plain of glassy smoothness, though sometimes likewise extremely rough. Snow, on account of the winds, seldom adheres to it; and therefore, especially to the first travellers, it is extremely laborious to the horses. The furious gusts of winds at times project the people who run by the side of the sledges, to the distance of several fathoms forwards; whereby they are in imminent danger of being frozen, or of falling into the chinks of the ice. These chinks become wider and more frequent as the time of the breaking up draws on; boards are then laid across them to facilitate the passage; and in cases of necessity, when the apertures are become too wide to be remedied in that way, canoes are introduced. The ice usually breaks up in May, and then it requires only a few days for dissolving; in several of the bays, however, it lies the whole summer through.

The weather is generally inclement in the parts about the Baikal. The summer is short, and scarcely ever passes without night frosts; the winter announces its approach so early as August, by falls of snow. On the sandy coasts, such plants grow as are elsewhere only found on the coldest mountains. The cause of this inclemency of climate is principally to be attributed to the elevation of the whole region, the snowy summits and icy clefts of the huge mountains, and

and the want of sufficient protection against the north winds.

In the Baikal are numerous islands; most of them, however, very small. The largest is Olchon, in the northern part, separated from the main land by a sound, in which are eight islands of inferior dimensions. Olchon is 50 versts in length, eight or ten broad, and terminates to the north in a promontory; the south-eastern part is lower and destitute of forests; in the south-western grow pines, poplars, birch, and willows. The land is so favourable to the nurture of cattle, that the fine droves belonging to the inhabitants find pasture all the winter through, without any particular tending. The population consists of 150 Burat families, many of whom are owners of between four and five hundred head of sheep. The natural propensity to idleness in all pastoral people here finds so much encouragement, that the Burats pass the greater part of the day in carousing.

Round the coast are several objects of consequence to the naturalist. On the western side, above Olchon, in a very beautiful country, skirted by majestic forests, with a fine view of the lake, are several springs, mostly cold. Amidst these is one of hot water, more remarkable than the rest on account of its fanative properties. A Russian officer belonging to the mines having obtained relief from it in some disorder, reduced it to a conduit, which yields 582 gallons every hour; and it is found to be only necessary to dig in its vicinity for coming to hot water. The water is clear, but has somewhat of a foetid taste; the vapour smells like fired gunpowder, and occasions sneezing; birds are boiled in it in twelve minutes, split fish in seventeen minutes. No snow therefore remains here upon the ground; the lake likewise continues free from ice; and even the cold springs, where they run through the territory of the hot, are tepid. These hot sources are used for bathing as well as for drinking. Some years ago a lama performed frequent cures by means of these waters; since his death, however, the Russians are the only persons who occasionally resort to them.

The Upper Angara flows through the northern margin into the lake, after having pursued a course of 800 versts, down several precipices, forming stupendous cataracts, along a tract of near a hundred miles. Not far from its mouth, eastwards, is the Frolika lake, fifteen versts long, and from one to five versts across, remarkable for its extraordinary depth, and for a cataract on its way to the Baikal. The river Frolika, between fifteen and twenty fathoms wide, forms this cataract by rolling over a succession of rocks, extending half a verst, and being twenty feet in perpendicular height. More to the south is again a hot source, pellucid, and in taste resembling soap-water; in the morning the effluvia it casts around is enough to make one sick. The water issues in a copious stream, but is turned to no account.

On the Shamane promontory stands a curious *lufas naturæ*; namely, three rocks adjacent to each other, upwards of two hundred feet in height above the water's level. Their tops resemble human heads, with caps on them. It may well be imagined that the particular features are not small. Of the middlemost, which is the biggest, the nose is in length seven feet, in the slit of the mouth two families of sea-gulls are commodiously lodged; even the eyebrows are not wanting; only there is no trace of an ear. The Tunguses revere these three rocks, as the sea-god Dianda, with his two subordinate deities. He is able to save any Tunguse from drowning, to cause a good draught of fishes, &c.

The peninsula Bargusin, thirty versts long and fifteen broad, is thickly wooded, but void of game and fish, conse-

quently cannot boast of a numerous population. Lower down to the south is the Dukhovoi or Vapoury lake, five versts long and three broad. Its yellowish slimy water is of a nauseous acid taste; the whole district is charged with its foetid exhalations; yet the water taken in a vessel has no remarkable odour. It even abounds in pike, perch, and various other sorts of fish, which, however, often in winter, when the ice remains without apertures, are stified in the putrefying water. Whence it may be, that the horrid stench of this region arises not so much from the lake itself, as from the prodigious quantity of fish that lie corrupting on the shore.

The most famous of all the mineral waters on the coasts of the Baikal, is the Turkobad, celebrated since the commencement of the late century, not yet however employed according to its merits. It consists of seven springs, some of hot, others of cold water, which in one place have been collected into a reservoir. It is visited both by Russians and Burats, labouring under disorders, who generally find relief from it. The former, on their recovery, erect crosses; the Pagans plant young cedars about the spot, hanging up likewise on poles silk and cotton stuffs, as votive offerings to the deities; in the same view they also throw money into the water. Without waiting for any revealed authority from the Shamanian gods, the Russians carefully convey away all these articles; making by that means sometimes a profit of ten rubles in the year, a capital sum for this part of the world! A little above the Turka is obtained naphtha, which the lake casts ashore in the spring, hanging to icicles, or incruited with ice, in lumps often as big as one's fist. This dark brown clammy substance, which probably oozes up from the bottom of the lake, though tolerably viscous, may however be kneaded, and is soluble in moderately warm water. It has rather a fragrant odour, and is used in healing wounds, particularly as a salve for running sores. These parts abound likewise in various species of alkaline salts, which have of late been collected for the use of the apothecaries.

Southwards from the Turka is the mouth of the Selenga, the largest river that disembogues into the Baikal, and whereon the two cities Udinsk and Selenginsk are situate. In its mouth lie scattered a few islands. Lower down stands the monastery of Pofolsk, which is the landing-place on coming across the Baikal from Irkutsk. The south-western mountainous border of the lake is called Kultuk.

We now proceed to the particularities of animated nature in this extraordinary lake. Among the aquatic animals, the prime rank is certainly due to the callionymus, called by the Russians golomyanka, entirely peculiar to the Baikal. He is from four to six inches in length, and, excepting his head, skin, and a slender back-bone, consists solely of blubber, into which he immediately dissolves on being exposed to a gentle heat. None of these fish, however, are caught in nets or otherwise; it is even extremely rare to see them alive; it is only during violent agitations of the water that they are raised to the surface and cast ashore, generally either dead or in a dying state. This chiefly happens in summer, when it blows a tempest from the north; though not every year alike. Shoals of them are often found piled up in heaps on the shore, particularly near the mouth of the Selenga; at times they are so rarely seen, that the old fishermen even aver that it is only of late years that they have been seen at all. Whence, and how they are thrown up and ejected cannot indeed be satisfactorily ascertained; unless it be probably in consequence of their usual haunts being the deepest chasms at the bottom of the lake. That these may possibly be connected with the clefts of the mountains, we have

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already conjectured; and if this be admitted, it is far from improbable, that, in heavy gales, the wind furiously rushing through these vents, may lift them from their holes into the upper water, where, unaccustomed to the outward air, they cannot long survive this change of place. The shoals that are cast ashore are partly devoured by the sea-fowls, and partly boiled to oil by the inhabitants of the strand, which is said to be very fine and well-tasted; at least it must be so to the Chinese, who buy it in great quantities.

Another particularity, at least to the Baikal, are the porpuses. As they elsewhere only live in salt water, and never travel far up the rivers, it is the more surprising how they came into this fresh water-lake, which has no communication with the sea, nor with any river that contains these animals. Though the first surmise may fall on the Yenissey and the Angara, yet in neither of those rivers are any of them, now at least, to be found, and it would be extremely difficult for them to shoot the cataracts on the passage from the Yenissey to the Baikal. Perhaps in some great inundation, the sources of the Lena might have communicated with the rivers of the Baikal; and on that occasion the primitive race of them might have strayed hither. They are of the same species with those of the Caspian and the Baltic; excepting that scarcely any of them are of varied hues. They are particularly fond of the ice; and shew themselves above water rather in the winter than in the summer; for which purpose they blow up of themselves air-holes in the ice, which they have the art of keeping constantly open; and in the spring drop their young upon the ice, for whose accommodation they make little huts of snow. The season for the chase of them lasts from the beginning of March to the breaking up of the ice at the latter end of May; the right of catching them is farmed out. They are shot with fire-arms or pierced with javelins; in both cases from a concealment behind a screen of white linen, which the animals mistake for a piece of ice. The old ones are made to yield their blubber; but the young are chiefly sought after because the Chinese are extremely partial to their silver grey skins. In the carrion, the Burats share with the crows. The annual capture is estimated at between 1500 and 2000 of these animals.

The omul (*salmo migratorius*) is a fish of great consequence, in regard to its prodigious numbers, not only to the Baikal, but to all the country round. His ordinary length is from fourteen to sixteen inches; seldom extending to two foot. His flesh is white and tender, and so delicate that he dies as soon as taken out of the water, even though immediately thrown in again. In August, the omuls generally begin to advance in shoals of various bulk, in order to ascend the rivers in which they spawn. In September they return, but in so emaciated a condition, that multitudes die upon the passage. They do not go up every river; those on the western-side not at all, and even not every one on the eastern side of the lake. Each fish is wont to go to spawn in the place where itself received life. They are caught the whole summer long; but mostly at the time of their shoaling in the rivers. With small nets 2000 of them are taken at a draught. They are thrown together in great heaps upon the shore; but ere the fishermen have time to prepare them, the Tunguses, the dogs, and the birds of prey, have devoured a good part of them. The omuls are salted, oil is obtained from them, and even some caviar, which however will keep only a very short time. Besides these, the Baikal produces many other sorts of fish; such as sturgeon, quabs, carp, perch, tench, trouts, pike, &c. in great abundance.

One very singular natural phenomenon of the Baikal we have referred to the last, as being probably the original cause of the existence of the lake itself; we mean the earth-

quakes that are very frequent in the parts adjacent. They are most usual in the spring and autumn; generally once, sometimes twice a year. The shocks are not violent, last a few minutes, and do scarcely any mischief. At least the utmost injury that attended any one of the sixteen earthquakes described by professor Georgi, was, that it gently waked him out of his sleep, threw down the stove in the police-office at Selenginsk, and shook off some of the crosses from the tops of the church-steeples. Nature seems to have exhausted herself in forming the bed of the Baikal; for it is highly probable that it was the effect of some tremendous earthquake, attended by an extraordinary falling-in of the earth. We are naturally led to this hypothesis by considering the state of the circumjacent region, and of the bottom of the lake. This latter consisting of fragments of demolished rocks, the largest of which thrust up their tops as islands; the coast around is one amazing congeries of rent, broken, and split rocks, to the height generally of forty fathoms; shattered portions of rock lift their bare summits to the clouds, while the other parts of them lie rooted in the heart of the earth. On the craggy pinnacles of some of the snow-covered mountains, lie broken tops of rocks in the shape of bee-hives, which only the powerful hand of nature could have projected thither; as it was she who fenced the Baikal round with majestic cliffs, and fixed their bases in unfathomable pits. But when?—History is silent.—And how?—The naturalist can only conjecture; he has recourse to an earthquake, and imagines, that here perhaps formerly the streams of the Upper Angara flowed, the territory whereof is now engulfed by the broad lake.

The country round the Baikal forms a part of the government of Irkutsk, and belongs chiefly to the province of Nertshinsk. Irkutsk lies at the distance of about 50 miles westwards from the Baikal. The inhabitants of the confines of the lake are Tunguses, Burats, and Mongoles; the Russians are less numerous, because the land adjacent to it is not favourable to agriculture; though even on the eastern side winter-rye, oats, and barley thrive tolerably well. The whole of the population on the eastern side of the lake, from Turkal to the Upper Angara, amounted, in 1771, to not more than 5000 souls.

Besides the numerous birds of prey that seek their food in the neighbouring forests, multitudes of winged guests are attracted hither by the exuberant stores of fish with which the lake abounds. These consist of the various tribes of mews and hems; but more numerous than all are the gulls, in size resembling a full grown duck, but incomparably heavier. They come in the month of April, and take their departure in October. Every thing bears marks of their devastation; the very trees in which they roost perish, partly by their corrosive dung, and partly in consequence of their biting off the buds. They are said to consume more than one half of the omuls that go up the rivers. This may be thought surprising after what has been before observed of the prodigious quantities of these fish; not however so altogether incredible, when we are informed that these fowls hatch about ten young ones at a brood; and are extremely voracious. Not content with eating their fill, they overload themselves in such a manner, that beneath the rocks where they nestle, the foxes, ermines, magpies, and crows constantly find a plentiful banquet. In many places the nests of them are so numerous, that the people have much ado to pass along the rocks. The isles in the sound between Olchon and the main land, being the principal haunt of these birds, take their name from them.

The forests are overrun with quadrupeds. Wolves and bears roam there in great abundance; but the latter at least

are by no means formidable. Nothing scares them so easily as singing; accordingly the Burats are so considerate as to compose particular tunes for them. The louder the vocal performer pitches his notes, the faster the stupid hearer scampers from him. The Burats hunt them for the sake of their flesh. Stags, elks, and roe-bucks are very numerous; rein-deer are far less frequent on the northern shore. The wild boars are silver grey, and scarce; both perhaps in consequence of the cold climate. The race of fables is not yet so thinned in these regions as in some others; those taken here are esteemed as eminently valuable; such especially as range about the Upper Angara, are praised for the blackness of their fur. Ermines are so prolific, that while M. Georgi was at Irkutsk, a contract for twenty thousand skins to be delivered at St. Petersburg might be completed in a couple of days. Not less numerous in winter are the white hares, of whose large and stout ears pelisses are made, each at one and one and a half rubles. The Tunguses pay their tribute in squirrel-skins; besides these many Russian hunters collect a thousand skins in one winter, and yet there is no perceptible diminution of the animals.

BAIKAL, *Mines of the*. In the region of the Baikal, 434 versts from Irkutsk, on the Lena, extends a bed of copper ore, which seems to reach, for 900 versts to the river Kiren. The country of the latter river is far more hilly, consisting partly of lime-stone, whence several mineral sources proceed. Nor are specimens of copper wanting. Iron ores and ferruginous stones are every where met with in abundance. On the Lena here and there are fallies of argentiferous glatz galena, interspersed with lime-stone, and at times appears in lumps of two or three pounds. It was first explored about sixty years ago by Messrs. Make and Kutuzof. They keep four machines at work at the copper-flötz, near the villages Botova and Shemanova. The ores are green-copper, brown-copper, copper-glass, fallertz-ores and malquita. The gangues are calcareous and sandy. The narrower the gangue, the richer it is. The proportion is one-fourth to forty per cent. copper, but scarcely a trace of silver. On an average one hundred pood of ore yields four pood of good copper.

BAIKAL, *Mountains of the*. This range of mountains takes nearly the same direction with the Baikal lake, accompanying it on both sides from south to north and north-east, runs down to the west on the right of the Angara, where it flattens in a morasse steppe of prodigious extent: to the east it advances from the origin of the Lena, on both sides of that river, and here likewise dies away in a widely extended flötz-ridge. In general it is a very craggy high-pitched mountain, partly consisting of granite, partly of flint-breccia and lime-stone. In the inferior regions of the Angara and the Lena, its flötz-mountain greatly declines, and frequently produces coal. From the upper Angarian ridge there runs, as it should seem, a branch westward, through the region between the Podkamennaia, and the lower Tunguska, away over the Yenissey, and consists probably of mere flötz-mountains. About the north-eastern part of the Baikal, the Upper Angara, the rivers Mama and Vitim, where lie the famous pits of muscovy-glass, all the mountain is granitic. The mineral contents of these mountains are as yet by far not thoroughly known. The principal of what has been discovered in them, are coals, asphaltus, sulphur-sources, native sulphur, alum, common salt sources, lapis lazuli, muscovy-glais, carnelians, natural Prussian blue, and specimens of copper, iron, and lead.—Some tracts of mountains about the Baikal, for example, the Burgundu, and others, are so high that they are covered with never-wasting snow. In the lake itself many lofty

and steep cliffs ascend above the water as islands; some whereof consist of solid white quartz.—The mountains are partly bare, but mostly decked with forests. The most usual kinds of trees are the pinus sylvestris and the birch; but here are likewise great numbers of larches and cedars. The principal rivers which hence derive their streams, are the Selenga, the Angara, the Lena, the Vilni, and the Tungusa. For farther particulars, see Tooke's View of the Russian Empire, vol. i. p. 137, & seq.

BAIKALENSIS, in *Ichthyology*, a species of *CALLIONYMUS* that inhabits the deep parts of the lake Baikal. It is about nine inches long, soft, slender, and rather compressed; and has ventral fins; first dorsal fin very small; the second with cirriferous rays. Pallas, Gmelin, &c.

BAIKALITE, in *Mineralogy*, a variety of *TREMOLITE*.

BAIKALOVA, in *Geography*, a town of Siberia, 112 miles S. S. E. of Abakanisk.

BAIL, **LOUIS**, in *Biography*, a French divine, born at Abbeville, flourished in the seventeenth century, and wrote several voluminous works, among which are "A Summary of Councils," being a continuation of that by father Fr. Longus de Coriolan, printed in 2 large folio volumes, at Paris, in 1672; and an account of the most celebrated preachers in all ages, under the title of "Sapientia foris prædicans," or "Wisdom uttering her voice in the streets." *Nouv. Dict. Histor.*

BAIL, in *Law*, the setting at liberty of one arrested or imprisoned upon any action either civil or criminal, under sureties taken for his appearance at a day and place assigned. It is called *bail*, because hereby the party confined is *baillè*, from the Greek βαλλειν, delivered into the hands of those who bind themselves for his forthcoming: or from *bail*, used in the sense of a guardian, into whose hands the party is put for security sake: and the end of bail is to satisfy the condemnation and costs, or render the defendant to prison.

Manwood distinguishes between *bail* and *mainprise* thus: he that is mainprised is said to be at large, and go about at his liberty, without ward, till the time of appearance; whereas he who is let to *bail* to two or more men, is always accounted by law to be in their ward and custody for the time: and they may, if they please, actually keep him in prison.

With respect to bail in civil cases, it is to be observed, that there is both *common* and *special* bail.

Common bail is that given in actions of small prejudice, or slight proof; in which case any nominal sureties are taken; as John Doe, and Richard Roe: this being no other than a form of appearance: whereas *special* bail is given in cases of greater moment, where it is required that the sureties be substantial men, and according to the value of the matter in question.

It has been enacted that no persons should be held to special bail in any action brought for less than ten pounds. In order to which it is required by stat. 13 Car. II. st. 2. c. 2. that the true cause of action should be expressed in the body of the writ or process. Also no security can be taken in a greater sum than 40*l*. This is observed as to writs issued out of the courts of Westminster-hall, and extended to all inferior courts by 19 Geo. III. c. 70.

The method of putting in bail to the sheriff, is by entering into a bond or obligation, with one or more sureties (not fictitious persons, as in the case of common bail, but real, substantial, responsible bondsmen), which obligation is called the *bail-bond*. The sheriff, if he pleases, may let the defendant go without any sureties; but that is at his own peril; for, after once taking him, the sheriff is bound to keep him safely, so as to be forth-coming in court; otherwise an action lies against him for an escape. But, on

the other hand, he is obliged, by stat. 23 Hen. VI. c. 10. to take, if it be tendered, a sufficient bail-bond; and by stat. 12 Geo. I. c. 29. the sheriff shall take bail for no other sum than such as is sworn to by the plaintiff, and endorsed on the back of the writ. By rule M. 1654, no attorney shall be bail for a defendant in any action, nor his clerk. Cowper, 228. n. But an attorney may be admitted as bail in a criminal case. No sheriff's officer, bailiff, or other person concerned in the execution of process, shall be permitted to be bail in any action or suit depending in K. B. nor persons outlawed after judgment, R. M. 14 Geo. II. Upon the return of the writ, or within four days after, the defendant must *appear* according to the exigency of the writ. This *appearance* is effected by putting in and justifying *bail to the action*; which is commonly called *bail above*. If this be not done, and the bail that were taken by the sheriff *below* are responsible persons, the plaintiff may take an assignment from the sheriff of the bail-bond (under the statute 4 & 5 Ann. c. 16), and bring an action thereupon against the sheriff's bail. But if the bail so accepted by the sheriff be insolvent persons, the plaintiff may proceed against the sheriff himself, by calling upon him, first to return the writ, if not already done, and afterwards to bring in the body of the defendant; and, if the sheriff does not then cause sufficient bail to be put in and perfected *above*, he will himself be responsible to the plaintiff.

The *bail above*, or *bail to the action*, must be put in, either in open court, or before one of the judges thereof; or else, in the country, before a commissioner appointed for that purpose by virtue of the statute 4 W. & M. c. 4. which must be transmitted to the court. These bail, who must be at least two in number, must enter into a recognizance in court or before the judge or commissioner, in a sum equal (or in some cases double), to that which the plaintiff has sworn to; whereby they do jointly and severally undertake, that if the defendant be condemned in the action, he shall pay the costs and condemnation, or render himself a prisoner, or that they will pay it for him: which recognizance is transmitted to the court in a slip of parchment entitled a *bail-piece*. And if excepted to, the bail must be *perfected*, that is, they must *justify* themselves in court, or before the commissioner in the country, by swearing themselves house-keepers, and each of them to be worth the full sum for which they are bail, after payment of all their debts. See SATISDACTION.

Special bail is required (as of course), only upon actions of debt or actions on the case in trover, or for money due, where the plaintiff can swear that the cause of action amounts to ten pounds: but in actions where the damages are precarious, being to be assessed *ad libitum* by a jury, as in actions for words, ejectment, or trespass, it is very seldom possible for a plaintiff to swear to the amount of his cause of action; and therefore no special bail is taken thereon, unless by a judge's order, or the particular directions of the court, in some peculiar species of injuries, as in cases of mayhem or atrocious battery; or upon such special circumstances, as make it absolutely necessary that the defendant should be kept within the reach of justice. Also in actions against heirs, executors, and administrators, for debts of the deceased, special bail is demandable; for the action is not so properly against them in person, as against the effects of the deceased in their possession. But special bail is required even of them, in actions for a *devastavit*, or wasting the goods of the deceased; that wrong being of their own committing.

In civil cases every defendant is bailable; but in criminal matters it is otherwise. Bail may be taken either in court, or in some particular cases by the sheriff, coroner, or other

magistrate; but most usually by the justices of the peace. Regularly in all offences, either against the common law or act of parliament, that are below felony, the offender ought to be admitted to bail, unless it be prohibited by some special act of parliament. By the ancient common law before and since the conquest (2 Inst. 189. Glanv. l. xiv. c. 1.), all felonies were bailable, till murder was excepted by statute; so that persons may be admitted to bail before conviction almost in any case. But the statute Westm. 1. 3 Edward I. c. 15. takes away the power of bailing in treason and in divers instances of felony. The statutes 23 Hen. VI. c. 9. and 1 & 2 Ph. & Mar. c. 13. give further regulations in this matter; and upon the whole we may collect (2 Inst. 186. 2 Hal. P. C. 129), that no justice of the peace can bail, upon an accusation of treason, of murder, of manslaughter, if the person be clearly the slayer, and not barely suspected to be so, or if any indictment be found against him; such, as being committed for felony, have broken prison, because it not only carries a presumption of guilt, but is also superadding one felony to another; persons outlawed; such as have abjured the realm; approvers and persons by them accused; persons taken with the mainour, or in the fact of felony; persons charged with arson; and excommunicated persons, taken by writ *de excommunicato capiendi*. Others are of a dubious nature, as thieves openly defamed and known; persons charged with other felonies, or manifest and enormous offences, not being of good fame; and accessories to felony, that labour under the same want of reputation. These seem to be in the discretion of the justices, whether bailable or not. Those who must be bailed, on offering sufficient security, are persons of good fame charged with a bare suspicion of manslaughter, or other inferior homicide; such persons, charged with petit larceny, or any felony, not before specified; or with being accessory to any felony. Lastly, it is agreed, that the court of King's Bench, or any judge thereof in time of vacation, may bail for any crime whatsoever, be it treason, murder, or any other offence, according to the circumstances of the case; such persons only excepted, who are committed by either house of parliament during the session, or such as are committed for contempts by any of the king's superior courts of justice. The refusal, or delay, of bail for any person bailable, is an offence against the liberty of the subject in any magistrate, by the common law, as well as by the statute Westm. 1. 3. Edw. I. c. 15. and the *habeas-corpus* act, 31 Car. II. c. 2. And it is expressly declared by statute 1 W. & M. st. 2. c. 1. that excessive bail ought not to be required; though it is left with the courts to determine, on considering the circumstances of the case, what bail shall be called excessive. On the other hand, if the magistrate take insufficient bail, he is liable to be fined, if the criminal doth not appear. Blackst. Com. vol. iii. vol. iv. For several circumstances and considerations with regard to bail in civil cases and in criminal matters, see Jacob's Law Dict. by Tomlyns, vol. i. Art. *Bail*.

BAIL above, or *BAIL to the action*, succeeds the return of the writ, or the appearance of the person bailed. See *BAIL*.

BAIL-Bond, is a bond or obligation entered into by one or more sureties, upon putting in bail to the sheriff, insuring the defendant's appearance at the return of the writ. See *BAIL*.

BAIL in Error, expresses the bail given by a person who brings a writ of error after verdict, or who is plaintiff in error.

BAIL-Piece, a small square slip of parchment, with the corners cut off at the bottom, on which is the recognizance of persons who put in bail. See *BAIL*.

BAILS, *Clerk of the*, is an officer belonging to the court of king's bench. He files the bail-pieces taken in that court, and attends for that purpose.

BAILACAN, in *Geography*, a town of Armenia, 181 miles east of Erivan.

BAILAN, a town of Syria, ten miles south of Alexandria.

BAILE, or **BALE**, in the *Sea Language*.—The seamen call lading or casting the water by hand out of a boat or ship's hold with buckets, cans, or the like, *bailing*.

When the water is thus *bailed* out, they say the *boat is freed*. They also call those hoops that bear up the tilt of the boat, its *bails*.

BAILEMENT, in *Law*. See **BAILMENT**.

BAILIAGE is used for the office of a bailiff, for the place where he keeps his seat, and for the territory subject to his jurisdiction; which last is also denominated *bailiwick*.

BAILIAGE, *Water*, is an ancient duty received by the city of London, for all goods and merchandises brought into or carried out of the port. See **BALLIAGE**.

BAILIE, in *Scots Law*, a judge anciently appointed by the king over such lands not erected into a regality as happened to fall to the crown by forfeiture or otherwise; now abolished. It is also the name of a magistrate in royal boroughs, and of the judge appointed by a baron over lands erected into a barony.

BAILIES, **WILLIAM**, M. D. in *Biography*, practised medicine at London, and then at Bath, about the middle of the last century, but having a dispute with Drs. Oliver and Lucas, who had the greatest share of the business there, he soon quitted that city, and went to Prussia, and was made physician to Frederick the Great, to whom he was recommended as a person of great knowledge and experience in his profession. The king telling him, on his being introduced to him, he must certainly have killed a great number of persons in the course of acquiring his experience, the physician is said to have answered, "pas tant que votre majesté"—not so many as your majesty. The bon mot happened not to displease, and the doctor continued in favour with the king to the time of his death.

In 1757, Dr. Bailes published an essay on the Waters of Bath, with the view probably of making himself known there: also a narrative of facts, proving a conspiracy between the Drs. Oliver and Lucas, to exclude him from all consultations at Bath. Gen. Biog. Dict.

BAILIFF, in a *general sense*, denotes an officer appointed for the administration of justice within a certain district, called *bailiwick*.

The word is also written *baile*, *baily*, *bayly*, *baylie*, and *baillif*, in Latin *ballivus*.—It is formed from the French *baillif*, that is *præfectus provincia*, of *bail*, an old word denoting a guardian or governor of a youth originally derived from the Latin *bajulus*, which signified the same.

Pasquier maintains, that bailiffs were originally a kind of commissioners, or judges delegate, sent into the provinces to examine whether or no justice were well distributed by the counts, who were then the ordinary judges. Loyseau, with more probability, refers the origin of bailiffs to the usurpation and idleness of the great lords, who, having got the administration of justice into their own hands, and being weary of the burden, turned it over to their deputies, whom they called bailiffs.

The bailiffs had, at first, the superintendence of arms, of justice, and of the finances; but abusing their power, they were by degrees stripped of it, and the greatest part of their authority transferred to their lieutenants, who were to be men of the long robe. In France, they assumed some

prerogatives, as being reputed the heads of their respective districts; in their name justice was administered, contracts and other deeds passed, and to them was committed the command of the militia.

From these the English bailiffs originally took both their name and their office: for as the French had eight parliaments, which were supreme courts whence no appeal lay, within the precincts of the several parliaments or provinces, and in which justice was administered by bailiffs, at least by their lieutenants; so in England are several counties wherein justice was and is still administered by a viscount or sheriff, who appears likewise to have been called bailiff; and his district or county, *bailiwick* or *balliva*. In the statute of magna charta, c. 28. and 14 Ed. III. c. 9. the word bailiff seems to comprehend as well sheriffs, as bailiffs of hundreds. Farther, the counties were again subdivided into hundreds; within which it is manifest, justice was anciently rendered by officers called bailiffs. And it appears by Bracton (l. 3. tract. 2. c. 34), that bailiffs of hundreds might anciently hold plea of appeal and approvers. But those hundred-courts are now swallowed up by the county-courts, certain franchises alone excepted; and the bailiff's name and office grown into such contempt, at least these bailiffs of hundreds, that they are now no more than bare messengers, and mandatories within their liberties, to serve writs, and such mean offices. In other respects, the name is still in good esteem; for the chief magistrates in divers towns are called bailiffs; and sometimes the persons to whom the king's castles are committed are called bailiffs: as the bailiff of Dover castle, &c.

Of the ordinary bailiffs, there are several sorts; viz. bailiffs of liberties, sheriff's bailiffs, bailiffs of lords of manors; bailiffs of husbandry, &c.

BAILIFFS of Liberties, are those bailiffs who are appointed by every lord within his liberty, to execute process and perform such offices therein as the bailiff errant doth at large in the county; but bailiffs errant or itinerant as they were formerly called, who went up and down the country to serve process, are now out of use.

Bailiffs of liberties and franchises are to be sworn to take distresses, impanel jurors, make returns by indenture between them and sheriffs, &c. and shall be punished for malicious distresses by fine and treble damages, by ancient statutes 12 Ed. II. st. 1. c. 5. 14 Ed. III. st. 1. c. 9. 20 Ed. III. c. 6. 1 Ed. III. st. 1. c. 5. 2 Ed. III. c. 4. 5 Ed. III. c. 4. 11 Hen. VII. c. 15. 27 Hen. VIII. c. 24. 3 Geo. I. c. 15. § 10.

The bailiff of a liberty may make an inquisition and extent upon an *elegit*. Cro. Car. 319. These bailiffs of liberties cannot arrest a man without a warrant from the sheriff of the county; and yet the sheriff may not enter the liberty himself, at the suit of a subject (unless it be on a *quo minus*, or *capius utlagatum*), without a clause in his writ, *non omittas propter aliquam libertatem*, &c. If the sheriff, &c. enters the liberty without such power, the lord of the liberty may have an action against him; though the execution of the writ may stand good. 1 Vent. 406. 2 Inst. 453.

BAILIFFS of Sheriffs, are either bailiffs of hundreds, or special bailiffs. Bailiffs of hundreds are officers appointed over those respective districts by the sheriffs to collect fines therein; to summon juries; to attend the judges and justices at the assizes and quarter sessions; and also to execute writs and process in the several hundreds. But as these are generally plain men, and not thoroughly skilful in this latter part of their office, that of serving writs, and making arrests and executions, it is now usual to join special bailiffs with them; who are generally mean persons employed by the sheriffs on account only of their adroitness and dexterity in hunting;

hunting and seizing their prey. A bailiff of a liberty is an officer which the court takes notice of; but a sheriff's bailiff is not an officer of the court, but only the sheriff himself. Parch. 23 Car. 1. B. R. The arrest of the sheriff's bailiff is the arrest of the sheriff himself, and if any rescous be made of any person arrested, it shall be adjudged done to the sheriff: also, if the bailiff permit a prisoner to escape, action may be brought against the sheriff. Co. Lit. 61. 168. Sheriffs are answerable for the misdemeanor of their bailiffs, and are to have remedy against them. 2 Inst. 19. The latter are therefore usually bound in an obligation with sureties for the execution of their office, and thence are called *bound-bailiffs*, which the common people have corrupted into a much more homely appellation.

There are thirty-six sergeants at mace in London, who may be termed bailiffs, and each of them gives security to the sheriffs. By stat. 14 Ed. III. c. 9. sheriffs shall appoint such bailiffs for whom they will answer; and by stat. 1 Hen. V. c. 4. no sheriff's bailiff shall be attorney in the king's court. R. M. 1654.

BAILIFFS of *Lords of Manors*, are those that collect their rents, and levy their fines and amercements; but such a bailiff cannot distrain for an amercement without a special warrant from the lord or his steward. Cro. Eliz. 698. He cannot give licence to commit a trespass, as to cut down trees, &c., though he may license one to go over land, being a trespass to the possession only, the profits of which are at his disposal. Cro. Jac. 337. 377. A bailiff may, by himself, or by command of another, take cattle damage-feasant upon the land. 1 Danv. Abr. 685. Yet amends cannot be tendered to the bailiff, for he may not accept of amends, nor deliver the distress when once taken. 5 Rep. 76. These bailiffs may do any thing for the benefit of their masters; and it shall stand good till the master disagrees: but they can do nothing to the prejudice of their masters. Lit. Rep. 70.

BAILIFFS of *Courts-Baron*, summon these courts, and execute the process thereof; they present all pound-breaches, cattle strayed, &c.

BAILIFFS of *Husbandry*, are such as belong to private persons of good estates, and have the disposal of the inferior servants, with regard to their labour; they also fell trees, repair houses, hedges, &c.; and collect the profits of the land for their lord and master, and they render account to him yearly, &c. Besides these, there are also *bailiffs of the forest*, for which see Manwood, pt. 1. p. 113.

We also meet with divers other species and denominations of bailiffs in these and the neighbouring countries; as *provincial, royal, itinerant, and heritable bailiffs*; *bailiffs of France*, of the empire, of boroughs, &c.

BAILIFF, *Provincial, bailivus provincialis*, among the French, was an officer appointed to administer justice in a certain province or county, with an authority somewhat like that of our justice of assize, instituted by the dukes and counts in their several territories, after they had procured the inheritance of them. These acted in the name, and by authority, not of the king, as justiciaries, but of the dukes or counts who appointed them, and whose deputies they were. Spelman takes them to be the same with what among our Saxon ancestors, were denominated *aldermen of counties*, and *graves or reves*, which afterwards became *vicecomites*, and sheriffs.

Appeals lay from these to the bailiffs of France, *bailivi Francia*, who were those appointed over the provinces originally belonging to the crown.

BAILIFFS, *Royal, bailivi regii*, were those over provinces afterwards annexed to the crown. Something like these still subsists in Scotland, under the title of high or heritable

bailiffs; as those of Cunningham, Carrick, and Kyle; the first in the families of the earls of Eglington, the second of the earl of Cassils, the third of the earl of Loudon.

BAILIFFS of *Boroughs, bailivi burgorum*, were magistrates anciently in cities and towns, answering, in some measure, to what of later times was called *portgrave, mayor, &c.*

Canterbury was a bailiff town five hundred years before it was made a mayor town. Westminster, Southwark, Scarborough, &c. are still governed by bailiffs.

Bailiffs differ in this from mayors, that the latter are always single in one place, whereas there were usually two bailiffs to a city, as formerly at London, and sometimes four, as at Norwich.

BAILIFF of the *Empire*, was anciently the vicar or regent of the empire; as appears from a letter of Henry of Flanders to pope Innocent III. wherein he says, the princes, barons, and knights, have elected me *bailiff of the empire; bailivus imperii*.

BAILIFF, *Water*, is an officer anciently established in all port-towns for the searching of ships, as appears from 28 Hen. VI. cap. 5.

There is such an officer still on foot in the city of London, who supervises and searches all fish brought thither; and gathers the toll arising from the river of Thames.—He attends also on the lord mayor in his expeditions by water, and hath the principal care of marshalling the guests at the table. He also arrests men for debt, or other personal or criminal matters, on the river of Thames, by warrant of his superiors.

BAILII, DAVID, in *Biography*, a painter of perspective views, and portraits, was born at Leyden in 1584, learned to draw and design under his father, and prosecuted his studies under Adrian Verburg, and Cornelius Vandervoort, with the latter of whom he spent six years. Bailii copied many capital paintings of some great masters, in the possession of Vandervoort, with critical care and observation; and particularly a perspective view of the inside of a church, originally painted by Stenwyck, which was so accurately finished, that Stenwyck himself could scarcely distinguish the original from the copy. He travelled for improvement through several parts of Italy, and for some time resided at Rome; and the correctness of his drawing, and the delicate handling and finishing of his pictures, procured for him every where employment, admirers, and friends. In the latter part of his life he discontinued painting, and only drew portraits on vellum with a pen, which he heightened with black-lead, so as to give them wonderful force and roundness. He died in 1638. Pilkington.

BAILIWICK, BAILYWICK, or BAYLIWICK, the territory of a bailiff, or the place within which his jurisdiction is terminated. This is not only taken for the county, as it is frequently called in the writs, but signifies generally that liberty which is exempted from the sheriff of the county, over which the lord of the liberty appointeth a bailiff, with such powers within his precinct as an under-sheriff exercise under the sheriff of the county; such as the bailiff of Westminster, &c. Stat. 27 Eliz. c. 12. Wood's Inst. 206.

BAILLEAU L'EVEQUE, in *Geography*, a town of France, in the department of the Eure and Loire, and chief place of a canton in the district of Chartres, 1½ league north-west of Chartres.

BAILLEE, a town of France, in the department of the Mayenne, and chief place of a canton in the district of Chateaugontier, 4½ leagues north-east of Chateaugontier.

BAILLER, in *Law*. See BAILMENT.

BAILLET, ADRIAN, in *Biography*, an eminent French

critic, was born in 1641, of obscure parents, at Neuville, a village near Beauvais. Having completed his education in the college of the city, he took holy orders in 1676, but soon quitted the clerical profession, and devoted himself entirely to study. Lamoignon, president of the parliament of Paris, made him his librarian, and in this station he continued till his death in 1706. He was a man of indefatigable application, and extensive erudition. As he was always reading or writing, it is no wonder that his acquaintance with authors was great, and his works numerous. His principal performance was "*Jugemens des Savans sur les principaux Ouvrages des Auteurs*;" it is a valuable collection of facts and observations. In the first volume he lays down rules for judging of authors and their productions; the three following, published in 1685, treat of printers, critics, translators, authors of discoveries, &c.; and the next five on poets. The work would have been prosecuted agreeably to a plan presented by the author to the public in 1694, if he had not been discouraged by severe criticism and satire in the *Anti-Baillet* of Menage, and other pieces. Abandoning this design, he directed his attention to other subjects; and he wrote, in 1693, "A treatise on the worship of the Virgin Mary;" another in 1695, "On the Care of Souls;" "The Lives of Saints" in 4 vols. fol. and in 17 vols. 8vo. in 1701; "The Life of Descartes," in 2 vols. 4to. in 1691, and abridged in 12mo., in 1692; "The Life of Richer, doctor of the Sorbonne," written in 1692, and published in 1714. "The life of Godfrey Hermant, doctor of the Sorbonne," printed at Amsterdam in 1717, 12mo.; "An History of Holland, from the truce of 1609," where Grotius finished, "to the peace of Nimueguen," published at Paris, under the name of "Neuville," in 4 vols. 12mo. 1693; "A new and curious Account of Muscovy," under the same name, in 12mo. at Paris, 1698; and "An History of the contests of pope Boniface VIII. with Philip the Fair, king of France," published by father Long, in 12mo. 1718. The "*Jugemens des Savans*" was revised and enlarged by M. de la Monnoye, member of the French academy, and printed at Paris, in 7 vols. 4to. in 1722, and in 17 vols. in 12mo. at Amsterdam, in 1725.

Baillet is often tedious and uninteresting, and culpably negligent with regard to his style. Gen. Dict.

BAILLEUL, JOHN DE, *Abbé de Johnval*, was so famed for his skill in reducing luxated joints, Haller says, that his name passed into a proverb, and an expert bone-setter was called a Bailleul. Hal. Bib. Chirurg.

BAILLEUL, in *Geography*, a town of France, in the department of the North, and chief place of a canton in the district of Hazebrouck; it was formerly fortified, but is now without defence. It contains about 500 houses; three leagues E.S.E. of Cassel, and $4\frac{1}{2}$ W.N.W. of Lille. The place contains 8,944 and the two cantons 26,191 inhabitants; the territory includes 175 kilometres; the north-east canton has 3 and the south-west 6 communes. N. lat. $40^{\circ} 35'$. E long. $2^{\circ} 55'$.

BAILLEUL, a town of France, in the department of the Sarthe, two leagues from La Fleche.

BAILLEUL-LE-SEC, a town of France, in the department of the Oise, and chief place of a canton, in the district of Clermont. The place contains 656 and the canton 9506 inhabitants; and the territory includes $217\frac{1}{2}$ kilometres and 32 communes.

BAILLIAGE, in *History*, the name of a government in Swisserland, of which there are two forts: the one consisting of certain districts, into which all the aristocratical cantons are divided, over which a particular fort of officer, called a *bailiff*, is appointed by government, to which he is accountable for his administration; the other fort is composed of territories belonging to two or more of them, who

alternately appoint a bailiff. This officer, when not restrained by the peculiar privilege of certain districts, has the care of the police, and jurisdiction in civil and criminal causes in the same limitation; and enjoys a stated revenue arising in different places from various duties and taxes. In case of exaction or mal-administration, an appeal always lies from the bailiff to the cantons, to which the bailliage belongs; and the place, the time, and the members who receive the appeal, are regulated with the utmost exactness. Coxe's Trav. Switz. vol. 1. p. 37.

BAILLIE, ROBERT, in *Biography*, a Presbyterian divine of the church of Scotland, was born at Glasgow, in the year 1599, and educated in the university of his native city. After he had taken his degree of master of arts, he applied with diligence to the study of divinity; and having, in 1622, received orders from archbishop Law, he was chosen a regent of philosophy in the university of Glasgow. In 1633 he modestly declined an offer which was made him of a church at Edinburgh, and in 1637 refused to preach a sermon before the assembly in this city for recommending the canon and service book, then published by authority; and stated in a letter to the archbishop of Glasgow the reasons of his refusal. In 1638, he was a member of the famous assembly at Glasgow, which was a prelude to the civil war, and it appears, notwithstanding the moderation of his conduct, that he was not deficient in his zeal against prelacy and Arminianism. He was a member of the following general assemblies till 1653, the time excepted during which he attended the Westminster assembly. In 1640 he was sent by the covenanting lords to London, to draw up an accusation against archbishop Laud, for the innovations he had obtruded upon the church of Scotland. Soon after his return, in 1642, he was appointed one of the professors of divinity at Glasgow; and his reputation was such that he received invitations before this time from the other three universities, all of which he refused. He retained his professorship till the restoration; but was often interrupted in the exercise of it by his residence in England; for in 1643 he was chosen one of the commissioners of the church of Scotland, to the assembly of divines at Westminster. In the principles and views of this assembly he seems to have entirely concurred; he returned, however, to his own country in 1646. When Charles II. was proclaimed in Scotland after the execution of Charles I., Baillie was one of the divines appointed by the general assembly to wait upon his majesty at the Hague, and in a speech delivered on that occasion he expressed, in the strongest terms, his abhorrence of the murder of the late king, and in his sentiments with regard to this event the Presbyterian divines of that period, both at home and abroad, were almost universally agreed. After the restoration, Mr. Baillie was appointed, in 1661, principal of the university of Glasgow; but it is said that a bishopric was offered him, which he absolutely refused. In the course of the year 1662, his health began to decline; and during his illness he was visited by the newly created archbishop of Glasgow, whom he addressed in the following uncourtly language: "Mr. Andrew (I will not call you my lord), king Charles would have made me one of these lords; but I do not find in the New Testament that Christ has any lords in his house." In July of this year Mr. Baillie died at the age of sixty-three years. His character was not more distinguished by his loyalty, than by his zeal for presbytery, and his aversion to prelacy; and he seems to have been actuated, in a very considerable degree, by the intolerant spirit of the age in which he lived. In his letters, he every where manifests his dislike of sectaries; and he hardly omits any convenient opportunity of shewing his disapprobation of the doctrine of toleration. He had also imbibed a considerable portion of that enthusiastic spirit

spirit which was then prevalent, and which protracted the religious services to an astonishing length. Accordingly, Mr. Baillie, in one of his letters, written whilst he was attending the Westminster assembly, speaks of a devotional service that lasted nine hours. Nevertheless, he was a man of considerable learning and ability; he is said to have understood twelve or thirteen languages; and Mr. Woodrow, his biographer, commends his Latin style as not unsuitable even to the Augustan age. Of his diligence in learning, he left sufficient evidence in his historical work, entitled, "*Opus Historicum et Chronologicum*." His other writings, which were chiefly on controversial and temporary subjects, and which indicated a degree of violence that is said to have flowed rather from the instigation of other persons than from his own inclinations, are of inferior value. His "*Letters and Journals*," published at Edinburgh by Robert Aiken, in 1775, in two volumes 8vo., contain an account of public transactions, both in Scotland and England, from 1637 to 1662, and may cast some light on the civil and ecclesiastical history of that period. *Biog. Brit.*

BAILLONE, in *Heraldry*, is a lion rampant, holding a baton in his mouth.

BAILLOU, GUILLAUME DE (*Ballonius*), M. D. a physician of considerable eminence in the sixteenth century, was born at Paris in the year 1538. After making great progress in the Greek and Latin languages, and in philosophy, he applied to the study of medicine. In 1570, he was created doctor; and in the year 1580, dean of the faculty of medicine at Paris. In his time the dispute between the surgeons and physicians at Paris, as to their precedence, began, in which Ballonius took an active part. It was decided in favour of the physicians, and the privileges usurped by the surgeons annulled. Ballonius was a voluminous writer; but as his works are now little noticed, we shall refer our readers, for titles of the particular treatises, and for an account of their contents, to Haller's *Bib. Med. Pract.*

BAILLY, JEAN-SYLVAIN, a celebrated astronomer and writer of France, was born at Paris, on the fifteenth of September 1736, of a family which had produced distinguished painters for four successive generations. He was bred to the same profession, but manifested an early taste for poetry and the belles lettres. By an accidental acquaintance with La Caille, his attention was directed to the sciences, which he cultivated with assiduity and success. He calculated the orbit of the comet of 1759; and in 1763 he published an useful and elaborate compilation, being the reduction of the observations made by La Caille in 1760 and 1761, on the zodiacal stars. About this time the theory of Jupiter's satellites became a particular object of his inquiries, and in the competition for this prize question of 1764, he had a formidable rival in La Grange, afterwards known as one of the first mathematicians in Europe. The results of his investigations were collected into a treatise, published in 1766, which also contained the first part of his "*History of Astronomy*." In 1771, he gave a very curious and important memoir on the light of the satellites, and introduced a degree of accuracy till that time unknown in the observations of their eclipses; and in the *Journal Encyclopedique* for May and July 1773, he addressed a letter to M. Bernoulli on some discoveries relating to Jupiter's moons, which he had contested. However, the studies of M. Bailly were not confined to the abstract sciences; but he was no less successful in his cultivation of polite literature. His eloge of Leibnitz, published in 1768, gained the prize of the academy of Berlin; this, and also the eloges of Charles V., of Corneille, of La Caille, of Cook, of Moliere, and of Gresset, printed in 1770, were much admired. In 1775, appeared the first volume of the "*History of Astronomy*," which indeed

strews the path of science with flowers, and in every respect is a most valuable work; abounding with animated description, luminous narrative, and interesting detail. His peculiar ideas concerning the early state of Upper Asia, occasioned an ingenious correspondence and discussion with the veteran philosopher Voltaire, the substance of which soon appeared in two volumes, intitled, "*Letters on the Origin of Sciences*," and "*Letters on the Atlante of Plato*." If imagination shine forth in these essays, erudition was no less conspicuous in a great work composed in the years 1781 and 1782, on the fables and religious creeds of antiquity; which still exists in manuscript, and the publication of which would extend the fame of its author, and gratify the learned world. His opinions on some points happening to coincide with the theories of Buffon, he contracted with that celebrated naturalist an intimate friendship, which was dissolved by Bailly's uncourtly opposition to the election of the abbé Maury into the *academie Française*. The other volumes of the "*History of Astronomy*" successively appeared, and that capital work was completed in 1787, by the "*History of the Indian and Oriental Astronomy*," a production of singular acuteness, research, and nice calculation. His "*Discourses and Memoirs*," which include the eloges before mentioned, were published in two volumes, in 1790; and his memoirs communicated to the French academy, as they appear in Rozier's index, are as follow: "Memoir upon the theory of the comet of 1759;" "Memoir upon the epochs of the moon's motions, at the end of the last century;" "First, Second, and Third Memoirs on the theory of Jupiter's satellites, 1763;" "Memoir on the comet of 1762;" vol. for 1763; "Astronomical observations made at Nollon, 1764;" "On the sun's eclipse of the first of April 1764;" "On the longitude of Polling, 1764;" "Observations made at the Louvre from 1760 to 1764, 1765;" "On the cause of the variation of the inclination of the orbit of Jupiter's second satellite, 1765;" "On the motion of the Nodes, and on the variation of the inclination of Jupiter's satellites, 1766;" "On the theory of Jupiter's satellites, published by M. Bailly, with tables of their motions, and of those of Jupiter, published by M. Jaurat, 1766;" "Observations on the opposition of the sun and Jupiter, 1768;" "On the equation of Jupiter's centre, and on some other elements of the theory of that planet, 1768;" "On the transit of Venus over the sun, on the third of June 1769; and on the solar eclipse, the fourth of June, the same year 1769."

Such was the reputation of Bailly, that he was received as an adjunct in the French academy, on the 29th of January 1763, and associate on the 14th of July 1770. In 1771, he was a candidate, under the patronage of Buffon, for the office of secretary; but the interest of Condorcet, and the influence of D'Alembert, prevailed in favour of Condorcet. Of the *academie Française*, he was chosen secretary in 1754; and he was admitted in the following year into the Academy of Inscriptions and Belles Lettres; the only instance, since Fontenelle, of the same person being at once a member of all the three academies. In 1784, he was nominated one of the commission to examine and report concerning the animal magnetism of Mesmer, as practised by Deslon. His report was not only decisive with regard to its object, but furnishes a rule for the investigation of similar delusions. It likewise throws light upon the physical effects produced by moral causes; and these are peculiarly interesting, as causes of this nature have a political influence on the general opinions of society, and the destiny of nations.

M. Bailly, with an ardent, and, as it is generally believed, an honest mind, engaged in the support of that revolution of France, which at the time convulsed Europe, and which, with regard to its consequences, has not yet subsided. His
rise,

life, as a principal agent in the transactions of this event, was very rapid. On the 26th of April 1789, he was nominated secretary by the electors of Paris; he was afterwards appointed deputy to the states general; then chosen president of the "Tiers Etat;" and when this chamber was constituted the national assembly, he continued in the chair. During the struggle between the popular part of the subsisting assemblies and the court, Bailly was the most forward to assert the popular rights, which at that time were new in France; and his temerity would probably have been fatal to himself, if he had not been supported by Mirabeau. Bailly dictated the oath to the members of the tiers etat, "to resist tyrants and tyranny, and never to separate, until they had obtained a free constitution." After the capture of the Bastille, on the 14th of July 1789, he was appointed by public acclamation mayor of the city; and in all his several functions he is said to have acted with integrity, courage, and moderation. But in the midst of revolutions the course which he pursued was adapted to please neither of the contending parties; and though he acquired great popularity in the various steps by which the cause of the people gained predominance over that of the court, a circumstance occurred, which gave a turn to the popular opinion, and which rendered him an object of inveterate enmity. On the 17th of July 1790, the populace having collected tumultuously to demand the abolition of monarchy, Bailly received orders from the national assembly to disperse the mob. Desirous that the existing laws and regulations should be respected, he arrested certain deputies who came from some military insurgents at Nancy; he opposed the rash proceedings of Marat and Hubert; he was member of a club less promiscuous in its admission of members than that of the jacobins; and he exerted himself in endeavouring to persuade the populace to permit the royal family to depart to St. Cloud. Finally, on an occasion when the multitude assailed the soldiery in the Champ de Mars, Bailly ordered the latter to fire, by which about forty persons were killed, and more than one hundred wounded. By these concurring circumstances his popularity declined, and at the dissolution of the constituent assembly, in the close of the year 1791, he resigned his office, and was succeeded by Petion. His health was impaired, and he retired from the scene of tumult, travelled through different provinces of France in the years 1792 and 1793; and pursued his literary and scientific researches. During this period, he wrote memoirs of the events which he had witnessed, and in which he had been a principal actor. Instead of withdrawing from France, which some of his friends advised him to do, he chose rather to submit to the injustice and ingratitude of his country. At the nod of a vulgar tyrant, he was arrested, summarily condemned by a sanguinary tribunal, and, on the 15th of November 1793, was delivered over to appease the vengeance of an incensed and indiscriminating populace. His sufferings were studiously protracted; circumstances of peculiar ignominy attended his execution; and he was executed near the spot where he gave orders for the military to fire on the people. He wore the red shirt, or badge of conspiracy, and was placed in a cart, with his hands tied behind him. In his progress to the place of execution, he was insulted and abused; and when he arrived at the fatal spot, during the removal of the guillotine, he was forced to descend from the cart, and to walk round the field, in order to gratify more completely the rancour of the mob. But all these trials were endured by him with firmness and magnanimity. A bystander, at the time of his ascending the platform, insultingly exclaimed, "Bailly, you tremble;" to which he

instantly replied, "Yes, but not with fear;" he shook indeed on account of the inclemency of the weather. The character of Bailly, thus prematurely cut off in the fifty-seventh year of his age, may be estimated by his works. In his person he was tall; his deportment was sedate and grave; and he blended firmness with sensibility. During his magistracy, he spent part of his fortune in relieving the wants of the poor; and he retired from office, impoverished rather than enriched; and in the various transactions of his life, he established the character of integrity and disinterestedness. His wife, who was the widow of his intimate friend Raymond Gaye, and whom he married in 1787, survived him. He had eight nephews, whom he educated with all the attention and tenderness of a father. With regard to the motives which actuated his public conduct, there seems to be no difference of opinion, whatever discordant sentiments may be entertained concerning the cause to which his talents and life were devoted. Lalande's *Eloge de Bailly*.

BAILLY, or BAILIFF, *de la Riviere*, physician to king Henry IV., was born at Falaise in Normandy, about the middle of the sixteenth century. He was a strenuous advocate for the doctrines of Paracelsus; and in 1578 he published his "Demolition, seu Aphorismi ccc. continentes summam doctrinæ Paracelsicæ," 8vo. Parisiis. It contains a defence of his practice, which being strongly opposed by the cotemporary physicians, in the following year he gave his "Responsio ad questiones propositas a Medicis Parisiensibus," also in 8vo. In 1580, he published "De peste tractatus," 8vo. Voces viri, Haller says, vix sensum admittunt. We shall omit the titles of his various other writings, which may be found recited in Haller's *Bib. Med. Pract.* vol. ii. p. 218.

Monf. Carrere says of this physician, that perceiving he was about to die, he called his servants to him singly, and gave to each of them a portion, first of his money, then of his plate and furniture, bidding them, as soon as they had taken what he had given, to leave the house, and see him no more. When the physicians came to visit him, they told him they had found his door open, and the servants and the furniture removed and gone, nothing in fact remaining but the bed on which he lay. Then the doctor, taking leave of his physicians, said, since his baggage was packed up and gone, it was time that he should go also. He died the same day, November the 5th, 1605. *Eloy Dict. Hist.*

BAILMENT, from Fr. *bailler*, to deliver, in Law, is a delivery of goods in trust, upon a contract expressed or implied that the trust shall be faithfully executed on the part of the *bailee*, a person to whom they are delivered; and the goods re-delivered as soon as the time or use for which they were bailed shall have elapsed or be performed. There are six sorts of bailments, which devolve a care and obligation on the party to whom goods are bailed; and which consequently subject him to an action, if he misbehave with regard to the trust reposed in him.

1. A bare and naked bailment, to keep for the use of the bailer, which is called *depositum*; and such bailee is not chargeable for a common neglect, but it must be a gross one to make him liable. 2. A delivery of goods which are useful to keep, and they are to be returned again in specie, which is called *accommodatum*, or a lending gratis; and in such case the borrower is strictly bound to keep them; for if he be guilty of the least neglect, he shall be answerable, but he shall not be charged where there is no default in him. 3. A delivery of goods for hire, called *locatio* or *conductio*; and the hirer is to take all imaginable care, and restore them at the time; and if he use such care, he shall not be bound.

4. A delivery by way of pledge, called *vadium*; and in such goods the pawnee has a special property; and if the goods be the worse for using, the pawnee must not use them; otherwise he may use them at his peril; as jewels pawned to a lady, if she keep them in a bag, and they are stolen, she shall not be charged; but if she go with them to a play, and they are stolen, she shall be answerable. If the pawnee be at a charge in keeping them, he may use them for his reasonable charge; but if, notwithstanding all his diligence, he lose the pledge, yet he shall recover the debt. But if he lose it after the money tendered, he shall be chargeable, for he is a wrong-doer; after money paid (and tender and refusal is the same) it ceases to be a pledge, and therefore the pawnor may either bring an action of *assumpsit*, and declare that the defendant promised to return the goods upon request; or trover, the property being vested in him by the tender. 5. A delivery of goods to be carried for a reward. (See CARRIER.) 6. A delivery of goods to do some act about them (as to carry) without a reward, called by Bracton *mandatum*, in English, an acting by commission; and though he get nothing for his pains, yet if there were any neglect in him, he will be answerable, for his having undertaken a trust is a sufficient consideration; but if the goods be misused by a third person, in the way, without any neglect of his, he will not be liable, being to have no reward.

On this subject, sir William Jones's "Essay on the Law of Bailment" merits particular attention; and the following analysis will convey much knowledge in a short compass. 1. "Definitions. 1. *Bailment*, as before at the beginning of this article. 2. *Deposit* is a bailment of goods to be kept for the bailor without recompence. 3. *Mandate* is a bailment of goods, without reward, to be carried from place to place, or to have some act performed about them. 4. *Lending for use* is a bailment of a thing for a certain time, to be used by the borrower without paying for it. 5. *Pledging*, is a bailment of goods by a debtor to his creditor, to be kept till the debt be discharged. 6. *Letting to hire* is (1) a bailment of a thing to be used by the hirer for a compensation in money; or (2) a letting out of work and labour to be done, or care and attention to be bestowed, by the bailee on the goods bailed, and that for a pecuniary recompence; or (3) of care and pains in carrying the things delivered from one place to another, for a stipulated or implied reward. 7. *Innominate bailments* are these where the compensation for the use of a thing, or for labour and attention is not pecuniary; but either (1) the reciprocal use or the gift of some other thing; or (2) work and pains reciprocally undertaken; or (3) the use or gift of another thing in consideration of care and labour; and conversely. 8. *Ordinary neglect*, is the omission of that care, which every man of common prudence, and capable of governing a family, takes of his own concerns. 9. *Gross neglect*, is the want of that care which every man of common sense, how inattentive soever, takes of his own property. 10. *Slight neglect* is the omission of that diligence which very circumspect and thoughtful persons use in securing their own goods and chattels. 11. *A naked contract* is a contract made without consideration or recompence.

"II. The rules which may be considered as axioms flowing from natural reason, good morals, and sound policy, are these. 1. A bailee who derives no benefit from his undertaking, is responsible only for gross neglect. 2. A bailee who alone receives benefit from the bailment, is responsible for slight neglect. 3. When the bailment is beneficial to both parties, the bailee must answer for ordinary neglect. 4. A special agreement of any bailee to answer for more or

less, is in general valid. 5. All bailees are answerable for actual fraud, even though the contrary be stipulated. 6. No bailee shall be charged for a loss by inevitable accident or irresistible force, except by special agreement. 7. Robbery by force is considered as irresistible; but a loss by private stealth is presumptive evidence of ordinary neglect. 8. Gross neglect is a violation of good faith. 9. No action lies to compel performance of a naked contract. 10. A reparation may be obtained by suit for every damage occasioned by an injury. 11. The negligence of a servant, acting by his master's express or implied order, is the negligence of the master.

"III. From these rules the following propositions are evidently deducible. 1. A depositary is responsible only for gross neglect; or, in other words, for a violation of good faith. 2. A depositary, whose character is known to his depositor, shall not answer for mere neglect, if he take no better care of his own goods, and they also be spoiled or destroyed. 3. A mandatary to carry is responsible only for gross neglect, or a breach of good faith. 4. A mandatary to perform a work is bound to use a degree of diligence adequate to the performance of it. 5. A man cannot be compelled by action to perform his promise of engaging in a deposit or mandate; but,—6. A reparation may be obtained by suit for damage occasioned by the non-performance of a promise to become a depositary, or a mandatary. 7. A borrower for use is responsible for slight negligence. 8. A pawnee is answerable for ordinary neglect. 9. The hirer of a thing is answerable for ordinary neglect. 10. A workman for hire must answer for ordinary neglect of the goods bailed, and must apply a degree of skill equal to his undertaking. 11. A letter to hire of his care and attention, is responsible for ordinary negligence. 12. A carrier for hire by land or by water is answerable for ordinary neglect.

"IV. Exceptions to the above rules and propositions. 1. A man who spontaneously and officiously engages to keep or to carry the goods of another, though without reward, must answer for slight neglect. 2. If a man through strong persuasion and with reluctance undertake the execution of a mandate, no more can be acquired of him than a fair exertion of his ability. 3. All bailees become responsible for losses by casualty or violence, after their refusal to return the things bailed; on a lawful demand. 4. A borrower and a hirer are answerable in all events, if they keep the things borrowed or hired after the stipulated time, or use them differently from their agreement. 5. A depositary and a pawnee are answerable in all events if they use the things deposited or pawned. 6. An inn-keeper is chargeable for the goods of his guest within his inn, if the guests be robbed by the servants or inmates of the keeper. 7. A common carrier by land or by water must indemnify the owner of the goods carried, if he be robbed of them.

"V. It is no exception, but a corollary from the rules, that every bailee is responsible for a loss by accident or force, however inevitable or irresistible; if it be occasioned by that degree of negligence for which the nature of his contract makes him generally answerable."

The following cases may serve to illustrate the above principles.

A man leaves a chest locked up with another to be kept, and doth not make known to him what is therein; if the chest and goods in it are stolen, the person who received them shall not be charged for the same, for he was not trusted with them. And what is said as to stealing is to be understood of all other inevitable accidents; but it is necessary for a man that receives goods to be kept, to receive them in a special manner, viz. to be kept as his own, or at the peril of

of the owner. 1 Lill. Abr. 193, 194. And vide 1 Rol. Abr. 308. 2 Show pl. 166.

If I deliver 120l. to A. to buy cattle, and he bestows 50l. of it in cattle, and I bring an action of debt for all, I shall be barred in that action for the money bestowed and charges, &c. but for the rest I shall recover. Hob. 207.

If one deliver his goods to another person, to deliver over to a stranger; the deliverer may countermand his power, and require the goods again; and if the bailee refuse to deliver them, he may have an action of account for them. Co. Litt. 286.

If A delivers goods to B. to be delivered over to C. C. hath the property, and C. hath the action against B. for B. undertakes for the safe delivery to C. and hath no property or interest but in order to that purpose. 1 Rol. Abr. 606.: see 1 Bulst. 68, 69, where it is said that in case of conversion to his own use, the bailee shall be answerable to both.

But if the bailment were not on valuable consideration, the delivery is countermandable; and in that case, if A. the bailor bring trover, he reduces the property again in himself, for the action amounts to a countermand; but if the delivery was on valuable consideration, then A. cannot have trover, because the property is altered; and in trover the property must be proved in the plaintiff. 1 Bulst. 63.; see 1 Leon. 30.

And where a man delivers goods to another to be re-delivered to the deliverer at such a day, and before that day the bailee doth sell the goods in market overt; the bailor may at the day seize and take his goods, for the property is not altered, Godb. 160.

If A. borrows a horse to ride to Dover, and he rides out of his way, and the owner of the horse meets him, he cannot take the horse from him; for A. has a special property in the horse till the journey is determined; and being in lawful possession of the horse, the owner cannot violently seize and take it away; for the continuance of all property is to be taken from the form of the original bargain, which in this case was limited till the appointed journey was finished. Yelv. 172. But the owner may have an action on the case against the bailee for exceeding the purposes of the loan; for so far it is a secret and fallacious abuse of his property; but no general action of trespass, because it is not an open and violent invasion of it. 1 Rol. Rep. 128.

As to borrowing a thing perishable, as corn, wine, or money, or the like, a man must, from the nature of the thing, have an absolute property in them; otherwise it could not supply the uses for which it was lent; and therefore he is obliged to return something of the same sort, the same in quantity and quality with what is borrowed. Dr. & Stud. 129.

But if one lend a horse, &c. he must have the same restored. If a thing lent for use be used to any other end or purpose than that for which it was borrowed, the party may have his action on the case for it, though the thing be never the worse; and if what is borrowed be lost, although it be not by any negligence of the borrower, as if he be robbed of it; or where the thing is impaired or destroyed by his neglect, admitting that he put it to no more service than that for which borrowed, he must make it good; so where one borrows a horse, and puts him in an old rotten house ready to fall, which falls on and kills him, the borrower must answer for the horse. But if such goods borrowed perish by the act of God, (or rather as Sir William Jones says, it ought more reverentially to be termed, by *inevitable accident*), in the right use of them; as where the borrower puts the horse, &c. in a strong house, and it falls and kills him, or it dies by disease, or by default of the owner, the

borrower shall not be charged. 1 Inst. 89. 29 Aff. 28. 2 H. 7. 11.

If one delivers a ring to another to keep, and he breaks and converts the same to his own use; or if I deliver my sheep to another to be kept, and he suffers them to be drowned by his negligence; or if the bailee of a horse, or goods, &c. kill or spoil them, in these cases action will lie. 5 Rep. 13. 15 E. 4. 20b. 12 E. 4. 13.

If a man delivers goods to another, the bailee shall have a general action of trespass against a stranger, because he is answerable over to the bailor; for a man ought not to be charged with an injury to another, without being able to retine to the original charge of that injury, and in amends there to do himself right. 13 Co. 69. 14 H. 4. 28. 25 H. 7. 14. See Jacob's Law Dictionary by Tomlins, art. *Bailment*. Blackst. vol. ii. p. 396. 451, &c.

BAILO, or BALIO, a name given at Constantinople to the ambassador of Venice residing at the Porte; who also does the office of consul of his nation.

The word is doubtless the remains of the word *bajulus*, which the modern Greeks and Turks have formed into bailo.

The Venetian consuls at Aleppo, Alexandria, Smyrna, and other parts of the Levant, are also denominated bailo.

BAILY, NATHANIEL, in *Biography*, an English writer, living the latter end of the seventeenth century, and beginning of the last, author of the "*Dictionary Rusticum*," treating of all sorts of country affairs, particularly of the whole art of gardening, 1704, 8vo. London, republished, much improved, 1726. Haller Bib. Bot.

BAILYBOROUGH, in *Geography*, a market and post town of the county of Cavan in Ireland, which, though of very mean appearance, has an excellent market. The crops in its vicinity consist of potatoes, flax, and oats, and are very poor. There is a bleach-green contiguous to the town, and there are some small farmers in the neighbourhood, who make butter for market, which is sent to Newry for exportation. Their pigs, which form a considerable article of trade, are sent to the same place. This town has been hitherto very much neglected; but such are its advantages of situation, that if any encouragement were given, it might be easily raised to a state of prosperity and consequence. Between this town and King's Court is a lake, or rather pool, on the summit of a mountain, which is celebrated for its antiscorbutic virtues, and is much frequented from June to August. Many bathe in the lake; but the mud, which is taken up from the depth of thirty feet, and rubbed on the affected parts, is deemed the most efficacious. This mud is a greasy shining substance like tar. The lake covers about half a square rood in area, and has a range of lofty hills to the east and west. For about six feet from the surface the water is pure and clear, with something of a chalybeate taste. It is observed of it, that the sun or atmosphere has no effect either in imparting its genial influence, or in reducing its waters by attraction; nor has it ever been frozen, or its temperature altered in the severest winter. Bailyborough is forty-three Irish miles north-west from Dublin. Coote's Statist. Survey of Cavan.

BAILYBURG, a town of Sweden, in the province of Westmannland.

BAIN, a town of France, in the department of the Ille and Villaine, and chief place of a canton, in the district of Redon, 5½ leagues south of Rennes. The place contains 3447, and the canton 12,960 inhabitants; the territory includes 215 kilometres and 6 communes. N. lat. 47° 50' W. long. 1° 47'.

BAIN GONGA, a river of Hindostan, for the recent knowledge of which we are indebted to Col. Camac. It rises

near the southern bank of the Nerbuddah, and runs southward through the heart of Berar; and after a course of 400 miles mixes with the Godavery, within the hills that bound our northern circars, about ninety miles above the sea. It is not certain how far the Bain Gonga is navigable; but it is mentioned as a large river in the early part of its course; and is probably equal in bulk to the Godavery, when it joins it. Rennell's Mem. p. 246.

BAINBRIDGE, **JOHN**, in *Biography*, an eminent physician and astronomer, was born at Ashby-de-la-Zouch, in Leicestershire, in 1582, finished his education at Emanuel college in the university of Cambridge, and then retired to his own country, where for some years he taught a grammar school, and practised physic. He also applied himself to the study of mathematics and astronomy, to which he had been devoted from his earliest years. Upon his removal to London, he was admitted a fellow of the college of physicians. His "Description of the Comet" in 1618, introduced him to an acquaintance with sir Henry Saville, by whom he was appointed, in 1619, his first professor of astronomy at Oxford, where he settled, having entered himself a master commoner of Merton college, for some years. At the age of forty years he began the study of Arabic, with a view of publishing correct editions of the ancient astronomers. He died at Oxford, November the 3d, 1643, in the sixty-second year of his age. His works that were published are "An Astronomical Description of the late Comet from November 18th, 1618, to the 16th of December following," London, 1619, 4to.; "Procli sphaera;" and "Ptolemæi de hypothesis Planetarum liber singularis;" to which he added Ptolemy's "Canon regnorum," 1620, 4to.; "Canicularia," published at Oxford, in 1648, by Mr. Greaves, together with a demonstration of the heliacal rising of Sirius or the dog-star for the parallel of Lower Egypt, written at the request of archbishop Usher. Several other treatises were prepared for the press, and left in MS. Biog. Brit.

BAINDER, in *Geography*, a town of Asiatic Turkey, in the province of Natolia, forty-four miles east from Boli.

BAINDT, a town of Germany, in the circle of Swabia, six miles N.N.E. from Ravenspurg.

BAINE, a river of England, in Lincolnshire, which passes by Horncastle, Tatterfal, &c. and joins the Welham near the last-mentioned place.

BAINETTA, a town of Piedmont, in the province of Coni, on the Orobio, six miles S.E. from Coni, and eight W.S.W. from Mondovi.

BAINS, a town of France, in the department of the Vosges, and chief place of a canton in the district of Mirecourt, $2\frac{1}{2}$ leagues west of Plombières, and $3\frac{1}{4}$ south-east of Darney. The place contains 1790, and the canton 8533 inhabitants: the territory includes $177\frac{1}{2}$ kilometres and 13 communes.

BAIOCCO, in *Commerce*, a copper coin in modern Rome, equivalent to a tenth part of the julio, or a hundredth part of the ducat.

The baiocco is worth about nine deniers, French money.

BAJOLE, **CAPE**, in *Geography*, the most northerly cape of Minorca island, in the Mediterranean, ten leagues from the most northerly cape of the island of Majorca.

BAIONNE, a town of France, in the department of the Lower Pyrénées, and chief place of a district. The place contains 13,190, and the two cantons 20,838 inhabitants, the territory of each canton includes 65 kilometres, and the N.E. canton has five, and the N.W. canton four communes.

BAIPIA, a town of North America, in New Navarre, 465 miles south west from Casa Grand.

BAIRAM, a name given to the great annual feast of the Mahometans.

The word is also written, by some authors, more conformably to the oriental orthography, *beiram*. It is originally Turkish, and signifies literally, a *feast-day* or *holiday*.

The Mahometans have two bairams, the *great* and the *little*, which Scaliger, Erpenius, Rycaut, Hyde, Chardin, Bobovius, and other European writers, commonly interchange, giving the appellation of *great* to that which the Turks call *little*, and *vice versa*.

This feast commencing with the new moon, the Mahometans are very scrupulous in observing the time when the new moon commences; to which purpose observers are sent to the tops of the high mountains, who, the moment they spy the appearance of a new moon, run to the city, and proclaim *muzoladuluk, welcome news*; as it is the signal for beginning the festivity.

The ceremonies are described at large by Rycaut and Tournefort.

BAIRAM, the *Greater*, is properly that held by the pilgrims at Mecca, commencing on the tenth of Dhu'l-hajja, when the victims are slain, and lasting three days. This is called by the Arabs, *id al korban, id al adba*, that is, the feast of the sacrifice, as being celebrated in memory of the sacrifice of Abraham, whose son God redeemed with a great victim. By European writers it is called the *lesser bairam*, as being less taken notice of by the generality of the people, who are not struck with it, because the ceremonies attending it are performed at Mecca, the only scene of the solemnity.

The *Lesser Bairam*, is called in Arabic *Id al Fet*, that is, the feast of breaking the fast, and begins the first of Shawal, immediately succeeding the fast of Ramadan. This is called by the vulgar, and by most others who have written of the Mahometan affairs, the *greater bairam*, because it is observed in an extraordinary manner, and lasts for three days at Constantinople and in other parts of Turkey, and for five or six days in Persia, during which no work is done; but presents pass from one to another, with many other manifestations of joy. If the day after Ramadan should prove so cloudy as to prevent the sight of the new moon, the bairam is put off to the next day, when it begins, though the moon be still obscured. When they celebrate this feast, after numerous ceremonies, or rather strange mimics, in their mosque, they end it with a solemn prayer against the infidels to root out Christian princes, or to arm them one against another, that they may have an opportunity to extend the borders of their law. Sales's Prel. Diff. p. 150.

BAIRDSTOWN, or **BEARDSTOWN**, in *Geography*, a flourishing town of America, in Nelson county, Kentucky, containing 216 inhabitants, seated on the head-waters of Salt-river, fifty miles S.E. from Louisville, and about the same distance S.W. from Danville.

BAIROUT, as it is pronounced by the Arabs, and as the modern Greeks pronounce *Berut*, **BEROUT**, or the ancient *Berytus*, a town of Syria, in the pachalic of Saide or Acre, is situated on a plain, which runs out from the foot of mount Lebanon into the sea, narrowing to a point about two leagues from the ordinary line of the shore, and on the north side forms a pretty long road, receiving the river, of Nahr-el-Salib, called also Nahr-Bairout. The frequent floods to which this river is subject in winter, have occasioned the erection of a considerable bridge; but this is in so ruinous a state as to be impassable. The bottom of the road is rocky, which chafes the cables, and renders it insecure. The town of Bairout, which lies about an hour's journey westward

westward towards the point, belonged till of late to the Druzes, but Djeddar took it from them, and placed in it a Turkish garrison. It still continues, however, to be the emporium of the Maronites and the Druzes, where they export their cottons and their silks, almost all of which are sent to Cairo. In return, they receive rice, tobacco, coffee, and specie, which they exchange again for the corn of the Bekaa, and the Hauran. This commerce maintains near 6000 persons. The dialect of the inhabitants is the most corrupt of any in the country, and is said to unite in itself the twelve faults enumerated by the Arabian grammarians. The port of Bairout, formed like all the others on the coast by a pier, is, like them, choked up with sand and ruins. The town is surrounded by a wall, the soft and sandy stone of which may be pierced by a cannon-ball, without breaking or crumbling: in other respects this wall, and its old towers, are defenceless. Bairout is subject to two inconveniences; which will always prevent its becoming a strong place; for it is commanded by a chain of hills to the south-east, and it is altogether destitute of water, which is fetched by the women at the distance of half a quarter of a league, and even this is but indifferent. Djeddar has undertaken to construct a public fountain, as he has done at Acre; but the canal will soon become useless. In digging, in order to form reservoirs, subterraneous ruins have been discovered, from which it appears that the modern town is built on the site of the ancient Berytus; and without the walls, towards the west, heaps of rubbish and shafts of columns indicate that Bairout has formerly been much larger than it is at present. The plain around it is entirely planted with white mulberry trees, which are young and flourishing, and therefore the silk produced here is of the finest quality. In descending from the mountains, the verdure formed by the tops of these trees in the distant bottom of the valley exhibits a very delightful prospect. The heat, and the warmth of the water, render Bairout in summer an inconvenient place of residence; the town, however, is not unhealthy; more especially since the emir Fakr-el-din has planted a wood of fir-trees about a league southward of the town. Volney's Travels in Egypt and Syria, vol. ii. p. 187, &c. See BERYTUS.

BAISE, a river of France, which runs into the Garonne, near Aiguillon.

BAIT, *White*, in *Ichthyology*, a small fish which is caught in great plenty, from August 1, to October 1, by stat. 30 Geo. II. c. 21, in the river Thames. See CLUPEA, and WHITE BAIT.

BAIT, in *Fishing*. Baits make a capital article in angling; on the choice whereof much of the sport depends; different seasons, and different game, having their appropriate baits. The red, or earth-worm, is good for the small fry most of the year round; and small fish are good baits for pikes at all times; sheep's blood and cheese are good bait in April; the bobs, dried wasps, and bees, are for May; brown flies for June; maggots, hornets, wasps, and bees, for July; snails in August; grasshoppers in September; corn, bramble-berries, and seeds, at the fall of the leaf; artificial pastes are for May, June, July, and frogs for March.

Baits are either natural or artificial.

BAITS, *Natural*, include all kinds of worms, as the red worm, maggot, &c. also frogs, grasshoppers, hornets, bees, snails, roaches, bleak, gudgeon, and loaches, &c.

These baits are to be kept each sort separate, and fed with those things which they like best.

The red worm is to be kept in rich black mould, with a little fennel chopped among it; a little ox or cow dung newly made is also a very acceptable thing to them. They may be kept in a box with small holes in it, or in a bag. Red worms, and all other sorts, scour quickly, and grow

very tough and bright, on putting them into a thin clout, greased with fresh butter, or grease, before they are put into moss.

This is the best of all things to keep them in; but the moss must be first very well washed, and the water squeezed out again. As to food, a spoonful of cream dropped into the moss once in three or four days is better than any thing else. The moss is to be changed every week, and kept in a cool place.

White large maggots are an excellent bait for many sorts of fish, and they are to be kept on sheep's suet and liver chopped small.

Frogs and grasshoppers are to be kept in wet moss, and long grass; and on moistening this afresh every evening it will keep a long time. They are to have their legs and wings cut off when they are used.

Live flies must be used as they are caught; but wasps, bees, hornets, and humble-bees, may be preserved dry. The best method of drying them, is putting them in an oven after the bread is drawn. Care must be taken that they are not scorched; and when they are taken out they are to have the heads dipped in sheep's blood. This is to be suffered to dry on, and then they are to be preserved in a box. They will keep for three or four months. See ANGLING.

BAITS, *Artificial*, are flies of all kinds and shapes, made of silk, feathers, and the like. The variety of these is very great; there being not only different ones for every season and month in the year, but almost for every fish. See ANGLING.

There are several artificial baits, for intoxicating of fowl, and yet without tainting or hurting the flesh, so as to make it unfit to eat.

BAITS, *Dead*, are pastes of divers sorts, made of corn, cheese, fruits, wasps, sheep's blood, boiled beans, &c.

BAIT, *Ground*. See ANGLING.

BAIT, *Ledger*, is that which remains fixed in one certain place, while the angler may be absent; especially in fishing for pike.

BAIT, *Walking*, is that which the angler attends while he keeps moving from place to place, in quest of the fish.

BAITS of *Hemp*, denote bundles of that plant, pulled and tied up, ready for steeping in water. See FLY-FISHING.

BAIT-EL-LAHAM, the ancient *Bethlehem*, in *Geography*, a town of Syria, in the pachalic of Damascus, is a village about two leagues south-east of Jerusalem, seated on an eminence in a country full of hills and vallies. The adjacent soil is the best in all these districts; so that fruits, vines, olives, and sesamum, succeed here extremely well; and nothing is wanting but cultivation. They reckon about 600 men in this village capable of occasionally bearing arms; and occasions of this kind frequently recur, sometimes to resist the pacha, sometimes to make war with the adjoining villages, and sometimes in consequence of intestine divisions. Of these 600 men, about 100 are Latin Christians, who have a vicar dependent on the great convent at Jerusalem. The whole trade formerly consisted in the manufacture of beads; but not finding a sufficient vent for them, they have resumed the cultivation of their lands. They make a white wine, which justifies the former celebrity of the wines of Judæa, but it has the property of being very heady. The necessity of uniting for their common defence prevails over their religious differences, and induces the Christians here to live in tolerable harmony with their fellow-citizens the Mahometans. Both are of the party of *Tamani*, which, with its opposite called *Kaifi*, divides the whole of Palestine into two factions that are perpetually at variance. The courage of these peasants has been frequently

quently tried, and renders them formidable through the whole country. Volney's Travels, vol. ii. p. 323. See BETHLEHEM.

BAITHOSUS, in *Biography*, a Jewish teacher, and one of the founders of the sect of the Sadducees, flourished in Judæa, in the third century before Christ. See ANTIGONUS SOCHÆUS.

BAITING, or rather BATING, in *Falconry*, is when a hawk flutters with her wings, either from perch or fist, as if it were striving to get away.

BAITING also denotes the act of smaller or weaker beasts in attacking or harraffing greater and stronger ones.

In this sense we hear of the baiting of bulls and bears by mastiffs, or bull-dogs with short noses, that they may take the better hold.

The baiting of this animal makes his flesh tender and more digestible. In reality, it disposes it for putrefaction, so that, unless taken in time, baited flesh is soon lost.

Bulls, bears, and also horses, and other animals, were formerly trained for this purpose. This barbarous practice, the first rise of which cannot be satisfactorily ascertained, has the sanction of high antiquity. Fitz-Stephen, who lived in the reign of Henry II., and whose "Description of the City of London" was written in 1174, informs us, that in the forenoon of every holiday, during the winter season, the young Londoners were amused with boars opposed to each other in battle; or with bulls and full-grown bears, baited by dogs. The baiting of horses was never a general practice; but asses, which did not sufficiently answer the purpose of sport, were occasionally treated with the same inhumanity. The practice of bull-baiting was much approved by the nobility in former ages, and was countenanced even by persons of the most exalted rank, without exception even of females. Erasmus, who visited England in the reign of Henry VIII., says (*Adagia*, p. 361.), that there were many herds of bears maintained in this country for the purpose of baiting. When queen Mary visited her sister the princess Elizabeth, during her confinement at Hatfield house, a great exhibition of bear-baiting was presented, immediately after mass in the morning, for their amusement. The same princess, soon after her accession to the throne, entertained the foreign ambassadors with the baiting of bulls and bears. In the sixteenth century there was a place built in the form of a theatre, which served for baiting of bulls and bears: they were fastened behind, and then worried by large English bull-dogs; but not without risk to the dogs from the teeth of the one, and the horns of the other; and it sometimes happened that they were killed on the spot, and fresh ones were supplied in the room of those who were destroyed, wounded, or tired.

When the bull was baited, a collar was put about his neck, fastened to a thick rope about three, four, or five yards long, hung to a hook, and so attached to a stake, that it might turn round. By means of this rope, the bull circulated to watch his enemy, which was a mastiff dog with a short nose. This dog, when properly trained, would creep upon his belly, that he might, if possible, seize the bull by the nose, which he as carefully endeavoured to defend by laying it close to the ground, and with his horns he attempted to toss the dog. On some occasions a dog has been tossed by a bull to the height of thirty or forty feet, and their fall has proved injurious and even fatal to them. The men have been also frequently tossed as well the dogs. The barbarous pastime of bull and bear-baiting is not encouraged by persons of rank and opulence in the present day, but attempts have been projected for suppressing it by legislative interference: when it is practised, which rarely happens, it is attended only by the lowest and

most despicable part of the people, a circumstance which indicates a general refinement of manners and prevalence of humanity among the moderns. Houghton's Collections, Strutt's Sports, &c.

Whales are baited by a kind of fish called *oria*, or *killers*; ten or twelve of which will attack a young whale at once, and not leave him till he is killed. Philosoph. Trans. N° 287. p. 265.

BAJULARIA, in *Entomology*, a species of *PHALÆNA* (*Noctua*) that inhabits Amboyna. The anterior wings are brown, with two white spots, and a streak of the same colour; posterior ones yellow, with black spots. Fabricius, Cramer.

BAJULATIO, the office of a *bajulus* or bailiff.

BAJULUS, an ancient officer in the court of the Greek emperors; whereof there were several degrees: as the grand *bajulus*, who was preceptor of the emperor, and the simple *bajuli*, who were sub-preceptors.

Hence the Italians use the word *bajulus* of a kingdom in the same sense with protector of a kingdom among the English. The word is derived from the Latin verb *bajulare*, to carry, or bear a thing on the arms, or on the shoulders.

Children, and especially those of condition, had anciently, beside their nurse, a woman called *gerula*, as appears from several passages of Tertullian; when weaned, or ready to be weaned, they had men to carry them about to take care of them, who were called *geruli*, and *bajule*, à *gerendo* & *bajulando*.

BAJULUS is also used by Latin writers in the several other senses wherein bailiff is used among us.

BAJULUS was also the name of a conventual officer in the ancient monasteries, to whom belonged the charge of gathering and distributing the money and legacies left for masses and obits; whence he was also denominated *bajulus obituum novorum*.

BAJULUS, in *Entomology*, a species of *CERAMBYX* (*Calidium*) that is found in the trunks of trees in the northern parts of Europe. The thorax is villous, with two tubercles; body brown. Fabricius. This is *cerambyx caudatus* of Degeer; and *leptura bajula* of Scopoli. Gmelin.—*Obs.* a variety of this species (β) is described by Linnæus. Fin. Suec. i. n. 490. The colour of which is testaceous; thorax cinereous, and villous, with two little glabrous lines; in the Fabrician *mantissa*. Another variety (γ) is noticed; it is a native of Saxony, and only half the size of the former.

BAIUS, MICHAEL, in *Biography*, a professor of divinity at Louvain, was born at Melin, in the territory of Aeth, in the year 1513, and educated in the university of Louvain, where he was elected, in 1541, principal of one of the colleges; and in 1544, lecturer in philosophy. In 1550 he took his doctor's degree, and was appointed professor of the holy scriptures. Baius and his associate having adopted the tenets of Luther, and appealing to the authority of Augustin, taught doctrines concerning grace and free-will, contrary to those which had been commonly received in the church of Rome. The complaint of heresy was excited; Baius was accused as a chief instrument of promoting it; and the doctors of the Sorbonne at Paris pronounced a sentence of censure. The clamour against him was circulated; and a number of propositions, collected from books published by him in 1563 and 1564, were transmitted in 1567 to pope Pius IV. The pope issued a bull condemning these propositions; but without mentioning the name of the author, and adding a kind of ambiguous clause, which seemed to intimate, that some of the propositions which he condemned, admitted of a favourable construction. By these measures of policy, suggested by the experience of the evils that had arisen from pursuing a more intemperate conduct with regard to Luther, the person of Baius was exempted from the penalties of ex-
com-

communication, and he continued to exercise his functions, and even to vindicate his doctrines; whilst he solicited the pope to absolve the irregularity. About thirteen years after this transaction, complaints against Baius were renewed; and pope Gregory XIII., at the instigation of the Jesuits, confirmed the sentence of Pius IV. Baius quietly acquiesced in the papal sentence, and concurred in condemning the propositions agreeably to the design and meaning of the bull. Baius, notwithstanding the popular odium which he incurred, retained his office, and received further preferment. He, and Hesiels, his associate in the professorship at Louvain, were the two divines commissioned to attend the council of Trent, in the year 1563. In 1575, he was preferred to the deanery of St. Peter at Louvain, and elected chancellor of the university; and, in 1578, was appointed conservator of its privileges. In 1589 he died, at the age of seventy-seven years. Mosheim represents him as equally remarkable on account of the warmth of his piety as the extent of his learning. In proof of his charitable disposition it is alleged, that by his last will he left his whole estate to the poor. His manners were engaging; and Tolet, one of his adversaries of the fraternity of Jesuits, said of him, "Michael Baius nihil doctius, nihil humilius;" nothing can be more learned, nothing more humble than Baius. As his works, relating chiefly to the controversy concerning grace and free-will, are not likely to be now much sought after, it is needless to enumerate them. They were printed entire in 4to. at Cologne, in 1694. They are written with logical precision, and in a neat style. Gen. Dict. Mosh. Eccl. Hist. vol. iv. p. 235, 236.

BAIX, in *Geography*, a town of France, in the department of the Ardeche, two leagues and a half south-east of Privas.

BAIZE, a town of Germany, in the county of Tyrol, eight miles south of Trent.

BAIZE, in *Commerce*. See **BAYS**.

BAKAL, in *Geography*, a town of Russia, in the government of Ufa, ninety-six miles W.N.W. of Ufa.

BAKAN, a town of Asia, in the Birman empire, seated on the river Ava. N. lat. $19^{\circ} 35'$. E. long. $98^{\circ} 0'$.

BAKER, SIR RICHARD, in *Biography*, an English historian, was the grandson of sir John Baker, chancellor of the exchequer, in the reign of Henry VIII., and born at Sissingherst in Kent, about the year 1568. He was entered a commoner at Hart's hall, in Oxford, in 1584; and having spent three years in academic studies, finished his education in one of the inns of court, and by travelling. In 1603, he obtained the honour of knighthood; and in 1620 he was appointed high-sheriff for the county of Oxford. By involving himself in pecuniary embarrassment, in consequence of his marriage, he was obliged to take refuge in the Fleet prison, where, after remaining there several years, he terminated his life in 1645. In these circumstances of confinement and humiliating distress he obtained relief by study, and from the influence of religious principles. Besides other tracts of less importance, in the composition of which he amused himself, his principal work was the "Chronicle of the Kings of England from the time of the Romans' Government unto the Death of King James," published in folio, at London, in 1641, and afterwards continued by Edward Phillips, a nephew of Milton. This chronicle continued to be popular for several years, and deservedly so if the author's account of it be just; for he says, "that it was collected with so great care and diligence, that if all other of our chronicles should be lost, this only would be sufficient to inform posterity of all passages memorable or worthy to be known." But of this performance a less fa-

vourable opinion has been entertained by others; and the critical examination of Thomas Blount in his "Animadversions upon sir Richard Baker's Chronicle, and its Continuation," published in 12mo., at Oxford, in 1672, in which many and gross errors, respecting dates, names, places, and facts, were pointed out, greatly depreciated its value in the public estimation. Although a new corrected edition, with a second continuation, appeared in 1730, yet Baker's chronicle remained, after all, a performance ill-constructed, injudicious, and unworthy of confidence. Of the writer's taste and style, the following commendation of his panegyrist, sir Henry Wotton, will afford an adequate idea: "I much admire the character of your style, which seemeth unto me to have not a little of the African idea of St. Austin's age; full of sweet raptures, and of researching conceits; nothing borrowed, nothing vulgar, and yet all flowing from you, I know not how, with a certain equal facility." Biog. Brit.

BAKER, THOMAS, an eminent mathematician, was born at Ilton in Somersetshire, about the year 1625, and was educated at Oxford. In 1645 he was elected scholar of Wadham college, took his degree of bachelor of arts in 1647, and soon afterwards left the university. As vicar of Bishops-Nymmet in Devonshire, he lived in studious retirement, and chiefly applied himself to the study of mathematics, in which he excelled. Of this we have sufficient evidence in his work, intitled, "The Geometrical Key, or the Gate of Equations unlocked," and published at London in 1684, 4to. in Latin and English. An account of this book is given in the Phil. Transf. vol. xiv. N^o 157. p. 549, 550. (See *CENTRAL Rule*.) To some mathematical queries, sent to him by the members of the Royal Society, not long before his death, he returned an answer so satisfactory, that they gave him a medal, with an inscription honourable and respectful. He died at Bishops-Nymmet, June 5th, 1690, and was buried in his own church. Biog. Brit.

BAKER, THOMAS, a writer and antiquary of eminence, was born at Lanchester in the county of Durham, in 1656, and studied at St. John's college, Cambridge, where he became a fellow. In 1699 he published, in 8vo., an anonymous work, intitled, "Reflections upon Learning, wherein is shewn the Insufficiency thereof, in its several Particulars, in order to evince the Necessity and Usefulness of Revelation," which passed through several editions, and was regarded, for many years, as a standard of fine writing. As to its style, however, it has been observed, that, whilst it is allowed to be perspicuous and manly, it has no claim to any high degree of elegance; and whatever merit the work in general may be supposed to possess, it will be justly questioned, whether an author, who bestows cold and partial praise on Bacon, who in a chapter of metaphysics omits the mention of Locke, who speaks contemptuously of the Copernican system, and who attacked Le Clerc with an unbecoming asperity, was duly qualified to pass judgment upon general learning. The ingenious Dr. Jortin says of him (Life of Erasmus, p. 550, 551), "that he was no critic himself, and not at all acquainted with the true state of classical books, and particularly of Greek authors." Baker, though he possessed real erudition, and though his remarks are often acute and ingenious, has unduly disparaged the writings of able men, and the discoveries of modern science. In the progress of his life, he pursued studies for which he seems to have been better qualified. As a collector of antiquities, and particularly of such as related to the church and university, he excelled. His talents in this way were employed in collecting materials for a history of the university of Cambridge; but though he lived to an advanced age, the history was never completed.

Baker was unquestionably a man of integrity and candour. By his conscientious refusal to take the oaths required by government at the accession of George I. he lost his fellowship; but he retained his chambers at St. John's college, where he was highly esteemed, and Mr. Prior, the celebrated poet, gave the profits of his own fellowship to Baker, in order to supply the loss of income which he had suffered. His correspondence with men of learning was extensive; and he was liberal in his literary communications to those who solicited information; and particularly to bishop Burnet, who was indebted to him for several remarks and corrections relating to his "History of the Reformation." These two persons, though very different from each other with regard to their party and principles, maintained a mutual friendship and a candid intercourse, which were honourable to both. Baker's private character was amiable, and he was beloved and respected by all who knew him. He died at Cambridge, July 2d, 1740, in his eighty-fourth year. Of his extensive collections, he left twenty-three volumes in folio, written by his own hand, to Lord Oxford, and they now compose part of the Harleian collection in the British museum. He also bequeathed fifteen volumes folio, of a like kind, to the public library at Cambridge, together with other MSS. and printed books. Biog. Brit.

"Mr. Baker," says a late biographer, Horatio Walpole earl of Orford, "lived and died in charity with all mankind, and was perhaps the sole instance of a man, who bequeathed his worldly goods to a society that ejected him, and to the ministers of a church in which he had lost preferment." *Memoirs of the Life and Writings of the late Thomas Baker, &c. by R. Masters, 1784.*

BAKER, HENRY, an ingenious and diligent naturalist, was born in London near the close of the seventeenth or the beginning of the eighteenth century, and apprenticed to a bookseller. This employment, if he ever engaged in it after the expiration of his apprenticeship, he soon relinquished; and having directed particular attention to the methods which might be practicable and useful in the cure of stammering, he engaged in teaching deaf and dumb persons to speak; and in this undertaking he was very successful. He married a daughter of the celebrated Daniel Defoe. In the earlier period of his life, he indulged a taste for poetry, and published, in 1725 and 1726, "Original Poems, serious and humorous," in two parts, in which there are some tales that resemble in wit, and also in licentiousness, those of Prior. He was the author likewise of "The Universe, a Poem intended to restrain the Pride of Man," several times reprinted, and of "An Invocation to Health," reprinted in his "Original Poems." At a more advanced period of life, he pursued various branches of study and experiment in philosophy and natural history, and devoted himself more especially to microscopical researches and observations. In 1740, he was elected a fellow of the Antiquarian and Royal Societies; in both which he was a regular attendant. In 1744, the Royal Society honoured him with Sir Godfrey Copley's medal in recompence of his microscopical discoveries, the crystallizations and configurations of saline particles. Among various topics on which he communicated papers to the Royal Society, that have been published in their Transactions, one was the water polype (see POLYPE); and his remarks on this curious animal were enlarged into a separate treatise, which passed through several editions. The most important and valuable of his observations are contained in his two principal works, intitled, "The Microscope made easy," and "Employment for the Microscope," of which many editions have been published. Mr. Baker was one of the earliest and most zealous members

of the society for the encouragement of arts, manufactures, and commerce; and by his extensive correspondence he was eminently useful in introducing into his own country several valuable methods of culture. To him we are indebted for the true history of the "Coccus Polonicus," for the "Alpine Strawberry," and for the "Rheum Palmatum." After the first discoveries in electricity, he was one of the first who announced to the public the apprehended medicinal effects that might result from the application of it, and to relate the experiments of this kind which had been made at Rome and Bologna. He did not, however, escape the strictures of critics, and particularly of Dr. Hill, in his review of the works of the Royal Society. It has been said of him, more to the dishonour of those who have thrown out this unjust and invidious reflection than to his disgrace, that he was a philosopher in little things; but cavillers of this description seem to forget that the minute productions of nature display the great first cause as much as the largest; and they too generally escape the vulgar eye. Mr. Baker, says one of his biographers, was "an intelligent, upright, benevolent man, much respected by those who knew him best. His friends were the friends of science and virtue; and it will be always remembered by his contemporaries, that no one was more ready than himself to assist those with whom he was conversant, in their various researches and endeavours for the advancement of knowledge and the benefit of society." After a life industriously devoted to these great objects, he died at his apartments in the Strand, Nov. 25th, 1774. The bulk of his fortune was bequeathed to his only grandson; and he left 100*l.* to the Royal Society for an anatomical or chemical lecture. Biog. Brit.

BAKER'S *Central Rule*, in *Mathematics*. See *CENTRAL Rule*.

BAKER'S *Dozen Islands*, in *Geography*, a cluster of islands near the east side of Hudson's bay, about N. lat. 57° 30', and W. long. 81°, to the west of an opening which goes to the east and north-east as far as the south-east end of Hudson's straits.

BAKERSFIELD, a newly-settled township of America, in Franklin county, Vermont, formerly in Chittenden county.

BAKERSTOWN, lies in Cumberland county, and district of Maine, containing 1276 inhabitants; distant 162 miles north-east from Boston.

BAKEU, or BACOU, a town of European Turkey, in the province of Moldavia, 60 miles south-west of Jassy.

BAKEWELL, is an ancient market town of England, in the county of Derby. In the Saxon chronicle it is called *Badeceanwyllam*; from which circumstance Mr. Bray conjectures that a bath had been used in this place previous to the year 924, at which time Edward the Elder ordered a strongly fortified town to be built in the vicinity. The parish of Bakewell is the most extensive in the county; its length from north to south being more than twenty miles, and its breadth upwards of eight. Its number of houses is 299, and that of inhabitants 1412. In consequence of the extent of this parish, it has nine chapels of ease besides the church in the town. The latter, situated on an eminence, is an ancient and handsome structure, built in the form of a cross, with an octagonal tower in the centre, supporting a lofty spire. The architecture of this fabric combines a variety of styles. The plain Saxon appears in the nave, and the arch of the western doorway is enriched with zigzag ornaments; but the other parts are built in that style which prevailed in the fifteenth century. Here are some ancient and curious monuments. In the church-yard is a Catholic stone cross, whose sides are ornamented with a rudely executed

cuted representation of the crucifixion in relief, and other sculptured figures.

The market was formerly held on a Monday, but it is now kept on Fridays. Near the entrance of the town from Ashford is a large mill for the carding, roving, doubling, spinning, and twisting of cotton; in which manufactory from 300 to 350 persons of both sexes are constantly employed. This mill was erected by the late sir Richard Arkwright, who was the founder of the cotton trade in this neighbourhood. Between the gritstone and limestone strata about Bakewell, is a thick stratum of shale, which being of an argillaceous nature, and retentive of moisture, renders the pasturage extremely good and thriving. Bakewell is 25 miles north of Derby, and 152 miles north-west from London. About three miles east of this town is *Chatsworth*, a magnificent seat of the duke of Devonshire. This celebrated mansion was erected by William, the first duke of Devonshire, in the year 1702. It is built in the Ionic order, with a flat roof, surrounded by balustrade. Its form is nearly a square, of about 190 feet, inclosing a spacious quadrangular court, having a fountain in the centre with the statue of Orpheus. The fronts which form the quadrangle, are decorated with rich sculptural representations of military trophies. This mansion is sumptuously furnished, and embellished with carved ornaments by the celebrated Gibbons, with painted walls and ceilings, with portraits, also a collection of fossils, &c. The unfortunate Mary queen of Scots, was doomed to thirteen years' captivity in the old mansion at this place. The park is about nine miles in circumference, and is diversified with much grand, picturesque, and beautiful scenery. The *water-works*, which about fifty or sixty years ago gave Chatsworth great celebrity, are still preserved near the south-east and south sides of the house; but they attract little attention in the midst of such a variety of natural beauties.

About two miles south of Bakewell is *Haddon Hall*, a truly venerable mansion belonging to his grace the duke of Rutland. The high turrets and embattlements of this house, when beheld at some distance, give it the resemblance of an ancient fortified castle. It consists of numerous apartments and offices, which surround two paved quadrangular courts. The most ancient part is the tower of the gateway, which was probably built about the time of Edward the Third. The gallery was erected in the time of queen Elizabeth; but the chapel was raised in the reign of Henry the Sixth. Many of the rooms are very spacious; and the doors were concealed behind the hangings of arras, which must have been always lifted up for persons to pass in and out. Haddon Hall presents perhaps a more complete specimen of the ancient English baronial mansion, than is to be found in any other house in the kingdom. For a particular description of it see the *Beauties of England and Wales*, vol. iii. p. 494.

At a short distance from Bakewell is *Ashford*, where are some considerable marble works. These were the first of the kind established in England, and great quantities of black and grey marble are sawed and polished. This operation is performed by machinery, which is kept in motion by water. One part, called the sweeping mill from its circular motion, will work upon, and level a set of marble slabs of eighty superficial feet. *Beauties of England and Wales*, vol. iii.

BAKEWELL Breed, an improved species of sheep, which have been bred by Mr. Bakewell of Dishleigh. See **SHEEP**.

BAKHUYSEN. See **BACKHUYSEN**.

BAKIAN. See **BACHIAN**.

BAKING, the art of preparing bread, or of reducing meals of any kind, whether simple or compound, into bread.

VOL. III.

The forms of baking among us may be reduced to 'two; the one for unleavened, the other for leavened bread.

The learned are in great doubt about the time when baking first became a particular profession, and bakers were introduced. It is generally agreed they had their rise in the east, and passed from Greece to Italy after the war with Pyrrhus, about the year of Rome 583. Till which time every housewife was her own baker: for the word *pistor*, which we find in Roman authors before that time, signified a person who ground or pounded the grain in a mill or mortar to prepare it for baking, as Varro observes. According to Athenæus, the Cappadocians were the most applauded bakers, after them the Lydians, then the Phœnicians.

To the foreign bakers brought into Rome, were added a number of freedmen, who were incorporated into a body, or, as they called it, a *college*; from which neither they nor their children were allowed to withdraw.—They held their effects in common, and could not dispose of any part of them. Each bake-house had a *patronus*, who had the superintendency thereof; and these *patroni* elected one out of their number each year, who had the superintendence over the rest, and the care of the college. Out of the body of the bakers, every now and then, one was admitted among the senators.

To preserve honour and honesty in the college of bakers, they were expressly prohibited all alliance with comedians and gladiators; each had his shop or bake-house, and they were distributed into fourteen regions of the city. They were excused from guardianships and other offices, which might divert them from their employment.

By our own statutes, bakers are declared not to be handicrafts. No man for using the mysteries or sciences of baking, brewing, surveying, or writing, shall be interpreted a handicraft. 22 H. VIII. cap. 13.

The bakers of London make the nineteenth company. They were incorporated about the year 1307, and consist of a master, four wardens, thirty assistants, and one hundred and forty-nine on the livery, besides the commonality. See **COMPANY**.

The bakers of London are under the jurisdiction of the lord mayor and aldermen. A penalty is inflicted on bakers selling at a higher price than is set by the lord mayor; and bakers are to set their marks on their bread. The assize of bread is regulated by several statutes. See **BREAD**.

The manner of baking at Otaheite, and in many islands of the South seas, is as follows. They make fire by rubbing the end of one piece of dry wood upon the side of another, just as the carpenters whet a chissel; they then dig a pit in the ground, about half a foot deep, and two or three yards in circumference; they pave the bottom of it with large pebble stones, which they lay very smooth and even, and then kindle a fire in it with dry leaves and the husks of the cocoa-nut. When the stones are properly heated, they take out the embers and rake out the ashes on every side, then cover the stones with a layer of green cocoa-nut tree leaves, and wrap up the animal that is to be dressed, in the leaves of the plantain. If it be a small hog, or dog, they wrap them up whole; if large, they split them. When placed in the pit, they cover it with hot embers, and lay upon them bread-fruit and yams wrapped up in like manner in the leaves of the plantain. Over these they spread the remainder of the embers, mixing among them some of the hot stones, with more cocoa-nut tree leaves and then close up all with earth, so that the heat is kept in. After a time proportioned to what is dressing, the oven is opened, and the meat taken out, tender, full of gravy, and, as captain Wallis thought, better in every respect than when it is dressed any other way. Having no

vessels in these islands that could bear the fire, the inhabitants of them had no idea of hot water, or its effects, and therefore always roasted or baked their meat in the manner above related. Hawkesworth's Account of Voyages in the Southern Hemisphere, vol. i. p. 484.

BAKING is used for the exposing of a substance, inclosed in a crust, to the fire. See DRESSING of Meats.

BAKING Porcelain. See PORCELAIN.

BAKON, in Geography, a large forest of Hungary, near Vespriin, where Andrew, king of Hungary, in a battle with his brother, was forsaken by his followers, and trampled to death by his enemies.

BAKSAISKAIA, a fortress of Russian Tartary, in the government of Caucasus, on the west side of the Ural; 32 miles north of Gurica.

BAKTEGAN, the name of a salt lake of Persia, about fifty miles east of Shiraz, which receives the rivers of Kuren and Bundamir. It is represented in the maps as being about 40 British miles long, and 10 broad.

BAKU, a town of Persia, in the province of Shirvan, on the west coast of the Caspian sea, with a harbour. N. lat. 40° 25'. E. long. 50° 2'.

The bay of Baku is reckoned the safest harbour of the Caspian, because ships may lie there at anchor in seven fathoms water; yet in some places the entrance is dangerous on account of shallows, islands, and sand-banks. Baku, like Derbent, is inhabited by Persians, Tartars, and some few Armenian merchants. The principal articles of export by which the traffic of this place is chiefly supported, are the naphtha, and the fine rock-salt, both of which are collected on the east side of the bay. The inhabitants indeed cultivate saffron and cotton, but not with any considerable advantage. The trade of Baku is doubtless of more consequence than that of Derbent, though in fact but very confined, and is mostly carried on with Shamachy, or Shama-kee, whence it gets silk and silk-stuffs. A Russian consul usually resides here.

BALA, in Botany, a name used by some authors for the *musa*, or plantain tree; called also the *banana* and *ficoides*, by others.

BALA, in Ancient Geography, a city of Pentapolis, so called because it was *swallowed up*, as the word imports, when Lot quitted it. It is more usually denominated Zohar.

BALA, in Geography, a town in the county of Merioneth, in North Wales, consisting of one street, with a high artificial mount, apparently the keep of a fortress, at the south-east end of it. It is situated on the eastern extremity of the fine lake to which it gives a name, and whose fish contribute largely towards the subsistence of its inhabitants. The fairs and markets are considerable, and abundantly supplied with the produce of the surrounding country, and with flannels, gloves, stockings, &c. In the manufactory of the latter articles, the inhabitants of the town and of the neighbouring villages are constantly employed. "Knitting," observes Mr. Aikin, "is the general leisure work of both sexes in Wales, especially about Bala; and it cannot fail of giving strangers a high idea of the industry of the people, to see the men and women going to market with burdens on their heads, while their hands are employed in working the fleeces of their own sheep into articles of dress, coarse indeed, but equally warm and serviceable with the more costly and elaborate manufactures." Bala is in the parish of Llanycil, a village about one mile from the town. The whole parish includes a population of 2445. Though endowed with many valuable privileges, Bala cannot boast of any particular or elegant structures. It is an incorporated town by prescription, and the government is vested in two

bailiffs and a common council; but neither this nor any other town in the county has ever sent members to parliament. The assizes are kept here and at Dolgelly alternately. Its market is on Saturdays, and here are two fairs annually. It is 36 miles from Holywell, and 203 from London. "The object best worth notice in this neighbourhood is—

"BALA-Pool, or *Pimble-mere*, or *Llyn-tegyd*, which is the largest lake in Wales. Its length from N. E. to S. W. is about four miles, and its breadth in the widest part is 1200 yards. The water, like that of most rocky lakes, is so pure that the most delicate chemical tests detected scarcely any perceivable quantity of foreign admixture. The south-western extremity, where three mountain torrents fall into the pool, is the shallowest, owing to the great quantity of earth and stones which are borne down in flood-time from the country through which they flow: the gradual aggregations have formed several banks and low islands in this end of the lake, and in consequence obliged it to encroach proportionally on the north-eastern boundary. This tendency is further increased by the prevalence of strong westerly winds, which drive on the shore a heavier surf than would be imagined. When these two causes combine, a circumstance that not frequently happens, the waters rise to such an alarming height, as to threaten the town of Bala with an inundation, were it not for a dyke that is raised on the shore: the water being thus obstructed pours over the road at the extremity of the mound, and discharges itself into the low grounds through which the Dee flows, doing no small damage to the rich and extensive pastures. The lake is well stocked with excellent fish, of which the red trout and the gwyniad are esteemed the most delicious. These are all caught by angling from the shore, for sir W. Wynne, who claims the property of the whole pool, will not allow any boats to be kept on it." The scenery round this lake is much admired for its diversified, wooded, and rocky characteristics. Aikin's Journal of a Tour through North Wales, &c.

From the bottom of this lake issues the river Dee, which is said to pass through it without mingling its waters with those of the lake (see ABYSSINIA); and passing under a romantic old bridge, winds gently in a wide and deep stream towards Corwen and Llangollen.

Bala is surrounded with mountains, through which various roads are formed towards Dinasnewthy, towards Llanvillig over the Berwin, and towards Llanrwst in the vicinity of Snowdon.

BALAAM, in Scripture Biography, the son of Beor or Bofor, a prophet or diviner, of the city of Pethor on the Euphrates. He was sent for by Balak, king of the Moabites, to curse the Israelites; but he pronounced upon them a blessing. He was killed, together with Balak, in a battle, in which the Israelites defeated the Midianites, about 1450 years before Christ. Numb. xxii, xxiii, xxiv. Deut. xxxiii. 4. 2 Pet. ii. 15. Jude, vers. 11. Rom. ii. 14. It has been a subject of controversy, whether Balaam was a true prophet or a mere diviner, magician, or fortune-teller, *bariolum*, as he is called, Numb. xxii. 5. Origen says, that his whole power consisted in magic and cursing. Theodoret is of opinion that Balaam did not consult the Lord, but that he was supernaturally inspired, and constrained to speak against his own inclination. Cyril says, that he was a magician, an idolater, and a false prophet, who spoke truth against his will; and St. Ambrose compares him to Caiaphas, who prophesied without being aware of the import of what he said.

Jerom seems to have adopted the opinion of the Hebrews; which was, that Balaam knew the true God, erected altars to him, and that he was a true prophet, though corrupted

rupted by avarice. Numb. xxii. 18. St. Austin and other commentators have inclined to this opinion.

Maimonides thinks, that every thing which happened to Balaam in the way to Balak, was done in a prophetic vision. The abbot Jerusalem, and his followers, suppose Balaam to have been an egregious impostor, who had acquired the reputation of being a prophet, and made a public traffic of his divinatory art. With this view he feigns frequent consultations with God, and delivers his own ideas for divine oracles. He supposes that Moses inserted the history of Balaam, as an episode, from Moabite memoirs, for the purpose of obviating pressing difficulties on the supposition that Moses was the original writer. Dr. Geddes, in conformity to the free sentiments which he had adopted with regard to the pentateuch, declares it to be his opinion, that this history was written, not by Moses, but by the compiler of the pentateuch, from such traditional stories or scraps of written documents as he could find. "Indeed," he adds, "it has all the air of a legendary tale."

The story of Balaam's ass has often been an object of ridicule among sceptics and infidels. The abbot Jerusalem thinks that it was all a fiction of Balaam, to save himself from obloquy, if he should bless, instead of cursing, the Israelites. Dr. Jortin, (*Six Dissertations*, Diss. v.) supposes, that Balaam was a worshipper of the true God, and a priest and prophet of great reputation; and that he was sent for by Balak, from a notion which generally prevailed, that priests and prophets could sometimes, by prayers and sacrifices duly and skilfully applied, obtain favours from God, and that their imprecations were efficacious. He conceives that the prophet had been accustomed to revelations, and that he used to receive them in visions, or in dreams of the night. With regard to the intercourse between Balaam and his ass, he conjectures that it was transacted in a trance or vision. Accordingly, he admits that an angel of the Lord did, indeed, come to oppose Balaam in the way, and suffered himself to be seen by the beast, but not by the prophet; that the beast was terrified, and Balaam smote it, and immediately fell into a trance or extacy; and in that state of vision conversed with the beast first, and then with the angel. The angel presented these objects to his imagination, as strongly as if they had been before his eyes; so that this was still a miraculous or preternatural operation. Dr. Geddes says, that to him there appears nothing strange in the story of the ass, but the manner of telling it; and it ceases to be wonderful, when we recollect the oriental mode of narrating. Balaam is riding on his ass on as yet a doubtful errand; the ass startles at something, and turns aside from the way; thrusts his master's legs against a wall, and at length falls down under him. All this he takes for a bad omen, and a sign that his journey is not agreeable to God. God is thence conceived to be angry with him, and an imaginary dialogue ensues between God and Balaam, as had before been supposed to be held between Balaam and his ass. Geddes's Crit. Remarks, vol. i. p. 394.

BALAMITES, in *Ecclesiastical History*, the name of a sect in the first age of Christianity, of the same import in the Hebrew language with Nicolaitans in the Greek. See NICOLAITANS.

BALABAC, in *Geography*, one of the Philippine, or rather Bornean islands, between Borneo and Palawa, near the south-western point of the latter island. N. lat. 7° 50'. E. long. 117° 30'.

BALABEA, an island near the north-west end of New Caledonia. S. lat. 20° 7'. E. long. 164° 22'.

BALABOLA. See BOLEBOLA.

BALACHNA. See BALAKHNA.

BALAD, a town of Asia, in the country of Diarbekir, twenty miles north-west of Mosul.

BALADE, the name of a harbour on the north-west coast of New Caledonia island, in the South Pacific ocean, formed by a reef which runs parallel to the coast, at the distance of three leagues, and near the western extremity of the island. S. lat. 20° 15'. E. long. 164° 40'.

BALÆNA, *Whale*, in *Zoology*. Whales are a tribe of cetaceous creatures, which in external appearance, and certain habits of life, in their native element, the water, seem to approach so nearly to the other kinds of the finny race, that the earlier writers, who were little acquainted with their history, and perhaps still less with their internal structure, may be surely excused for consigning them to the tribe of fishes. To say nothing of their anatomy, the want of feet which is an obvious defect in the whale, was one among other cogent reasons for retaining it with the latter. Our countrymen, Ray and Willughby, both include the whales in their systems of ichthyology; Ray, whose natural arrangement of the animal tribes deserves no common praise, divides his fishes into two principal sections, one comprehending those which have lungs for respiration, and the other, those which breathe by means of the gills, and are truly fishes. The reasons he offers for including the former with the fishes are these; because the form of their bodies agrees with those of fishes; because they are entirely naked, or covered only with a smooth skin; and because they live entirely in the water, and have all the actions of fishes. Notwithstanding this, Linnæus, whose accuracy of discrimination an enlightened posterity bid fair to honour and esteem, has referred them to the mammalia tribe of animals; a reference extremely just, but the propriety of which will not appear so obvious at the first glance to the cursory observer, as to the accurate anatomist, or indefatigable historian of nature.

The whale, notwithstanding its fish-like external appearance, and residence in the waters, has no other claim to a place among fishes; for its internal anatomy is precisely the same as that of the terrestrial animals, and of the quadruped tribe in particular. Such is the opinion advanced by that first of naturalists, Linnæus; and such is the opinion confirmed by the remarks of that able anatomist the late Mr. Hunter. In a paper presented on the anatomy of whales, to the Royal Society of London, a few years ago by the latter, it is observed, that this order of animals has nothing peculiar to fish, except living in the same element, and being endowed with the same powers of progressive motion, as those fish which are intended to move with a considerable velocity. Although inhabitants of the waters, they belong to the same class as quadrupeds; breathing air, being furnished with lungs, and all other parts peculiar to the economy of that class, and having warm blood. The projecting part, or tail, contains the power that produces progressive motion, and moves the broad termination, the motion of which is similar to that of an oar in sculling a boat; it supercedes the necessity of posterior extremities, and allows of the proper shape for swimming. The tail is flattened horizontally, which is contrary to that of fish; this position of tail giving the direction to the animal in the progressive motion of the body. The two lateral fins, which are analogous to the anterior extremities in the quadruped, are commonly small, varying however in size, and seem to serve as a kind of oars. The element in which they live renders some parts, which are of importance in other animals, useless to them; gives to some parts a different action, and renders others of less account. The larynx, size of the trachea, and number of ribs differ exceedingly. The coecum is only found in some of them. The teeth in some are wanting. The blowholes are two in number in many; in others only one. The bones alone, in many animals, when properly united

into what is called the skeleton, give the general shape and character of the animal. Thus a quadruped is distinguished from a bird, and even one quadruped from another; it only requiring a skin to be thrown over the skeleton to make the species known. But this is not so decidedly the case in this order of animals, for the skeleton in them does not give the true shape. An immense head, a small neck, few ribs, and in many a short sternum, and no pelvis, with a long spine, terminating in a point, require more than a skin being laid over them in order to give the regular and characteristic form of the animal. The structure of the bones is similar to that of the bones of quadrupeds; they are composed of an animal substance, and an earth that is not animal; they are less compact than those of quadrupeds that are similar to them. From these and other observations we may infer, that the structure, formation, arrangement, and union of the bones, which compose the forms of parts in this order of animals, are much upon the same principle as in quadrupeds. The flesh and muscles of this order of animals are red, resembling those of quadrupeds, and perhaps more like those of the bull or horse than any other animal.

The Linnæan definition of the mammalia class, having a heart with two auricles and two ventricles, and the blood warm and red, applies most strictly to the whale. "The heart," Mr. Hunter says, "is inclosed in its pericardium, which is attached by a broad surface to the diaphragm, as in the human body. It is composed of four cavities, two auricles, and two ventricles; it is more flat than in the quadruped, and adapted to the shape of the chest. The auricles have more fasciculi, and these pass more across the cavity from side to side than in many other animals; besides being very muscular, they are very elastic, for being stretched they contract again very considerably. There is nothing uncommon or particular in the structure of the ventricles, in the valves of the ventricles, or in that of the arteries." In their amours and mode of producing their young, the whales agree with other creatures of the mammalia tribe; and like them they have teats, and suckle them.

The balæna genus is distinguished, according to Linnæus, by having horny laminae in the upper jaw instead of teeth, and a double respiratory orifice on the upper part of the head. By these characters the true whales may be distinguished from the other genera of cetaceous animals, as the monodon, physeter, and delphinus. The history of the whales will be considered under the respective species, of which Linnæus and Gmelin describe the following: MYSTICETUS (common whale), PHYSALUS (fin-fish), BOOPS (pike-headed whale), GIBBOSA (bunched whale), MUSCULUS (round lipped whale), and ROSTRATA (beaked whale). The French naturalists distinguish two other species; Virey speaks of la baleine Franche, or baleine de Groenland (B. mysticetus Linn.), le nord caper, or baleine d'Irlande (balæna glacialis Bonn.), le gibbar, or finn-fisch (fin-fish Eng. and balæna physalus Linn.), la baleine tampon (balæna nodosa Bonn.), la Jubarte (balæna boops Linn.), le rorqual (balæna musculus Linn.), and la baleine a bec (balæna rostrata Linn.)

In concluding these remarks on the whale tribe, we cannot avoid adverting to the British Zoology of Mr. Pennant, in which these and the other cetaceous animals found on our coasts are admitted under the title of cetaceous fishes; he follows the arrangement proposed by Ray, and seems to object chiefly to that of Linnæus, because "to have preserved the chain of beings entire," he says, Linnæus "should have made the genus of phocæ, or seals, and that of trichecus or manati, immediately precede the whale, those being the links that connect the mammalia or quadrupeds with the fish; for the seal is, in respect to its legs, the most imperfect of the former class, and in the manati the hind feet coalesce, assum-

ing the form of a broad horizontal tail." Brit. Zool. vol. iii.

M. Bloch excludes the whales, and other cetaceous creatures, except the marfou or purpoise, from his work on fishes; but these are included in one of the smaller editions of the work, in the "seventh class, les cétacées." In a prefatory note we are informed, however, that Linnæus places these at the conclusion of the mammalia, immediately after the hog-tribe; but as it might be agreeable to give the entire class in which the largest animals which nature produces are arranged, the omission of Bloch is supplied from Duhamel, with the assistance of Anderson, Bonaterre, Artedi, Ray, and Belon.

BALÆNÆ, in *Natural History*, a species of ECHINORHYNCHUS, that infests the intestines of the whale. Phipps. It. Gmelin.

BALÆNARIS, in *Conchology*, a species of LERAS, having a subconic shell, with six elevated rugose four-parted lobes, and a membranaceous bidentated operculum. Müll. Found adhering to the pectoral fins and wrinkles of balæna boops, or pike-headed whale.

BALÆNARUM, in *Entomology*, a species of PHALANGIUM (*Pycnogonum* Fabr.), with two feelers and an ovate body. Gmel. This is phalangium littorale of Stroemfundi; pediculus ceti, Bafter; pycnogonum littorale Fabr. fn. Groenl.; and acarus marinus seu polygonopus of Pallas. Inhabits European seas, lurking under stones. Back red; sucker advanced, straight, obtuse at the end, with a round perforation; feelers about as long as the sucker, and inserted near its base.

BALAGANSKOI, in *Geography*, a town of Siberia, on the Angara, 30 miles W.N.W. of Irkutsk. N. lat. 53° 45'. E. long. 103° 14'.

BALAGAT, or BALLA-GAUT, a province of the Deccan, in the Indian peninsula. It is a tract naturally very strong, particularly on the west side towards the sea, where a stupendous wall of mountains, called the Gauts, rises abruptly from the low country, called the Concan, or Cockun, supporting, in the nature of a terrace, a vast extent of fertile and populous plains, which are so much elevated, as to render the air cool and pleasant. This elevated tract is continued not only through the Mahratta territories, but extends through the peninsula to the southern extreme of Mysore, and is named *Balla-Gaut*, throughout its whole extent; meaning literally the *Higher* or *Upper Gauts*; or perhaps more correctly the countries lying *above* or *below* the Gauts. In the peninsula, it is applied in contradistinction to *Payen-Gaut*, or the *Lower Gauts*; but in the Deccan, it appears to be used only as a proper name, and not as a correlative; as we have never heard of the Deccan *Payen-Gaut*. Rennell's Mem. Introd. p. 127.

As a province, it was formerly the largest of the three which composed the northern Deccan, bounded on the north by Candish and Berar; on the east by Tellinga; on the west by Baglana and part of Guzerat; and on the south by Visapore. This province, after it fell into the hands of the Moguls, assumed the name of Dowlatabad, from its former capital. It is a fruitful pleasant country, abounding with cotton and sugar. Its chief city is Aurungabad.

BALAGUER, a town of Spain, in Catalonia, seated on the north bank of the river Segra, at the foot of a high hill. N. lat. 41° 38'. E. long. 0° 48'.

BALAKEF, a district of the government of Saratof, in Russia, on the river Khoper.

BALAKHNA, or BALACHNA, a town of Russia, in a district of the same name, being one of the thirteen districts of Neshnei Novogorod, on the right side of the Volga. The town was built in 1536, and contains 767 timber houses, and 1489 inhabitants. It trades to St. Petersburg; transports salt, and constructs fishing-boats. It has a monastery,

monastery, five brick, and ten timber churches. N. lat. $56^{\circ} 30'$. E. long. $45^{\circ} 5'$.

BALAKLAVA, a fishing town of Crim Tartary, or Taurida, containing about 200 houses, and seated on a bay of the Black or Euxine sea, in N. lat. $44^{\circ} 35'$. E. long. $33^{\circ} 14'$. The bay forms a harbour; which, in the imperial proclamation declaring Theodosia and Eupatoria free ports, is debarred from navigation.

BALAKZEL, in *Ornithology*, the Turkish name of the heron.

BALALAIKA, in *Musical*, a musical instrument of the bandour kind, of very ancient Slavonian origin; it is in common use both with the Russians and Tartars; according to Niebuhr, it is also frequent in Egypt and Arabia. The body of it is an oblong semicircle, about a span in length, with a neck or finger-board of four spans. It is played on with the fingers like the bandour or guitar; but has only two wires, one of which gives a monotonous bass, and by the other the piece is produced. Under the touch of able fingers, accompanied by a good voice, it sounds agreeably enough; and therefore it is not unfrequently seen in the hands of people of fashion.

BALAMBANGAN, in *Geography*, a small island in the Eastern Pacific ocean, near the northern point of Borneo, between this island and Palawa, remarkable for a settlement attempted by the English in 1773; but evacuated either on account of the unhealthy climate, or of a Dutch invasion. N. lat. $7^{\circ} 10'$. E. long. 117° .

BALAMBUAN, or PALAMBUAN, the name of a district or territory on the east part of the island of Java, which produces pepper, cotton, rice, Indian corn, and fruit in great plenty, and which abounds with pastures that feed a great number of horses, antelopes, buffaloes, and oxen. The capital, which is a strong trading town, is of the same name. S. lat. $7^{\circ} 10'$. E. long. $115^{\circ} 30'$.

BALAMBUAN Channel. See BALLI.

BALAMIUS, FERDINAND, in *Biography*, born in the island of Sicily, about the middle of the sixteenth century, not less celebrated for his accomplishments in polite literature, and his skill in the Greek language, than for his knowledge of medicine, was greatly esteemed by pope Leo X. to whom he was physician. He published in 1556, at Lyons, "De cibis boni et mali succi," translated from the works of Galen; also "Galen liber de ossibus, ad Tyrones;" 8vo. republished at Frankfort, in fol. with observations by Gasper Hoffman, 1630. The above are inserted in the edition of Galen's works, published by the Juntas, 1586, fol. Since his death the following was printed at Rostock: "De optima corporis nostri constitutione;" "De bona valetudine;" "De hyrudinibus, cucurbitula, &c." 1636, 8vo. Haller Bib. Med. Pract. Eloy. Dict. Hist.

BALAM PULLI, in *Botany*, a name used by some authors for the tree whose fruit is the tamarind of the shops.

BALANCE, or BALLANCE, *Libra*, in *Mechanics*, one of the seven simple powers, or rather a species of that mechanical power called the lever, used principally for determining the equality or difference of weights in heavy bodies, and consequently their masses or quantities of matter.

The balance is of two kinds, viz. the *ancient* and *modern*. The ancient or Roman, called also *statera Romana*, or steel-yard, consists of a lever or beam, moveable on a centre, and suspended near one of its extremes; on one side the centre are applied the bodies to be weighed, and their weight is estimated by the division marked on the beam, on the other side, where a weight moveable along it keeps the balance in equilibrio. See STEEL-YARD.

The modern balance, now ordinarily in use, consists of a

lever, or beam, suspended exactly by the middle; to the extremes whereof are hung scales or basons.

In each case, the beam is called the *jugum*, and the two moieties thereof on each side the axis, the *brachia*, or *arms*; and the handle whereby it is held, *trulina*; the line on which the beam turns, or which divides its brachia, is called the *axis*; and when considered with regard to the length of the brachia, is esteemed but a point, and called the *centre of the balance*; and the places where the weights are applied, the *points of suspension*, or *application*.—That slender part perpendicular to the *jugum*, by which either the *equilibrium*, or preponderancy of bodies is indicated, is called the *tongue of the balance*.

In the Roman balance, therefore, the weight used for a counterbalance is the same, but the points of application are various; in the common balance, the counterpoise is various; and the point of application the same.

The principle on which each is founded is the same, and may be conceived from what follows.

BALANCE, *Doctrine of the*.—The beam AB (*Plate Mechanics*, fig. 8.) the principal part of the balance, is a lever of the first kind, which, instead of resting on a fulcrum at C, its centre of motion, is suspended by somewhat fastened to the centre C: so that the mechanism of the balance depends on the same theorem as that of the lever.

Hence, as the known weight is to the unknown, so is the distance of the unknown weight from the centre of motion to the distance of the known weight, where the two weights will counterpoise each other; consequently, the known weights shew the quantity of the unknown.

Or thus: the action of a weight to move a balance is by so much greater, as the point pressed by the weight is more distant from the centre of the balance; and that action follows the proportion of the distance of the said point from that centre. When the balance moves about its centre, the point B describes the arch Bb (*fig. 9.*); whilst the point A describes the arch Aa, which is the largest of the two; therefore in the motion of the balance, the action of the same weight is different, according to the point to which it is applied; hence it follows, that the proportion of the space gone through by the point at A is as Aa, and at B as Bb, but those arches are to one another as CA, CB.

BALANCE, *Varieties in the Application of the*.—If the brachia of a balance be divided into equal parts, one ounce applied to the ninth division from the centre, will equiponderate with three ounces at the third; and two ounces at the sixth division act as strongly as three at the fourth, &c.

Hence it follows, that the action of a power to move a balance is in a ratio compounded of the power itself, and its distance from the centre; for that distance is as the space gone through in the motion of the balance.

It may be here observed, that the weight equally presses the point of suspension at whatever height it hangs from it, and in the same manner as if it was fixed at the very point: for the weight at all heights equally stretches the cord by which it hangs.

A balance is said to be in equilibrio, when the actions of the weights upon the brachia to move the balance are equal, so as mutually to destroy each other. When a balance is in equilibrio, the weights on each side are said to equiponderate: unequal weights may also equiponderate; but then the distances from the centre must be reciprocally as the weights. In which case, if each weight be multiplied by the distance, the products will be equal; which is the foundation of a steel-yard, which see.

Thus in a balance whose brachia are very unequal, a scale hanging at the shortest, and the longest divided into equal parts: if such a weight be applied to it, as at
the

the first division shall equiponderate with one ounce in the scale; and the body to be weighed be put in the scale, and the above mentioned weight be moved along the longest *brachium*, till the *equilibrium* be found; the number of divisions between the body and the centre shews the number of ounces that the body weighs, and the subdivisions the parts of an ounce. On the same principle also is founded the *deceitful balance*, which cheats by the inequality of the *brachia*: for instance, take two scales of unequal weights, in the proportion of 9 to 10, and one of them at the tenth division of the balance above described, and another at the ninth division, so that there may be an equilibrium; if then you take any weights, which are to one another as 9 to 10, and put the first in the first scale, and the second in the other scale, they will equiponderate.

But it is easy to discover the deceit of a false balance by changing the weights that are in equilibrium to the contrary scales; and thus the owner of the balance must either confess the fraud, or add to the commodity sold by means of such a balance, not only the quantity by which it was deficient, but also as much as he intended to gain by the fraud, and a fraction of that added weight proportional to the inequality of the arms of the balance. In this case, the buyer, instead of 9 lb offered to him for 10 lb his due, will have by changing the scales, 11 $\frac{1}{10}$ pounds. For $9:10::10:11\frac{1}{10}$.

Several weights, hanging at several distances on one side, may equiponderate with a single weight on the other side: to do this it is required, that the product of that weight, by its distance from the centre, be equal to the sum of the products of all the other weights, each being multiplied by its distance from the centre.

To demonstrate which, hang three weights of an ounce each, at the second, third, and fifth divisions from the centre, and they will equiponderate with the weight of one single ounce applied to the tenth division of the other *brachium*; and the weight of one ounce at the sixth division, and another of three ounces at the fourth division will equiponderate with a weight of two ounces on the other side at the ninth division.

Several weights unequal in number on either side, may equiponderate: in this case if each of them be multiplied by its distance from the centre, the sums of the products on either side will be equal; and if those sums be equal, there will be an *equilibrium*.

To prove which, hang on a weight of two ounces at the fifth division, and two others, each of one ounce, at the second and seventh; and on the other side hang two weights, each also of one ounce, at the ninth and tenth divisions; and these two will equiponderate with those three. A balance of this kind, the arms of which are equally divided, has been sometimes called an *arithmetical balance*; because the arithmetical operations of addition, subtraction, multiplication, and the rule of three, may be easily performed by it.

E. g. To *add* the numbers 2, 3, and 7; apply an ounce weight at the second division, and another on the same arm at the third, and another at the seventh, then take an ounce weight, and move it along the other arm, till the beam is in equilibrium, which will be at the twelfth division; so that $2+3+7=12$.

To *subtract* 5 from 12; hang an ounce weight at one end of the arm at 12 inches, and another at the other end at 5; then move a third ounce weight along the arm till the equilibrium is restored, and it will be found at the seventh division, which gives $12-5=7$.

To *multiply* 4 by 3; suspend a four ounce weight at the third division on one arm, and move an ounce weight on the

other, till the beam be in equilibrium, and it will mark out $12=4\times 3$.

To *divide* 12 by 4; suspend an ounce at the twelfth division, and move a four ounce weight on the other arm, till there is an equilibrium, and it will be found at the quotient $3=12\div 4$. s' Gravesandc, *Physices Elem. Math.* vol. i. p. 50.

To the justness of a balance it is required, that the points of suspension be exactly in the same line as the centre of the balance; that they be precisely equidistant from that centre on either side; that the *brachia* be as long as conveniently they may, in relation to their thickness, and the weight which they are intended to support; that there be as little friction as possible in the motion of the beam and scales; and lastly, that the centre of gravity of the beam be placed a little below the centre of motion.

We shall here add some further observations, which may serve to illustrate these properties of a good balance, and which deserve attention in the construction of this instrument for purposes that require peculiar accuracy. The balance is properly a lever, whose axis of motion is formed with an edge like that of a knife, and the two dishes or scales at its extremities are hung upon edges of the same kind, which are first made sharp, and then rounded with a fine hone, or a piece of buff leather. On the regular form of this rounded part the excellence of the instrument very much depends. When the lever, or beam of the balance, is considered as a mere line, the two outer edges are called points of suspension, and the inner the fulcrum. The points of suspension are supposed to be at equal distances from the fulcrum, and to be pressed with equal weights when loaded.

1. If the fulcrum be placed in the centre of gravity of the beam, and the three edges be all in the same right line, the beam of the balance will have no tendency to one position more than another, but will rest in any position in which it may be placed, whether the scales be on or off, empty or loaded.
2. If the centre of gravity of the beam, when level, be immediately above the fulcrum, it will overset by the smallest action; that is, the end which is lowest will descend; and it will do this with the greater velocity, in proportion as the center of gravity is higher, and the points of suspension are less loaded.
3. But if the centre of gravity of the beam be immediately below the fulcrum, the beam will not rest in any position but when level; and, if disturbed from that position, and then left at liberty, it will vibrate, and at last come to rest in an horizontal position. Its vibrations will be quicker, and its horizontal tendency stronger, the lower the centre of gravity, and the less the weight upon the points of suspension.
4. If the fulcrum be below the line joining the points of suspension, and these be loaded, the beam will overset, unless prevented by the weight of the beam tending to produce an horizontal position, as in the third case. In this last case small weights will equilibrate, as in the last case; a certain exact weight will rest in any position of the beam, as in the first case; and all greater weights will cause the beam to overset, as in the second case. Money scales are often made this way, and will overset with any considerable load.
5. If the fulcrum be above the line joining the points of suspension, the beam will come to the horizontal position, unless prevented by its own weight, as in the second case. If the centre of gravity be nearly in the fulcrum, all the vibrations of the loaded beam will be made in times nearly equal, unless the weights be very small, when they will be slower. The vibrations of balances are quicker, and the horizontal tendency stronger, the higher the fulcrum. When the fulcrum, or centre of motion C, (see *fig. 10*) is in the right line joining the centres of suspension, it is evident that the equilibrium of equal weights, e. g. P and W, will obtain in every position; for the perpendiculars

BALANCE.

perpendiculars let fall from C upon the directions will be always equal to each other. But when C is above or below WP, an equilibrium of equal weights does not occur, unless WP coincide with the horizontal line AB. In this case the perpendiculars let fall from C upon the directions of W and P, are equal to GB and GA, CG being perpendicular to AB; but when the balance is in any other position WP, the perpendicular CI is greater than CH, because gI , which is less than CI, is equal to gM , which is greater than CH. W will therefore descend and continue to vibrate till its motion be destroyed by friction. (See LEVER.) If P and W be unequal, and C be in the right line WP, the heavier of them will descend till WP be perpendicular to the horizon, or, if the centre of motion be not in WP, till $P \times CH = W \times CI$. It is evident from what has been said, that the nearer the centre of gravity of the beam is to the centre of motion, the nicer will be the balance, and the slower its vibrations: thus, if *acbc* (fig. 11.) be the beam, and C the centre of motion, the difference between the effects of having the centre of gravity at K, or *c*, will be the same as if we compared the velocities of two pendulums, of the length CK and Cc, which are in a subduplicate ratio of their lengths. The tendency to an horizontal position is, therefore, increased by lowering the centre of gravity, in which case it will also require a greater additional weight to cause it to turn or incline to any given angle, and it is consequently less sensible with a greater load. The fixing of the centre of motion in a balance is, therefore, of peculiar importance, for on this depends the ease, with which it will be affected by a smaller weight; and the readiness with which it will return to its horizontal position: and it is evident, that the best position is that in which the centre of motion is a little above the centre of gravity; and even in this it should be proportioned to the distance of the weights from the fulcrum, and the quantity of matter to be weighed, which, in different beams, can only be attained by the practice and experience of the maker.

It has already appeared, that if the arms of a balance be unequal, the weights in equipoise will be unequal in the same proportion. But it should be observed, that though the equality of the arms of a balance is useful in the making of weights by bisection, a balance with unequal arms will weigh as accurately as another with equal arms, provided the standard weight itself be first counterpoised, then taken out of the scale, and the thing to be weighed be put into the scale, and adjusted against the counterpoise: or, when proportional quantities only are considered, the bodies under examination may be weighed against the weights, taking care always to put the weights in the same scale; for then, though the bodies may not be really equal to the weights, yet their proportions to one another will be the same as if they had been accurately equal to them. However, it is indispensably necessary that their relative lengths should continue invariable. For this purpose it is necessary either that the three edges be all truly parallel, or that the points of suspension and support should be always in the same part of the edge, which last requisite is most easily obtained.

If a beam be adjusted so as to have no tendency to any one position, as in case 1. above stated, and the scales be equally loaded; then, if a small weight be added in one of the scales, that balance will turn, and the points of suspension will move with an accelerated motion, similar to that of falling bodies, but as much slower in proportion, very nearly, as the added weight is less than the whole weight borne by the fulcrum. The stronger the tendency to an horizontal position in any balance, or the quicker its vibrations (see cases 3. and 5.), the greater additional weight will be required to cause it to turn or incline to any given angle. If

a balance were to turn with the ten thousandth part of the weight, it would move at the quickest 10,000 times slower than a falling body; that is, the dish containing the weight, instead of falling through sixteen feet in a second of time, would fall through only two hundredth part of an inch, and it would require four seconds to move through one third part of an inch; consequently, all accurate weighing must be slow.

Long beams have been generally recommended; because the quantity of motion in a given body varies as its distance from the fulcrum; and, therefore, the greater the distance, the more distinguishable will be the motion arising from any small difference between, e. g. P and W. Long beams are also thought to have less friction; but this has been doubted. And it has been remarked, that the quicker angular motion, greater strength, and less weight of a short balance, are certain advantages.

The index that is placed perpendicularly to the beam of a balance, in order to ascertain its position, affects its equilibrium, except it be in an horizontal situation; the momentum of the index being measured by its weight multiplied into the distance of its centre of gravity, from a line perpendicular to the horizon. But the error that would arise from hence is corrected by continuing the index, or placing a weight on the opposite side of the beam. The scales of a balance should be suspended in such a manner, that in all positions the strings of the scales may be parallel to one another; otherwise the weights, though equal, will not be in equilibrio.

Very delicate balances are not only useful in nice experiments, but they are much more expeditious than others in common weighing. If a pair of scales, with a certain load, be barely sensible to $\frac{1}{1000}$ th of a grain, it will require a considerable time to ascertain the weight of that degree of accuracy, because the turn must be observed several times, and it is very small. But if no greater accuracy were required, and scales were used which would turn with the hundredth of a grain, the tenth of a grain, more or less, would make so great a difference in the turn, that it would be seen immediately. A degree of sensibility may be given to a balance, that turns with a certain addition, but is not moved by any smaller weight, by producing a tremulous motion in its parts. Thus, if the edge of a blunt saw, a file, or other similar instrument, be drawn along any part of the case or support of a balance, it will produce a jarring, which will diminish the friction in the moving parts so much, that the turn will be evident with one third or one fourth of the addition that would else have been required. In this way a beam which would only turn by the addition of a tenth of a grain, will turn with the thirtieth or fortieth of a grain. In order to regulate the horizontal tendency in some beams, the fulcrum is placed below the points of suspension, and a sliding-weight is put upon the style or index, by means of which the centre of gravity may be raised or lowered.

Mr. Nicholson, of whose observations on the properties of the balance we have availed ourselves in the preceding part of this article, has recommended the following set of weights as proper to accompany it, when it is applied to chemical and similar purposes: viz. 1000 grains, 900 g. 800 g. 700 g. 600 g. 500 g. 400 g. 300 g. 200 g. 100 g. 90 g. 80 g. 70 g. 60 g. 50 g. 40 g. 30 g. 20 g. 10 g. 9 g. 8 g. 7 g. 6 g. 5 g. 4 g. 3 g. 2 g. 1 g. $\frac{1}{10}$ g. $\frac{1}{100}$ g. $\frac{1}{1000}$ g. $\frac{1}{10000}$ g. $\frac{1}{100000}$ g. $\frac{1}{1000000}$ g. $\frac{1}{10000000}$ g. $\frac{1}{100000000}$ g. $\frac{1}{1000000000}$ g. With these the philosopher will always have the same number of weights in his scales as there are figures in the number expressing the weights in grains. Mr. Nicholson subjoins an account of some balances, which have been constructed

fructed by different persons for nice experiments, The first he mentions is that of Muschenbroek, which turned with $\frac{1}{24}$ of a grain, and which weighed to $\frac{1}{1280}$ part of the whole; ascertaining such weights truly to four places of figures. In the Philof. Transf. vol. lxvi. p. 30. we have mention of two accurate balances of Mr. Bolton; one of which would weigh a pound, and turn with $\frac{1}{16}$ of a grain, and give the $\frac{1}{7680}$ of the weight; and the other weighed $\frac{1}{2}$ an ounce, and turned with the $\frac{1}{1280}$ of a grain, or the $\frac{1}{2400}$ of the weight. Mr. Read's balance, mentioned in p. 511. of the same volume, turned with less than a penny-weight, and even with four grains, when loaded with fifty-five pounds, i. e. about $\frac{1}{38400}$ of the weight, and which might be relied on to five places of figures. Mr. Whitelurk's balance (Ibid. p. 576.) weighs one penny-weight, and is sensibly affected with $\frac{1}{24}$ of a grain, i. e. $\frac{1}{2400}$ part of the weight. Mr. Nicholson's balance, with 1200 grains in each scale, turns with $\frac{1}{7}$ of a grain, or $\frac{1}{7000}$ of the whole. This balance, he says, will serve to determine all weights between 100 grains, and 4000 grains to four places of figures. Mr. Alchorne's (mentioned Ibid. vol. lxxvii. p. 205) is true to three grains with 15 lb an end; and hence the weight is known to $\frac{1}{3840}$ part, or to four, or barely five places of figures. The balance of Dr. George Fordyce, made by Mr. Ramsden, mentioned in lxxvth volume of the Phil. Transf. when loaded with four or five ounces, shewed a difference of $\frac{1}{1280}$ of a grain, or $\frac{1}{7680}$ part of the weight. Mr. Magellan's would bear several pounds, and shew $\frac{1}{4}$ of a grain, with one pound an end. This is the $\frac{1}{7680}$ of the weight and answers to five figures. The Royal Society's balance, lately made by Mr. Ramsden, turns on steel edges upon planes of polished crystal, and ascertains a weight to the seven millionth part, and may be used in general practice to determine weights to five places and better. To which we may add, that the balance used by count Rumford, in his experiments for ascertaining the weight ascribed to heat (Phil. Transf. for 1799. part. ii.) served as he informs us (p. 187.), to measure $\frac{1}{8000}$ of the weight which he examined. Nicholson's Chemistry, c. vi. Parkinson's System of Mechanics, &c. p. 134, &c. Desaguliers's Exp. Phil. vol. i. p. 140, &c.

Mr. Ludlam has contrived a balance of a new construction for the woollen manufactures. Their thread is made into skains of the same length; and the fineness of it is denominated from the number of skains which go to a pound; the coarsest being about twelve to the pound, and the finest near sixty. This machine is designed for weighing the skains, in order to determine their respective fineness. It resembles the beam of a common pair of scales; at one end of it is fixed a weight, called a counterpoise, and at the other end a hook; in sorting, the skain to be examined is put upon the hook, and sinks down more or less, according to its weight, till the counterpoise, by rising, balances it: then the index or cock of the beam, points out on a graduated arch the number of skains of that sort which goes to the pound.

A scale, instead of the hook, might be used for weighing money, if the arch were properly divided for that purpose. See a drawing of this machine and the explanation of the theory of it, in Phil. Transf. vol. lx. N° 25, p. 205.

The *lent-lever balance*, is a balance (fig. 12.) which acts by a fixed weight *C*, increasing in power as it ascends along the arc *FG* of a circle, and pointing by an index to the number or division of the arc which denotes the weight of any body put into the scale *E*. With this instrument, one constant weight serves to weigh all others, by only varying the position of the arms of the balance, instead of varying the places or points of suspension in the arms themselves.

The following property of the balance was first sug-

gested by Dr. Hefham (see his Course of Lectures in Natural Philosophy, published by Dr. Robinson, p. 91), communicated by him to Dr. Desaguliers (see his Course of Experimental Philosophy, vol. i. p. 152.), and published in the Phil. Transf. for 1729. The property is this, that if a man standing in one scale and counterpoised by a weight in the other, lays his hand to any part of the beam, and presses it upwards, he will destroy the equilibrium and cause the scale in which he stands to preponderate. Thus, if a man, whose weight is equal to *W*, standing in one scale and in equilibrio with *P* placed in the other (fig. 8), presses the beam upwards in *D* with a force equal to *Q*, the diminution of *W*'s momentum is equal to $Q \times FD$; and because the re-action at the scale is equal to *Q*, the increase of *W*'s momentum is equal to $Q \times FA$, and consequently *W* will descend with a force equal to $Q \times AD$. If the pressure be upwards at *E*, *W* will descend with a force resulting from this pressure, equal to $Q \times EF$, and from the re-action with a force equal to $Q \times FA$; and, therefore, the whole force of descent is equal to $Q \times EA$. Thus, also, if the pressure be downwards at *D*, the increase of *W*'s momentum is equal to $Q \times FD$, and the diminution of its momentum = $Q \times FA$; and, consequently, *W* will ascend with a force equal to $W \times DA$. If the pressure be downwards at *E*, the diminution of *W*'s momentum, or the increase of *P*'s momentum, is equal to $Q \times EF$, and a part, *Q*, of *W*'s weight being transferred to *E*, the diminution of its momentum, on that account, is equal to $Q \times FA$, and consequently the whole diminution of *W*'s momentum, or force of *P*'s ascent, is equal to $Q \times EA$.

BALANCE of the Air, is used to denote the weight of that fluid, whereby, according to its known property, it presses where it is least resisted, till it be equally adjusted in all parts.

BALANCE, Assay, is a nice balance used in determining the exact weight of minute bodies. Its structure is very little different from that of the common sort; except that it is made of the best steel, and fitted for moving with the smallest weight.

The beam of this balance is suspended in a fork, the two legs of which are steel springs joined at the top, but kept together below with a brass pliant clasp, parallel to one another, and at the distance of $2\frac{1}{2}$ lines. When this clasp is taken off, and the legs of the fork stretched out, the axis of the beam may be put into two holes at the ends of the legs, or removed from them. A sharp needle is fixed in the head of the fork, which stands perpendicularly, when the fork is suspended, and is so long as almost to touch the top of the tongue of the beam put into the fork when in equilibrio. This needle is the test or mark of the equilibrium; and for the convenience of observing it, the legs of the fork are broader in that place, and have an opening two or three lines wide. Two scales made of a thin plate of silver, $1\frac{1}{2}$ inch in diameter, suspended on three small silken strings, almost as long as the beam, and tied together at the top with a silver hook in the form of an S, are hung to the extremities of the beam; and to each of these scales belongs a small dish of silver or blued steel, somewhat less than one inch in diameter, and both of equal weight; the bodies to be weighed are put into these dishes, with a pair of pinçers, or with a spoon, or small shovel, when they are pounded; and then the dishes are put into the scales. The balance is suspended on a moveable brass or copper support, consisting of a pedestal, and a pillar set upon it about twenty inches high, at the top of which projects at right angles, an arm one inch in length: at the extremity of this arm is a small pulley three lines in diameter, another at the top of the pillar, and a third near the bottom of it; all which pullies move with ease on their respective axes. At the distance of $1\frac{1}{2}$ inch below the upper

upper arm, another arm $1\frac{1}{2}$ inch long, projects from the pillar at right angles, with a hole through it two lines long, and a quarter of a line broad, and placed perpendicularly below the pulley of the upper arm, to receive a small plate $1\frac{1}{2}$ inch long, and of such breadth and thickness that it may freely move up and down, and yet not play too freely in the hole. At each extremity of the plate is a small hook. The whole of this apparatus is inclosed in a small case (*fig. 13.*), furnished with glasses, *a, a, a*, at the top and about it. The manner of using the assay-balance is to pass a silken string over the three pulleys of the support and arm; then the support is placed in the middle of the small case, and the other end of the silk string is passed below through a hole in the middle of the lower part of the frame, containing the window in the fore part of the case, and fastened to a small weight of a cubic form. The fork of the balance is suspended on the inferior hook of the plate. By moving backwards and forwards the weight fastened to the string, placed upon the top of the drawer projecting beyond the fore-part of the case, the balance within is either raised or lowered. The bodies to be weighed, and the weights themselves, being put into the dishes; the dishes are put into the scales, through the side-windows, which must be opened for that purpose. When any thing is added or taken away, by means either of the pincers, or of the small shovel, or spoon, the balance is let down that the scales may rest upon the bottom of the case; and before it is lifted up again the windows must be shut, especially if the air is not perfectly still. The flat pieces of glass, often placed under the scales of an assay-balance, seem, by their electrical power, capable of attracting, and of thus causing the lighter scale to preponderate where the whole matter weighed is so very small. See *Phil. Trans. N° 480. p. 245.* The electricity of a flat surface about three inches square has been known to hold down one scale, when there was a weight of about 200 grains in the other.

BALANCE, in Astronomy. See *LIBRA*.

BALANCE, in Horology, is that part of a clock or watch, which by its motion regulates and determines the beats.—The circular part of it is called the *rim*, and its spindle the *verge*; there belong to it also two *pallets* or nuts, which play in the fangs of the crown-wheel; in pocket-watches, that strong stud, in which the lower pivot of the verge plays, and in the middle of which one pivot of the crown-wheel runs, is called the *potence*: the wrought piece which covers the balance, and in which the upper pivot of the balance plays, is the cock: the small spring in the new pocket-watches is called the *REGULATOR*.

It appears from the testimony of historical accounts, as well as other evidences, that the balance was universally adopted in the construction of the first clocks and watches; nor was it till the year 1657, that Mr. Huygens united pendulums with clock-work. (See *PENDULUM*.) In watches of early construction, the balance vibrated merely by the impulses of the wheels, without any other control or regulation: the motion communicated to the balance by one impulse continued till it was destroyed, partly by friction, and partly by a succeeding impulse in the opposite direction; and therefore the vibrations must, of course, have been very unsteady and irregular. These imperfections were in a great measure remedied by Dr. Hooke's ingenious invention of applying a spiral spring to the balance, the action of which on the balance of a watch is similar to that of gravity on a pendulum; each kind of force having the effect of correcting the irregularities of impulse and resistance which otherwise disturb the isochronism of the vibrations. In clocks and watches, the real measure of time is the ba-

lance, and all the other work serves merely to continue the motion of the balance, and to indicate the time as measured by its vibrations. The regularity of a time-keeper will therefore depend on that of the time in which the balance vibrates; and the investigation of this time of vibration, from the several data or conditions on which it depends, is an important object in this part of mechanical science. See *ESCAPEMENT, CLOCK, TIME-KEEPERS, and WATCHES*.

That the balances of watches, when manufactured of steel, as they generally are, might be in a small degree magnetic, and that this property might have some influence in disturbing their vibrations, some have suspected, and others have denied; but Mr. Varley has lately, (*see Philof. Magaz. vol. 1. p. 18.*), pointed out a source of error which has been hitherto little, if at all, apprehended: and this is the polarity of the balance, or tendency of a particular point to the north; and of an opposite point to the south, so strong as to be sufficient materially to alter the rate of going of the machine, when put in different positions. If this cause of error had been known, the use of steel-balances would have been laid aside long ago, particularly where accurate performance is indispensable, as in time-pieces for astronomical and nautical purposes. Mr. Varley having ascertained the fact, and knowing the position of the poles, proceeded to examine the effects produced by this cause upon the watch's rate of going. Having put on the pendulum spring, and replaced the balance in the watch, he laid the watch with the dial upwards, that is, with the plane of the balance horizontally, and in such a position that the balance when at its place of rest should have its marked side towards the north, in this situation it gained $5' 35''$ in 24 hours. He then changed its position, so that the marked side of the balance when at rest should be towards the south, and in 24 hours it lost $6' 48''$; producing, by its change of position only, a difference of $12' 23''$ in its rate. This difference must be still further augmented or diminished as the wearer might happen to carry in his waistcoat pocket, a key, a knife, or any other article made of steel. Substituting in the room of the steel-balance, one made of gold, he found that the watch's rate of going was as uniform as that of any watch on the like construction.

BALANCE, Hydrostatical, in Hydraulics, is an instrument for determining the specific gravities of bodies. See *HYDROSTATICAL, and SPECIFIC GRAVITY*.

BALANCE of Forces, in Mechanics. See *COMPOUND MOTION*.

BALANCE, in the Accounts of Merchants, is, when the debtor and creditor sides of any distinct account are equal. In such case the account is said to be *balanced*.

Balance of a merchant, or trader's books, is a branch of the art of accountantship. In the method of keeping the books of traders, according to that excellent art of charge and discharge by double entry, such books, if correctly kept, will always be fit for a general balance. For such is the excellency of that method, that the books of themselves must necessarily balance on the whole, though not in every distinct account throughout the ledger. See *BOOK-KEEPING*.

BALANCE, among Painters. See *EQUILIBRIUM*.

BALANCE of the Constitution, in Political Oeconomy, denotes the security which each part of the legislature possesses in the exercise of the powers assigned to it from the encroachment of the other parts. The political equilibrium signified by this phrase, consists in two contrivances, viz. a *balance of power*, and a *balance of interest*. By the former is meant, that there is no power possessed by one part of the legislature, the abuse or excess of which

is not checked by some antagonist power, residing in another part. Thus the power of the two houses of parliament to frame laws is checked by the king's negative; on the other hand the arbitrary application of this negative is checked by the privilege that parliament possesses of refusing supplies of money to the exigencies of the king's administration. The constitutional maxim, "that the king can do no wrong," is balanced by another maxim not less constitutional, "that the illegal commands of the king, do not justify those who assist, or concur, in carrying them into execution;" and by a second rule, subsidiary to this, "that the acts of the crown acquire not any legal force, until authenticated by the subscription of some of its great officers." The power of the crown to direct the military force of the kingdom is balanced by the annual necessity of resorting to parliament for the maintenance and government of that force. The power of the king to declare war is checked by the privilege of the house of commons to grant or withhold supplies by which the war must be carried on. The king's choice of ministers is controlled by the obligation he is under of appointing those men to offices in the state, who are found capable of managing the affairs of his government with the two houses of parliament. By the *balance of interest*, which accompanies and gives efficacy to the *balance of power*, is meant this, that the respective interests of the three states of the empire are so disposed and adjusted, that whichever of the three shall attempt any encroachment, the other two will unite in resisting it. If the king shall endeavour to extend his authority by contracting the power and privileges of the commons, the house of lords would see their own dignity endangered by every advance which the crown made to independency, upon the resolutions of parliament. The admission of arbitrary power is no less formidable to the grandeur of the aristocracy than it is fatal to the liberty of the republic; that is, it would reduce the nobility from the hereditary share they possess in the national councils, in which their real greatness consists, to being a part of the empty pageantry of a despotic court. On the other hand, if the house of commons should intrench upon the distinct province, or usurp the established prerogative of the crown, the lords would receive an instant alarm from every new stretch of popular power. In every contest in which the king may be engaged with the representative body, in defence of his established share of authority, he will find a sure ally in the collective power of the nobility. If the nobles should attempt to revive the superiorities exercised by their ancestors under the feudal constitution, the king and the people would alike remember how the one had been insulted, and the other enslaved by that barbarous tyranny. Paley's Principles of Philosophy, vol. ii. p. 208—213.

BALANCE of Power, in the *Political System*, originates from, and is maintained by, the alliances of different nations, as their circumstances and interest may require. See this subject stated and discussed more at large under the article *POWER*.

BALANCE of Trade, denotes an equality between the value of commodities bought of foreigners, and the value of the native productions transported into other nations.

The balance of trade with any foreign nation, is said to be against or in favour of the country simply as it tends to carry money out, or to bring it in; that is, according as the price of the imports exceeds or falls short of the price of the exports: so invariably is the increase or diminution

of the specie of a country regarded as a test of the public advantage or detriment, which arises from any branch of its commerce. According to Dr. Smith (*Wealth of Nations*, vol. ii. p. 212.), there is no certain criterion by which we can determine on which side what is called the balance between any two countries lies, or which exports to the greatest value. The two criterions to which an appeal has been usually made on such occasions are, the custom-house books, and the course of exchange. The custom-books, says this writer, are now generally acknowledged to be a very uncertain criterion, on account of the inaccuracy of the valuation at which the greater part of goods is rated in them; and the course of exchange is, perhaps, almost equally precarious.

BALANCE of Annual Produce and Consumption, is that which, according to Dr. Smith (*ubi supra*, p. 250.), necessarily occasions the prosperity or decay of every nation, as it happens to be either favourable or unfavourable. If the exchangeable value of the annual produce exceeds that of the annual consumption, the capital of the society must annually increase in proportion to the excess. The society in this case lives within its revenue, and what is annually saved out of its revenue is naturally added to its capital, and employed so as to increase still farther the annual produce. On the contrary, if the exchangeable value of the annual produce fall short of the annual consumption, the capital of the society must annually decay in proportion to this deficiency. The expence of the society in this case exceeds its revenue, and necessarily encroaches upon its capital. Its capital must, therefore, necessarily decay, and together with it, the exchangeable value of the annual produce of its industry. The balance of produce and consumption is entirely different from that which is called the balance of trade. It might take place in a nation which had no foreign trade, but which was entirely separated from all the world. It may take place in the whole globe of the earth, of which the wealth, population, and improvement may be either gradually increasing, or gradually decaying. This balance may be constantly in favour of a nation, though the balance of trade should be generally against it. A nation may import to a greater value than it exports for half a century, perhaps, together; the gold and silver which come into it during all this time may be immediately sent out of it; its circulating coin may gradually decay, different sorts of paper money being substituted in its place, and even the debts too which it contracts in the principal nations with which it deals may be gradually increasing; and yet its real wealth, the exchangeable value of the annual produce of its lands and labour, may, during the same period, have been increasing in a much greater proportion. See on this subject more largely under the articles *COMMERCE*, and *TRADE*.

BALANCE, to, in *Sea Language*, signifies to contract a sail into a narrow compass, in a storm, by retrenching, or, folding up a part of it in one corner. To this purpose serves the *balance-reef*, which is a reef-band that crosses the sail diagonally. See *REEF*.

BALANCE of the Boom Main-sail, is performed after all its reefs are taken in, by rolling up a similar portion of the hindmost, or aftmost lower corner called the *clue*, and fastening it strongly to the boom, securing it from being fretted by the cord that fastens it. See *BOOM*.

BALANCE of the Mizzen, is thus performed; the mizen-yard is lowered a little, a small portion of the sail is rolled up at the peak, or upper corner, and fastened to the yard, about one-fifth inward from the outer end, or yard-arm, towards the mast. See *MIZEN*.

BALANCE.

BALANCE-Fish, in *Ichthyology*, an English name of the *Squalus zyæna* of Linnæus and Gmelin. It is also called by some the *hammer-fish*, or *hammer-headed shark*, from the very singular form of the head; and its specific character is taken exclusively from that particular; head very broad, transversely, and hammer-shaped. Salvian calls it *libella ciambetta*; and Belon *libella*, *balista*, *cagnolu*, &c. See *ZYGENA SQUALUS*.

BALANCERS, or **POIZERS**, in *Entomology*, a term synonymous with the French word *balanciers*, and *halteres* of Linnæus; denoting those little filamentous bodies which terminate in a round, truncated, or oval capitulum, or knob; and of which one is placed on each side of all the dipterous, or two-winged insects, immediately under a small scale or arch, below the wing. In different genera these vary a little in respect of situation, and are also of larger or smaller size in proportion to the other parts of the insect in different kinds.

The use of these organs is by no means obvious. Some imagine that they beat the little arch or scale, beneath which they are situated, in the motion of flying, and thereby occasion that humming or buzzing noise, which every one must have observed the house-fly, flesh-fly, and other very common two-winged insects to emit in flight. The *cicada*, we well know, make a like noise by means of somewhat similar organs under the lamellæ, but whether the noise which the dipterous insects make is occasioned in this manner or not, we shall not presume to say. Olivier thinks it is not, because it appears from certain experiments, that when any of these insects are deprived of the halteres, and are permitted to resume their flight, the same buzzing sound is heard without the slightest variation. The more general opinion is, that they are designed to facilitate the motion of the creature in the air, by equipping, or preserving the true equilibrium, just as a stick, made heavy at each end, is held by rope-dancers to preserve their balance, and hence these organs have been called the balancers. This is most probably the real use of the halteres, notwithstanding that their diminutive size is some objection to such opinion, for when these are accidentally injured, the motion of the creature becomes very irregular, and it evidently appears unable to direct its course with the same facility as before; either suffering great pain, or being deprived of the means it previously possessed.

BALANCIER, a machine used in the striking of coins, medals, counters, and the like. See *COINAGE*.

BALANEÆ, in *Ancient Geography*, a town seated on the coast of Syria, between the towns of Gabala and Antarradus; convenient for commerce, and furnished with grain and fruits in abundance. Strabo, Pliny, and Ptolemy place it in Syria, properly so called; to the north of the river Eleutherus, which separated Syria from Phœnicia. Under the reign of Theodosius the younger, this town was comprised in the province called Syria secunda: but afterwards belonging to a new province which the emperor Justinian formed under the name of Theodoriade.

BALANITES, in *Natural History*, a name given by the ancients to a stone, seeming to have been of the semipelucid gems. They describe two species of it; the one of which was yellow, and the other green, but each having veins of a flame colour. Their descriptions are too short for us to be able to ascertain what stones, among those known at this time, they meant.

Some think the *balanites* to have been the *lapis Judaicus*, on account of its acorn-like figure and size. Plin. Nat. Hist. lib. xxxvii. cap. 10. ed. Hardouin.

BALANOIDES, in *Conchology*, a species of *LEPAS*, with a conic truncated smooth shell, and obtuse operculum. Linn. Fn. Suec.—Donov. &c. This is *balanus parvus vulgaris* of Pétiver; and a variety of it with a long tubular stalk is described by Da Costa, Pennant, and Donov. Brit. Shells.

BALANTE, in *Geography*, a town of the island of Celebes, in the country of Banca.

BALANUS, in *Conchology*, the name of a genus of multivalve shells, in the works of several writers on the *testacea*, as Pétiver, Gefner, Da Costa, &c. The shells of this kind are comprehended by Linnæus and Gmelin in the genus *LEPAS*, which see.

BALANUS, a species of *LEPAS*, with a conic fulcated shell, and sharp-pointed operculum. Found adhering to rocks, stones, shells, &c. in the greatest plenty in all the European seas. Linn. Fn. Suec.—Donov. Brit. Shells, &c.

BALANUS, *βαλανος*, or *GLANS*, is sometimes used by *Anatomists* for the nut of the yard. Sometimes also the clitoris is so called.

BALANUS is also sometimes used for a suppository.

BALANUS MYREPSICA, in *Pharmacy*, the *BEN-nut*, which see.

BALANUS, in *Geography*, the name of a port in Italy, in Lucania.

BALARA, in *Ancient Geography*, a commercial city, seated on the east of the Indian ocean, between the mouth of the Indus and that of the Euphrates. Philostratus.

BALARUC, in *Geography*, a town of France, celebrated for its mineral springs, in the department of the Herault, four leagues from Montpellier.

BALARUC, *Waters of*. These are hot springs of some celebrity, employed both internally, and especially as baths. From the description and analysis of Le Roy (in the *Memoires de l'Academie des Sciences* for 1772), they appear to contain a small portion of sea salt, some fixed air, and some deliquescent salts, but no iron nor sulphur. They are limpid, and saltish to the taste. Their temperature when fresh is about 128° Fahr.; but they are cooled down to about 115° before they are used.

BALASCHEV. See *BALAKEF*.

BALASORE, a sea-port town of Hindoostan, in the country of Orissa, and a place of considerable trade, seated on the river Gongahar, about twenty miles from its mouth in the bay of Bengal. Ships generally take pilots here to conduct them up the Ganges. It is about 101 geographical miles S.W. from Calcutta. N. lat. 21° 20'. E. long. 87° 1' 30".

BALASS, **BALLAS**, or **BALAIS**, in *Mineralogy*. See *RUBY*.

BALATAM, in *Geography*, a volcanic mountain in the island of Sumatra.

BALATITI, in *Ornithology*, a name given by the people of the Philippine islands to a kind of bird, by the flight of which they divine the event of things. What bird this is has not been ascertained.

BALAUSTINA, in *Conchology*, a species of *TELLINA*, having the shell dilated, orbicular, and one valve furnished with lateral teeth. Inhabits the Mediterranean sea. Colour whitish, with obsolete rufous rays. Size of a lupine seed.

BALAUSTIUM FLORES, *Balaustines*, the flowers of *punica granatum*, or pomegranate tree. These are large rose-like flowers of a deep red colour; set in long, bell-shaped cups, and are brought from the southern parts of Europe. They are mildly astringent, as indeed is the whole of the

pomegranate, and will strike a black with solutions of iron. They have little or no smell, and readily yield their astringent virtue to watery or spirituous menstrua. An extract was formerly prepared from the balauitines, and it entered into some of the official powders. It is now almost, if not entirely, disused.

BALAYAN, in *Geography*, a district or province in the island of Manila or Luçon, with a town of the same name. It lies near the city of Manila, and extends along the coast on the east side of the island, is inhabited by about 2500 tributary Indians, and abounds in cotton, rice, and palm-trees.

BALBASTRE, CLAUDE, in *Biography*, an eminent organist at Paris, and a spirited composer, of the old school, for keyed-instruments. He was born at Dijon, 1729, and was a favourite disciple of Rameau, and organist of Notre-Dame and S. Roch. He was a zealous cultivator of his art, and suggested to harpsichord and piano-forte makers many improvements.

BALBASTRO, in *Geography*, an episcopal town of Spain, in Arragon, seated on the Vero, near its conflux with the Cinca, with a diocese extending over 170 parishes, forty-seven miles N.W. of Barcelona, and forty E.N.E. of Saragossa. N. lat. 41° 50'. E. long. 0° 20'.

BALBEC, BAALBEC, or BALBECK, a famous city of Syria, in the pachalic of Saïde, celebrated by the Greeks and Latins under the name of *Heliopolis*, or the city of the sun; described by the Arabians as the wonder of Syria, and denoting by its present Arabic name Balbec, i. e. the *vale of Baal*, its connection with the worship of the sun, of which *Baal*, the chief idol deity of the country, was an appropriate denomination. It is pleasantly situated near the north-east extremity of the valley of Bocat, or Bekaa, at the foot of mount Anti-Libanus, on the last rising ground where the mountain terminates in the plain: it is well watered by the Litane, rising from Anti-Libanus, and the Barbouni from the foot of Libanus, and abounds in gardens. It is of a square figure, extending as Maundrell conjectured (*Journey from Aleppo to Jerusalem*, p. 135.), about two furlongs on each side; and its houses are of the meanest structure, being such as are usually seen in Turkish villages. Its distance from Damascus is about fifty miles to the north-west, and about thirty miles from the nearest sea-coast, which is the situation of the ancient Byblus. N. lat. 34°. E. long. 36° 45'.

“As we arrive from the south (says Volney, *Travels in Egypt and Syria*, vol. ii. p. 232, &c.) we discover the city at the distance of only a league and a half, behind a hedge of trees, over the verdant tops of which appears a white edging of domes and minarets. After an hour's journey we reach these trees, which are very fine walnuts; and soon after, crossing some ill-cultivated gardens, by winding paths arrive at the entrance of the city. We there perceive a ruined wall, flanked with square towers, which ascends the declivity to the right, and traces the precincts of the ancient city. This wall, which is only ten or twelve feet high, permits us to have a view of those void spaces, and heaps of ruins which are the invariable appendage of every Turkish city; but what principally attracts our attention, is a large edifice on the left, which, by its lofty walls, and rich columns, manifestly appears to be one of those temples which antiquity has left for our admiration. These ruins, which are some of the most beautiful and best preserved of any in Asia, merit a particular description.

To give a just idea of them, we must suppose ourselves descending from the interior of the town. After having

crossed the rubbish and huts with which it is filled, we arrive at a vacant place, which appears to have been a square; there, in front towards the west, we perceive a grand ruin, which consists of two pavilions ornamented with pilasters, joined at their bottom angle by a wall 165 feet in length. This front commands the open country from a sort of terrace, on the edge of which we distinguish, with difficulty, the bases of twelve columns, which formerly extended from one pavilion to the other, and formed a portico. The principal gate is obstructed by heaps of stones; but that obstacle surmounted, we enter an empty space, which is an hexagonal court of 180 feet diameter. This court is strewed with broken columns, mutilated capitals, and the remains of pilasters, entablatures, and cornices; around is a row of ruined edifices, which display all the ornaments of the richest architecture. At the end of this court, opposite the west, is an outlet, which formerly was a gate through which we perceive a still more extensive range of ruins, whose magnificence strongly excites curiosity. To have a full prospect of these, we must ascend a slope, up which were the steps to this gate, and we then arrive at the entrance of a square court, much more spacious than the former. The eye is first attracted by the end of this court, where six enormous and majestic columns render the scene astonishingly grand and picturesque. Another object not less interesting, is a second range of columns to the left which appear to have been part of the peristyle of a temple; but before we pass thither, we cannot refuse particular attention to the edifices, which enclose this court on each side. They form a sort of gallery which contains various chambers, seven of which may be reckoned in each of the principal wings: viz. two in a semicircle, and five in an oblong square. The bottom of these apartments still retains pediments of niches and tabernacles, the supporters of which are destroyed. On the side of the court they are open, and present only four and six columns, totally destroyed. It is not easy to conceive the use of these apartments; but this does not diminish our admiration at the beauty of their pilasters, and the richness of the frieze of the entablature. Neither is it possible to avoid remarking the singular effect which results from the mixture of the garlands, the large foliage of the capitals, and the sculpture of wild plants with which they are every where ornamented. In traversing the length of the court, we find in the middle a little square esplanade, where was a pavilion, of which nothing remains but the foundation. At length we arrive at the foot of the six columns; and then first conceive all the boldness of their elevation, and the richness of their workmanship. Their shafts are twenty-one feet eight inches in circumference, and fifty-eight high; so that the total height, including the entablature, is from seventy-one to seventy-two feet. The sight of this superb ruin, thus solitary and unaccompanied, at first strikes us with astonishment; but on a more attentive examination, we discover a series of foundations, which mark an oblong square of 268 feet in length, and 146 wide; and which, it seems probable, was the peristyle of a grand temple, the primary purpose of this whole structure. It presented to the great court, that is to the east, a front of ten columns, with nineteen on each side, which, with the other six, make in all fifty-four. The ground on which it stood was an oblong square, on a level with this court, but narrower than it, so that there was only a terrace of twenty-seven feet wide round the colonnade. The esplanade this produces, fronts the open country, toward the west, by a sloping wall of about thirty feet. This descent, as you approach the city, becomes less steep, so that the foundation of the pavilion is on a level with

with the termination of the hill, whence it is evident that the whole ground of the courts has been artificially raised. Such was the former state of this edifice; but the southern side of the grand temple was afterwards blocked up to build a smaller one, the peristyle and wall of which are still remaining. This temple, situated some feet lower than the other, presents a side of thirteen columns, by eight in front (in all thirty-four), which are likewise of the Corinthian order; their shafts are fifteen feet eight inches in circumference, and forty-four in height. The building they surround is an oblong square, the front of which, facing the east, is out of the line of the left wing of the great court. To reach it you must cross trunks of columns, heaps of stone, and a ruinous wall by which it is now hid. After surmounting these obstacles, you arrive at the gate, where you may survey the inclosure which was once the habitation of a god; but instead of the awful scene of a prostrate people, and sacrifices offering by a multitude of priests, the sky, which is open from the falling in of the roof, only lets in light to shew a chaos of ruins, covered with dust and weeds. The walls, formerly enriched with all the ornaments of the Corinthian order, now present nothing but pediments of niches, and tabernacles of which almost all the supporters are fallen to the ground. Between these niches is a range of fluted pilasters, whose capitals support a broken entablature; but what remains of it, displays a rich frieze of foliage resting on the heads of satyrs, horses, bulls, &c. Over this entablature was the ancient roof, which was fifty-seven feet wide, and 110 in length. The walls which supported it are thirty-one feet high, and without a window. It is impossible to form any idea of the ornaments of this roof, except from the fragments lying on the ground; but it could not have been richer than the gallery of the peristyle: the principal remaining parts contain tablets in the form of lozenges, on which are represented Jupiter seated on his eagle; Leda caressed by the swan; Diana with her bow and crescent, and several busts which seem to be figures of emperors and empresses. It would lead us too far, to enter more minutely into the description of this astonishing edifice. The lovers of the arts will find it described with the greatest truth and accuracy in a work published at London in 1757, under the title of "Ruins of Balbec." This work, compiled by Mr. Robert Wood, the world owes to the attention and liberality of Mr. Dawkins, who, in 1751, visited Balbec and Palmyra. It is impossible to add any thing to the fidelity of their description.

Several changes, however, have taken place since their journey: for example, they found nine large columns standing; and, in 1784, there were but six. They reckoned nine and twenty at the lesser temple, but there now remain but twenty; the others have been overthrown by the earthquake of 1759. It has likewise so shaken the walls of the lesser temple, that the stone of the soffit of the gate has slid between the two adjoining ones, and descended eight inches; by which means the body of the bird, sculptured on that stone, is suspended, detached from its wings, and the two garlands, which hung from its beak and terminated in two genii. Nature alone has not effected this devastation; the Turks have had their share in the destruction of the columns. Their motive is to procure the iron cramps, which serve to join the several blocks of which each column is composed. These cramps answer so well the end intended, that several of the columns are not even disjoined by their fall; one, among others, as Mr. Wood observes, has penetrated a stone of the temple wall without giving way. Nothing can surpass the workmanship of these columns; they are joined without any cement, yet

there is not room for the blade of a knife between their interstices. After so many ages, they in general still retain their original whiteness. But, what is still more astonishing is, the enormous stones which compose the sloping wall. To the west, the second layer is formed of stones which are from twenty-eight to thirty-five feet long, by about nine in height. Over this layer, at the north-west angle, there are three stones, which alone occupy a space of 175 feet and one half; viz. the first, fifty-eight feet seven inches; the second, fifty-eight feet eleven; and the third, exactly fifty-eight feet; and each of these are twelve feet thick. These stones are of a white granite, with large shining flakes, like gypse; there is a quarry of this kind of stone under the whole city, and in the adjacent mountain, which is open in several places, and, among others, on the right, as we approach the city. There is still lying there a stone, hewn on three sides, which is sixty-nine feet two inches long, twelve feet ten inches broad, and thirteen feet three in thickness. By what means could the ancients move these enormous masses? This is doubtless a problem in mechanics curious to resolve. The inhabitants of Balbec have a very commodious manner of explaining it, by supposing these edifices to have been constructed by Djenoun, or Genii, who obeyed the orders of king Solomon; adding, that the motive of such immense works was to conceal, in subterraneous caverns, vast treasures, which still remain there. To discover these, many have descended into the vaults which range under the whole edifice; but the inutility of their researches, added to the oppressions and extortions of the governors, who have made their supposed discoveries a pretext, have at length disheartened them; but they imagine the Europeans will be more successful; nor would it be possible to persuade them, but what we are possessed of the magic art of destroying Talismans. It is in vain to oppose reason to ignorance and prejudice: and it would be no less ridiculous to attempt to prove to them that Solomon never was acquainted with the Corinthian order, which was only in use under the Roman emperors. The tradition which ascribes the buildings at Balbec, and also at Palmyra, to Solomon, and on which the inhabitants of the country confidently rely, is founded on an opinion generally prevalent, of his wisdom and love of pleasure, with both which the magnificence, beauty, and disposition, of these buildings perfectly agree; and on the mention of "Tadmor in the wilderness, and the tower of Lebanon looking towards Damascus," which are said in the Old Testament to have been built by his direction. Some have supposed that these are the ruins of a temple of the sun, built by the Phœnicians, because it is certain that the sun was worshipped at this place when the Phœnicians were in their most flourishing state. Others have thought that these buildings were erected by the Greeks, who succeeded the Phœnicians in the possession of this country, because they are of the Corinthian and Ionic order; but as they are not mentioned from the time of Alexander's conquest to that of Pompey, there is great reason to suppose that they are of later date.

When we consider the extraordinary magnificence of the temple of Balbec, we cannot but be astonished at the silence of the Greek and Roman authors. Mr. Wood, who has carefully examined all the ancient writers, has found no mention of it, except in a fragment of John of Antioch, surnamed Malala, who attributes the building of this edifice to Antoninus Pius. He says that this emperor "built a great temple to Jupiter at Heliopolis, near Libanus, in Phœnicia, which was one of the wonders of the world." This is the only historical authority that has yet been discovered

coveted relating to this subject. As these buildings seem to have been erected between the time of Pompey and Caracalla, it is very probable that they were the work of Antoninus Pius. The inscriptions which remain corroborate this opinion, which perfectly accounts for the constant use of the Corinthian order, since that order was not in general use before the third age of Rome; but we ought by no means to allege as an additional proof, the bird sculptured over the gate, for if his crooked beak, large claws, and the caduceus he bears, give him the appearance of an eagle, the tuft of feathers on his head, like that of certain pigeons, proves that he is not the Roman eagle: besides that the same bird is found in the temple of Palmyra, and is therefore evidently an oriental eagle, consecrated to the sun, who was the divinity adored in both these temples. His worship existed at Balbec, in the most remote antiquity. His statue, which resembled that of Osiris, had been brought thither from the Heliopolis of Egypt, and the ceremonies with which he was worshipped there have been described by Macrobius, in his curious work, intitled, "Saturnalia." Mr. Wood supposes, with reason, that the name of Balbec, which in Syriac signifies *City of Baul*, or of the Sun, originated in this worship. The Greeks, by naming it Heliopolis, have in this instance, only given a literal translation of the oriental word, a practice to which they have not always adhered. We are ignorant of the state of this city in remote antiquity; but it is to be presumed that its situation, on the road from Tyre to Palmyra, gave it some part of the commerce of those opulent capitals. Under the Romans, Heliopolis was constituted a colony by Julius Caesar, and in the time of Augustus, it is mentioned as a garrison town, for it received part of the veterans of the fifth and eighth legions; and there is still remaining, on the wall of the southern gate on the right, as we enter, an inscription which proves the truth of this, the words *Kenturia Prima*, in Greek characters, being very legible. One hundred and forty years after, Antoninus built there the present temple, instead of the ancient one, which was doubtless falling into ruins; but Christianity having gained the ascendancy under Constantine, the modern temple was neglected, and afterwards converted into a church, a wall of which is now remaining, that hid the sanctuary of the idols. It continued thus until the invasion of the Arabs, when it is probable they envied the Christians so beautiful a building. The church being less frequented, fell to decay; wars succeeded, and it was converted into a place of defence; battlements were built on the wall which surrounded it, on the pavilions, and at the angles, which still subsist; and from that time, the temple, exposed to the ravages of war, fell rapidly to ruin.

The state of the city is not less deplorable: the wretched government of the Emirs of the house of Harfouche had already greatly impaired it; and the earthquake of 1759 completed its destruction. The wars of the Emir Yousef, and Djezzar, have rendered it still more deserted and ruinous: of 5000 inhabitants, at which number they were estimated in 1751, not 1200 are now remaining, and all these poor, without industry or commerce, and cultivating nothing but a little cotton, some maize, and water-melons.

BALBI, JOHN, in *Biography*, a learned Dominican monk of the thirteenth century, was born at Genoa, and hence called "Balbi Januensis;" and distinguished as the author of a grammatical work, intitled "Catholicon," finished in 1286, and entitled to attention principally from its having been one of the first printed books. It was printed in folio at Mentz, in 1460; and this edition is become very scarce.

BALBIAN, JUSTUS, of Alost, in Flanders, studied

at Padua, where he was admitted doctor in medicine, which he practised with considerable reputation, towards the latter end of the sixteenth century, at Gouda. He openly professed the Calvinistic religion, in which faith he died in 1616, and was buried in the principal church of that city, with the following inscription on his tomb:

Singulos dies, singulas vitas puta,

Iusti a Balbian,

[sepulchrum :

Flandri Alostiani, Philo-Chymici, ejusque heredum

Ille heri, ego hodie, tu cras.

Obiit anno 1616.

In 1539, he published "*De Lapide Philosophico Tractatus Septem*," Lugd. Bat. 8vo. It is a collection of the works most esteemed among the adepts at that time, among whom our author must be classed. The year following he published at Venice, "*Nova Ratio Praxeos Medicæ*," Haller. Bib. Med. P. Eloy. Dict. Hist.

BALBINUS, DECIMUS COELIUS, a Roman emperor, was a descendant of a noble family, founded by Cornelius Balbus Theophanes, originally of Cadiz in Spain, who was the friend and historiographer of Pompey, and admitted into the freedom of the city under his patronage. Balbinus was distinguished both as a poet and an orator; and as a magistrate he had governed several provinces with reputation. His fortune was affluent; and his manners liberal and affable. After the defeat and death of the two Gordians, on the 3d of July, A.D. 237, Balbinus was elected emperor by the senate in conjunction with Maximus. Their election was soon succeeded by a tumult at Rome, occasioned by a licentious multitude: who neither loved the rigid Maximus, nor sufficiently feared the mild and humane Balbinus; and who, surrounding the temple of Jupiter, demanded, that, besides the two emperors chosen by the senate, a third should be added of the family of the Gordians, as a just return of gratitude to those princes who had sacrificed their lives for the republic. Accordingly, Maximus and Balbinus being driven back into the capitol, a boy, thirteen years of age, the grandson of the elder, and nephew of the younger Gordian, was presented to them, and invested with the title and ornaments of Caesar. The tumult was appeased by this easy condescension; and the two emperors, as soon as they had been peaceably acknowledged in Rome, prepared to defend Italy against the common enemy. Maximus marched against Maximin, who was then laying siege to Aquileia; but this tyrant having been abandoned by his guards, and assassinated in his tent, Maximus returned in triumph to Rome, and was received with cordial congratulations, not only by his colleague and young Gordian, but by the senate and the people, who persuaded themselves that a golden age would succeed an age of iron. The conduct of the two emperors corresponded with these expectations. The rigour of the one was tempered by the clemency of the other: the oppressive taxes imposed by Maximin were repealed or moderated, discipline was revived, and many salutary laws were enacted. "What reward," said Maximus, "may we expect for delivering Rome from a monster?" To which question Balbinus replied, "the love of the senate, of the people, and of all mankind." "Alas!" rejoined his more penetrating colleague, "Alas! I dread the hatred of the soldiers, and the fatal effects of their resentment." His apprehensions were justified by the event. At length jealousies broke out between the two emperors, and they were thus prevented from uniting in any vigorous measures of defence against their common enemies of the Pratorian camp. These fierce troops, proceeding to an open revolt, seized on both the emperors, stripped them of their garments, dragged them

them ignominiously through the streets of Rome, and terminated the tragedy by inhumanly massacring them. Thus they both fell after a reign of little more than a year, July 15th, A. D. 238. Crevier's Hist. Emp. vol. viii. p. 382. &c. Gibbon's Hist. vol. i. p. 290—305.

BALBOA, VASCO NÚÑEZ DE, a famous Spanish adventurer, was a native of Castile, and one of those who formed a settlement in Hispaniola. In 1510, he commanded a feeble colony, established at Santa Maria la Antigua, or the ancient, so called because it was the first settlement on the southern continent of America. Anxious for being invested with a legal title to the supreme command, he dispatched one of his officers to Spain, in order to solicit a royal commission; and with a view of more effectually recommending himself to the patronage which he was endeavouring to obtain, he made frequent inroads into the adjacent country, subdued several of the caziques, and collected a considerable quantity of gold, which abounded more in that part of the continent than in the islands. In one of his expeditions he met with a young cazique, who expressed his astonishment at the high value which was set upon the gold, which the Spaniards were weighing and distributing: "Why do you quarrel," said he, "about such a trifle? If you are so passionately fond of gold, as to abandon your own country, and to disturb the tranquillity of distant nations for its sake, I will conduct you to a region where the metal, which seems to be the chief object of your admiration and desire, is so common that the meanest utensils are formed of it." Transported with the intelligence, Balboa eagerly inquired where this happy country lay, and how they might arrive at it. The cazique informed them, that at the distance of six suns, or six days journey to the south, they would discover another ocean, near which this wealthy kingdom was situated; but if they intended to attack it, they must assemble forces far superior in number and strength to those which now attended them. This was the first information which the Spaniards received concerning the great southern continent known afterwards by the name of Peru. Balboa diligently prepared for the enterprise; and possessing talents for conducting so hazardous and almost desperate an undertaking as that of marching across the isthmus of Darien, he arranged his troops, amounting upon a muster to only 190 men, who were hardy veterans, that had been inured to the climate of America, and who were ready to follow him through every danger. A thousand Indians attended them to carry their provisions; and to complete their warlike array, they took with them several of those fierce dogs which were no less formidable than destructive to their naked enemies. On the 1st of September, A. D. 1513, he set out on this expedition; and having continued their progress for 25 days through woods and mountains, and amidst contending enemies, he at length reached the top of a mountain from which he was able to discover the ocean, which was the object of their wishes. On viewing this glorious spectacle, which no European eye had ever before beheld, he fell on his knees, and returned thanks to heaven with uplifted hands for conducting him to a discovery so beneficial to his country, and so honourable to himself. His followers united with him in expressions of wonder, exultation, and gratitude. Pursuing their course, they at length arrived at the shore of the ocean; when Balboa, advancing into the waves with his sword and buckler, took possession of it in the name of the king his master, and vowed to defend it with these arms against all his enemies. The part of the great Pacific, or Southern ocean, which Balboa first discovered, still retains the name of the gulf of St. Michael, which he gave to it, and is situated to the east of Panama.

Here he obtained a supply of provisions; and partly by force and partly by free gift, he enriched himself with a considerable quantity of gold and of pearls. He also received information that there was a mighty and opulent kingdom situated far towards the south-east, where the inhabitants had tame animals, meaning the Llamas afterwards found in Peru, to carry their burdens. His followers were exhausted by fatigue and disease; and he therefore determined to lead them back, instead of attempting to take possession of this country, to their settlement at Santa Maria in Darien; and, after an absence of four months, he returned to it with greater glory and more treasure than the Spaniards had hitherto acquired in any of their expeditions against the New World. Balboa hastened to transmit information of his important discovery to Spain, and to solicit a reinforcement of 1000 men for the conquest of the opulent country, of which he had received so favourable an account. Ferdinand, the king of Spain, determined to avail himself of the intelligence which Balboa had communicated; but regardless of his merit, he appointed Pedrarias Davila to supersede him in the government of Darien. He also provided him with a well equipped fleet and 1200 soldiers, who were joined by a great number of voluntary adventurers. Upon their arrival at Darien, they found Balboa, whose fame had reached Spain, and of whose opulence they had formed such high ideas, clad in a canvas jacket, with coarse hempen sandals, and employed in thatching his own tent with reeds. Balboa, however, received them with dignity; and treated Pedrarias with the deference due to his character. Pedrarias appointed a judicial inquiry to be made into Balboa's conduct, and imposed upon him a considerable fine. At length resentment on the part of one, and the envy of the other, produced dissensions which were very detrimental to the colony. Pedrarias lost many of his men by sickness, and this distress was further augmented by an extreme scarcity of provisions; and the new governor incensed the natives by rapacious proceedings, which desolated the whole country from the gulf of Darien to the lake of Nicaragua. Balboa sent violent remonstrances to Spain against the imprudent government of Pedrarias, which had ruined a happy and flourishing colony; and Pedrarias recriminated by accusing him of having deceived the king, by magnifying his own exploits, as well as by a false representation of the opulence and value of the country. Ferdinand, sensible of his own imprudence in having superseded Balboa, appointed him Adelantado or lieutenant-governor of the countries upon the South sea, with very extensive privileges and authority; and he enjoined Pedrarias to avail himself of Balboa's counsel in all his operations. After some time Pedrarias and Balboa were apparently reconciled; and by way of cementing the union between them, the former agreed to give his daughter in marriage to the latter. This happened in 1515. Jealousy still rankled in the breast of the governor; and when Balboa had with much labour finished four small brigantines, and provided 300 chosen men, in order to sail towards Peru, Pedrarias desired him to postpone the voyage; and having solicited an interview, ordered him to be arrested, and then to be tried on an accusation of disloyalty to the king, and of an intention to revolt against the governor. He was found guilty, and sentence of death was pronounced; and though the judges who passed it, seconded by the whole colony, warmly interceded for his pardon, the governor continued inexorable; and the Spaniards beheld, with astonishment and sorrow, the public execution of a man whom they universally deemed more capable than any who had borne command in America, of forming and accomplishing great designs. Upon his premature death in 1517, at the age of

42, the expedition, which he had planned, was relinquished. Balboa was distinguished among his countrymen by a variety of important and useful qualities, adapted to the station he occupied, and the services in which he engaged. Besides bravery, which he possessed in an eminent degree, he was prudent in conduct, generous, affable, and possessed of those popular talents, which, in the most desperate undertakings, inspire confidence and secure attachment. Robertson's Hist. Amer. vol. i. p. 276—301.

BALBRIGGEN, in *Geography*, a small port town of Ireland, in the county of Dublin. It has a safe harbour with a pier, within which ships of 200 tons burden may lay their broadsides, and unload on the quay. The base of the pier is 18 feet thick, and on the outside is a considerable rampart of large fragments of rock, sunk to defend the pier against the waves. At this town there once was an extensive cotton manufactory; but it has lately declined so much, that the proprietors are now converting one of their principal cotton mills into a flour mill. Many of the inhabitants derive a subsistence from fishing, in which nine wherries are employed. On the shore near the town is a slate rock, which is a good quarry for blocks of sufficient size for making ton slates. It is distant from Dublin $15\frac{1}{2}$ Irish miles. N. lat. $53^{\circ} 36'$. W. long. $6^{\circ} 13'$.

BALBUL, in *Ornithology*, a species of ANAS, or duck, having a black beak, and spot of the wing above obliquely green, beneath obliquely black. Forst. Fn. Arab.

BALBURA, in *Ancient Geography*, a town of Asia Minor, in Cabellia, a country of Caria, situated in the vicinity of Cibyra Major. When the prætor Murena extended the principality of Cibyra, Balbura was annexed to Lycia.

BALBUS, a mountain of Africa, between the town of Clupea, the territory of Carthage, Numidia, and the sea. Hither Masinissa retired, after having been defeated by Syphax, king of Numidia.

BALBUSARDUS, in *Ornithology*. See BALD-BUZZARD.

BALCASH, TENGIS, or PALKATI, in *Geography*, a lake of Independent Tartary, in the country of the Kalmuks, subject to China, is about 140 British miles in length by half that breadth; being the largest lake in Asia, next to the seas of Aral and Baikal.

BALCDUTHA, a settlement in the eastern part of Kentucky, in America, on the west side of Big Sandy river.

BALCH, a river of Germany, which runs into the Rhine at Cologn.

BALCHIKANSKOI, a town of Siberia, 140 miles south-west of Doroninsk.

BALCHUYSEN, a town of Germany, in the circle of Westphalia, and duchy of Juliers, nine miles west of Cologn.

BALCONY, from the French *balcon*, in *Architecture*, a kind of open gallery without the walls of buildings, contrived chiefly for the convenience of looking around, seeing processions, cavalcades, and the like.

Where there is but one, it is usually in the middle of the front of the edifice, and level with the first floor: sometimes they are made of wood, sometimes of cast iron; the former surrounded with a rail or balustrade, the latter wrought in various figures in *demi-relievo*. Some are also made of bar iron, fashioned in crail-work, or flourishes of divers fancies.

BALCONY, in a ship, denotes a gallery either covered or open, made abaft, either for ornament or convenience of the captain's cabin.

BALDA, in *Ancient Geography*, a town of Hispania Batica, in the country of the Turduli. Ptolemy.

BALDACANIFER, corruptly also written *balcauifer*, denotes a standard-bearer; chiefly in the ancient order of knights Templars.

BALDACHIN, or BALDAQUIN, in *Architecture*, a building in form of a canopy, supported with columns, and serving as a crown or covering to an altar.

The word comes from the Italian *baldacchino*, which signifies the same.

BALDACHIN, or *Baldakin*, or *Baldekin*, popularly *Bau-dekin*, in *Middle Age Writers*, denotes a rich kind of cloth made of gold warp and silk woof, variously figured. It took the denomination from its being formerly brought into these countries from *Baldacio*, or Babylon.

BALD-BUZZARD, in *Ornithology*, the name under which *FALCO Haliaëtus* is described by Willughby and other English naturalists. It is also called *balbuzard* by Buffon.

BALD-EAGLE, in *Geography*, or *Warrior Mountains*, lie about 200 miles W. of Philadelphia, in the county of Bedford, in Pennsylvania, and form the western boundary of Bald-eagle valley.

BALD-EAGLE is also a river which runs a north-east course forty-four miles, and falls into the western branch of the Susquehanna river. The water of Huron river, which falls into the lake Erie, is called Bald-eagle creek.

BALD-EAGLE Valley, or *Sinking-Spring Valley*, lies upon the frontiers of Bedford county in Pennsylvania, about 200 miles west of Philadelphia. On the east it has a chain of high rugged mountains, called the "Canoe ridge;" and on the west, the "Bald-eagle," or Warrior mountains. It is a pleasant vale of lime-stone bottom, about five miles wide; and its vicinity abounds with lead-ore. In 1779, it contained about 60 or 70 families that lived in log-houses, and formed in seven or eight years several valuable plantations. Among the curiosities of this place is that called the "Swallows," which absorb several of the largest streams of the valley, and after conveying them several miles under ground, return them again upon the surface. These subterraneous passages have given occasion to the name of "Sinking-Spring Valley." Of these the most remarkable is called the "Arch Springs," which run close upon the road from the town to the fort; being a deep hollow formed in the lime-stone rock, about thirty feet wide, covered with a stony arch, and giving passage to a fine stream of water. The subterraneous river enters the mouth of a spacious cave, whose exterior aperture is sufficient to admit a shallop with her sails full spread; and in the midst of this cave, from eighteen to twenty feet wide, are timber, bodies and branches of trees, &c. which being lodged up to the roof of the passage, shew that the water rises to the top during freshes. The cave, extending about forty yards, widens into a large kind of room, at the bottom of which is a vortex, where the water forms a whirlpool, and absorbs pieces of floating timber, which are instantly conveyed out of sight. From the top of the Bald-eagle mountains there is a fine prospect of those of the Alleghany, stretching along till they seem to meet the clouds. Much slate is found here; and there are stong signs of pit-coal.

BALDEGG, a lake of Swisserland, four miles long and one wide; nine miles S.S.W. of Bremgarten.

BALDENA, a town of Germany, in the circle of the Lower Rhine, and bishopric of Treves: 36 miles S.S.W. of Coblentz.

BALDERIC, in *Biography*, a French historian, a native of Orleans, lived in the 12th century, and was bishop of Dole in Brittany. He assisted at the council of Clermont, held on occasion of the holy war, and wrote a history of that war in four books, containing an account of the

events of that fanatical expedition from its commencement to the year 1099, when Jerusalem was taken by Godfrey of Bouillon. This work may be found in "Gesta Dei per Francos à Bongaro," folio, 1511. He also wrote "Poems," preserved in the fourth volume of Du Chefne's collection of French historians. *Nouv. Dict. Histor.*

BALDERN, in *Geography*, a town of Germany, in the circle of Swabia, and county of Ottingen, one mile S.S.E. of Zöbing.

BALD-HEAD, a cape of the north-west coast of America, and on the west coast of Norton found. N. lat. 64° 43'. E. long. 198° 18'.

Bald-head is also the southernmost of two heads on the east coast of Newfoundland, between Fernowes harbour on the S.S.W. and fort Agua on the N.N.E.

Bald-head lies also at the mouth of Cape Fear river in North Carolina, and being at the south-west end of Smith's island, forms with Oak island the main entrance into the river.

Bald-head makes also the south-west part of what is called Wells bay, in the district of Maine.

BALDI, BERNARDINO, in *Biography*, a learned Italian, was born at Urbino, in 1553. Such was his ardour in the prosecution of knowledge, that he sacrificed both his meals and his sleep to the attainment of it. Having studied mathematics under Commandino in the place of his nativity, he pursued his studies in the university of Padua; where, in his twentieth year, he was distinguished by his literary application and proficiency. Such was his acquaintance with the Greek language, that he translated the *Phænomena* of Aratus into Italian verse, and other Greek writers into Latin; and he possessed such a talent for acquiring the knowledge of languages, that he learned twelve of them, several of which were oriental. When he left Padua, he became mathematician to Ferrante Gonzaga II. duke of Guastalla; and in 1586, he was created abbot of Guastalla, which church he governed for many years with great reputation. At Rome, where he spent part of his time, he obtained the title of apostolical protonotary. Towards the latter part of his life, he resigned the church of Guastalla, and retiring to Urbino, devoted himself entirely to his studies. He died in that city in 1617, at the age of 64 years. Baldi obtained as high a rank among the Italian poets as he possessed among the scholars and mathematicians. In pastoral poetry, his "Celeo," or "Orto," is thought to be excelled by few works in the language; and his blank verse is much esteemed. In mathematics and mechanics his labours were numerous. He translated into Italian the Greek work of Hero of Alexandria, "On Automata, or self-moving Machines;" and into Latin, the same author's treatise, "On warlike machines." He also wrote "Exercitationes on the Mechanics of Aristotle," and published two Latin works relative to Vitruvius, the one containing an explanation of all the terms used by him, and the other inquiring into the meaning of his "Scamilli impares." A posthumous work, intitled, "Cronica de' Mathematici," being a compendium of a larger one on the lives of mathematicians, was printed in 1707. Many other monuments of his genius and industry, which obtained reputation in their time, are now consigned to oblivion. *Nouv. Dict. Histor. Gen. Biog.*

BALDI, DE UBALDIS, a celebrated lawyer, was born at Perugia in 1319, and carefully educated by his father Francis Ubaldi, a learned physician. After having studied law at Perugia under Bartoli, he became a preceptor, and acquired high reputation in most of the universities of Italy. He was the rival of his master Bartoli, and contradicted many of his opinions. The duke, John Galeazzo, was his
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generous patron; and he was liberally rewarded by pope Urban VI. for pleading his cause against Clement. Having retained the full vigour of his faculties and his distinguished reputation as an oracle of jurisprudence till the year 1400, when he had attained the age of 76, he died at Pavia, in consequence of the bite of a dog, with which he was playing. His numerous treatises of law, published in three volumes folio, manifest deep knowledge and excellent talents; but they are written too much in the barbarous style of the age. His reputation was so great, that his family after his death assumed the name of Baldeschi instead of that of Ubaldi. *Nouv. Dict. Histor.*

BALDINGER, ERNESTUS GOTTFRIED, a medical writer, of whom we have no memorial, but that, in 1764, he published at Berlin "Introductio in Notitiam Scriptorum Medicinæ Militaris," 8vo. a valuable work, in which, besides the titles of the books, the author has given a critical account of their contents. *Haller. Bib. Med. Pract.*

BALDINI, JOHN ANTHONY, Count, was born at Placentia, July 7, 1654, finished his studies at Bologna and at Rome, and then travelled into France and Poland. In 1698, he went to Spain, and continued there nine years as ambassador from the duke of Parma. On his return to Parma, he was again dispatched to German courts, and at last to England, whence he was sent to attend the congress at Utrecht. His figure was handsome, and his manners engaging; and the greater part of his time was devoted to the study of natural philosophy, mathematics, and more especially civil and ecclesiastical history. In England, he was elected fellow of the Royal Society; and in Spain, he collected many rare gems, with a view of having them engraved; but in the progress of this work he was interrupted by his public occupations and travels. At Amsterdam, he enriched his cabinet of curiosities with many Indian and Chinese subjects; and he purchased, at a great expence, all the lexicons, atlases, and books of travels he could procure that related to the Eastern countries. The editor of the "Atlas Historique," in 5 vols. published at Amsterdam in 1719, was much indebted to Baldini's collection; and the discourse annexed to these maps was originally written in Italian by Baldini. On the 23d of February 1725, Baldini died, in consequence of a stroke of the apoplexy. *Gen. Biog.*

BALDINUCCI, PHILIP, was born at Florence in 1624; and distinguished himself by his knowledge of the arts of design, and his researches concerning the lives of their professors. His great undertaking was a general history of the most eminent painters from Cimabue to his own time, comprehended in six volumes, and divided into centuries. A new edition of this whole work was published at Florence in 1731, and it has since been reprinted at Florence and at Turin, with copious notes and additions, by Sig. Ingegneri Piacenza. Baldinucci likewise published "A Vocabulary of Design," in consequence of which he was admitted into the Academy della Crusca. His work, intitled, "The Commencement and Progress of the Art of Engraving on Copper," Florence, 1686, 4to. abounds with curious information. He also published several smaller works; one of which drew upon him a furious and unjust attack from Cinelli. He died in 1696, at the age of 72 years. *Nouv. Dict. Histor.*

BALDINUS, BERNARD, an Italian physician, who flourished about the middle of the sixteenth century, taught medicine at the university of Padua, and afterwards at Milan, where he died in the year 1600. In 1562, he published at Venice, "Problemata excerpta ex Commentariis Galeni in Hippocratem," 8vo.

BALDINUS, *Baccius*, another Italian physician of the same age, published, at Florence, "In Librum Hippocratis, de Aquis, Aere, et Locis, Commentaria;" "Tractatus de Cucumribus," 1586, 4to. Haller. Bib. Med. Eloy. Dict. Hist.

BALDIVIA, or **VALDIVIA**, in *Geography*, the name of a government in the kingdom of Chili, in South America. It was formerly subject to the viceroy of Lima, but is now annexed to the jurisdiction of the president of Chili. *Baldivia*, or *Valdivia*, is also the name of a port town, situated on the north-east side of a bay of the same name, in S. lat. $40^{\circ} 5'$. W. long. $80^{\circ} 5'$. The town was built by the Spanish general Baldivia, about the year 1551; in 1559, the people of Chili chafed the Spaniards from this settlement, burned the town, and put the inhabitants to the sword. Near this place are many gold mines, and therefore the Spaniards have fortified it, regarding it as the key to the South seas; and the fortifications are supported by the whites of Peru and Chili, who are banished hither for their crimes. In 1643, it was taken possession of by the Dutch; but they were compelled to abandon it, and to leave all their cannon, consisting of 30 or 40 pieces, their baggage, and their stores, on receiving intelligence that succours were transmitted from Peru. *Valdivia* receives from the treasury of Lima an annual supply of 70,000 dollars; 30,000 in specie, the value of 30,000 in clothes for the soldiers, and 10,000 in specie which is paid to the king's soldiers at Santiago, in order to purchase flour and other necessaries for the garrison at *Valdivia*. These remittances are conveyed in ships which sail from Valparaíso. The bay has a narrow entrance, and is spacious within; it is well secured from winds by point *Gallera* and *Bonifacio*, which is remarkable for its high land just on the north of the bay. The rivers of *Baldivia* and *Guyaquil* are the largest on this coast; but neither of them can carry a ship of burden six leagues within land.

BALDMONIE, an old English name for gentian, the root of which is used in medicine; some also have called the *meum*, or spignel, by this name.

BALD-MOUNTAIN, in *Geography*, a noted promontory in the gulf of St. Lawrence, in North America, being a mark on the main, about 30 leagues from the nearest or north-west point of Anticosti island.

BALDNESS, **CALVITIES**, a falling of the hair, especially that of the sciniput.

It differs from *alopecia*, *area*, *ophiasis*, and *tinea*, as these all arise from some vice in the nutritious humour; *baldness*, from the defect of it. But the distinction is not always observed by modern physicians.

When the eyelids shed their hair, it is called a *ptilosis*. Among the causes of baldness, immoderate venery is reputed one of the chief: old age usually brings it on of course. Some will have the proximate cause of baldness to be the dryness of the brain, and its shrinking from the cranium; it having been observed, that in bald persons there is always a vacancy or empty space between the skull and the brain.

Buffon says, that the crown of the head, and the space immediately above the temples, are the parts which first become bald; but that the hair below the temples, and on the inferior part of the back of the head, seldom falls off. He adds, baldness is peculiar to man: women, in the most advanced age, though their hair becomes white, are seldom affected with baldness. Children and eunuchs are not more subject to it than women. It is alleged by Aristotle, that no man becomes bald before having intercourse with women, except such as have been bald from their birth. The ancient writers upbraid the inhabitants of the

islands of the Archipelago with the epithet "bald-heads;" and assert, that these islanders are all brought into the world with this defect. Buff. Nat. Hist. by Smellie, vol. ii. p. 442.

Calvus, *bald-pate*, was a frequent term of reproach among the Romans; among whom this defect was in great discredit. Hence divers arts to conceal it, as false hair, and a *galericulus*, contrived on purpose. The later Romans, however, seemed to have been reconciled to baldness; for we find among them a kind of officers or servants, called *glabratores*, or *glabrarii*, whose business was to take off the hair from all parts, even from the head. In an ancient inscription, there is mention of one Diophantus, *TI. CÆSARIS. ORNATOR. GLABR.* that is, *ornator glabrarius*. See *ALOPECIA*.

BALDO, **MOUNT**, in *Geography*, a part of the Alps, in the Austrian territories, lying on the east of the lake *Guida*, and separating the country of Tyrol from that of Verona, about 30 miles in circumference.

BALDOCK, **RALPH DE**, in *Biography*, an English divine of the fourteenth century, was educated at Oxford, appointed bishop of London in 1304, chosen in 1307 lord chancellor of England, and in 1313 died at Stepney. His history of the British affairs, intitled, "Historia Anglica," seen by Leland, is now lost. Biog. Brit.

BALDOCK, in *Geography*, is a neat and pleasant market town of Hertfordshire, in England. It is seated between hills on that great Roman road which bore the name of *Ickling-way*, or *Ickniel-street*. This town has been considerably improved of late years by the erection of many respectable houses; and being on a great travelling road, it has a constant succession of new company. Here are a good market on Thursday, and five annual fairs; the former is plentifully supplied with barley; and a great quantity of malt is made in this town. Baldock dates its origin and the foundation of its church to an earl of Pembroke, who granted two hundred acres of waste land, in the reign of king Stephen, for that purpose. This was conferred on the knights Templars, who dedicated the church to the Virgin Mary, and named the town *Balbec*, from the name of their former place of residence in Syria. The knights hospitalers of St. John, and those of Jerusalem, also erected buildings at the east end of the town, in the parish of *Clothall*. On the hills in the vicinity are four ancient encampments. Here is an alms-house founded by William Winn, in 1621. for twelve poor widows, who are also provided with a small legacy of forty shillings annually by the will of the same worthy founder. According to the returns published by authority of the house of commons, this town has 231 houses, and 1283 inhabitants; of whom 648 are males, and 635 are females.

BALDOVINI, **FRANCISCO**, in *Biography*, an Italian poet, was born at Florence, in 1634. His first studies were devoted to the law, for which profession his father intended him; but after the death of his parents, he surrendered himself wholly to the enchantments of poetry and music. On visiting Rome, he obtained, through the interest of his uncle cardinal Flavio Chigi, the place of secretary to cardinal Jacopo Filippo, and, at the age of 40, entered into holy orders. In 1716, he obtained the living of St. Leonardo d'Artimino; and in 1694, Cosmo III. grand duke of Tuscany, conferred on him the priorship of Orbatello, which he changed, in 1699, for that of Santa Felicità. In the discharge of his new functions, he gave equal satisfaction to the court, the religious orders, and his parishioners, by his exemplary piety, and his rigid attention to the duties of his station, to which the amiableness of his manners, his knowledge of the world, and his proficiency in learning, rendered

rendered him perfectly adequate. He lived in prosperity and health till his 82d year, and died in 1716. He excelled in that species of simple, rustic, and pleasant poetry, which is neither heroic nor burlesque, and which perhaps no poetry in our language resembles more than Gay's pastorals. His "*Il Lamento de Cecco da Varlungo*," or "*Cecco's Complaint*," is a playful poem, written in the provincial dialect of Tuscany, and published first at Florence in 1694, by Barto Commei; and afterwards, in 1755, with the author's life by Domenico Manni, and curious notes by Marini. The poem was translated into English by John Hunter, esq. in 1800, London, 8vo. See the Translator's Preface.

BALDUS, or as he wrote his name, BADUS, SEBASTIAN, a native of Genoa, who flourished in the middle of the seventeenth century, was one of the earliest writers on the properties of the Peruvian bark, and the most strenuous asserters of its value. It appears that he passed the latter part of his life at Rome, where he was patronized by the cardinal De Lugo, himself an admirer of that celebrated medicine, and who procured a parcel of it to be imported from Spain into Italy, in 1649. Baldus learned from Bolli, a Genoese merchant, that the tree producing the bark, of which he gives a description, grows at Quito, a Spanish province in South America; and that its power in curing intermittents became first known to the Spaniards, from its being successfully administered to the counts of Cinchon, the wife of the governor. He is very diffuse in his account of the qualities of the bark, and of the most efficacious mode of administering it; and gives numerous examples of the cures performed by it, not only in intermittents, but in continued fevers likewise. His works, which are all controversial, are: "*Sanguis expiatus, seu de Sanguine incallescens*," Genuæ, 1643; "*Cortex Peruvianus redivivus, contra Plempium*," Gen. 1646, 12mo.; "*Anastasis Corticis Peruv. seu Chinæ Defensio contra Ventilationes J. Jacobi Chiflet, et gemitus V. F. Plempii*," Genuæ, 1663, 4to.; "*Necessitas Phlebotomiæ in Exanthematibus*," Gen. 1663, 4to. Haller. Bib. Med. Pract. Eloy. Dict. Hist.

BALDUS, *Baldus*, M.D. a native of Florence, flourished about the middle of the seventeenth century. After acquiring considerable reputation in his own country, he removed to Rome, where he was soon advanced to be physician to pope Innocent the tenth, and archiater; but died a few months after being elevated to that post. He published, in 1631, "*Prælectio de Contagione pestifera*," 4to.; and in 1637, "*Disquisitio ad textum secundum Hippocratis, de Aere, Aquis, et Locis, accedit, de Calculorum Causis; Aquæ Tiberis Bonitate; Questio de majori nunc quam præterito Seculo, calculosorum in urbe frequentia*," 4to. Hall. Bib. Med. Pract. Eloy. Hist.

BALDUS, in *Entomology*, a species of PAPILIO, with very entire brown wings; on the anterior ones above and beneath, an ocellar spot, with a double pupil; on the posterior ones, four ocular spots above and six beneath. Fabricius. Inhabits India. Donovan. Inf. Ind.

BALDWIN I. in *Biography*, emperor of Constantinople, was born in 1172, and succeeded his father as count of Flanders and Hainault. In the fourth crusade, which commenced A.D. 1198, he assumed the cross at Bruges, together with his brother Henry, and the principal knights and citizens of the rich and industrious province of Flanders, and distinguished himself so much in the wars which preceded the capture of Constantinople, that after this event he was chosen emperor of the east, A.D. 1204. But the Greeks soon revolted against this foreign empire; and formed an alliance with John, or Calo-John, the revolted chief of the

Bulgarians and Walachians. Baldwin, in his attempt to recover Adrianople, from which the French and Venetians had been expelled, was drawn into an ambuscade by the feigned flight of the enemy, and taken prisoner, A.D. 1205. He soon after died in prison; but the time and manner of his death are not known. Some say, that after a confinement of sixteen months, he was cruelly murdered by an amputation of his hands and feet, and by exposing his bleeding trunk to birds of prey. The Flemings for a long time believed that he was alive; and about twenty years after his death, found a hermit in a wood of the Netherlands, who was acknowledged as the true Baldwin, the emperor of Constantinople, and lawful sovereign of Flanders. But the French court detected the impostor, and he was punished with an ignominious death. Baldwin, who was esteemed for his private virtues, and for his military and princely qualities, was succeeded in the empire by his brother Henry; and in his county of Flanders by his daughter Joan or Jane, who has been accused, by some grave historians, of sacrificing to her ambition the life of an unfortunate father. Gibbon's Hist. vol. xi. p. 190—262.

BALDWIN II. emperor of Constantinople, was the son of the emperor Peter of Courtenay; and in his eleventh year, succeeded his brother Robert, A.D. 1228. On account of his youth, John of Brienne, the veteran king of Jerusalem, was appointed to be regent, and invested for his life with the title and prerogatives of emperor, on the sole condition that Baldwin should marry his second daughter, and succeed, at a mature age, to the throne of Constantinople. The royal youth was sent to visit the western courts, and to obtain some supplies of men and money, for the relief of the sinking empire. He thrice repeated these mendicant visits, in which he seemed to prolong his stay, and postpone his return. Of the twenty-five years of his reign, a greater number was spent abroad than at home; and in no place did the emperor deem himself less free and secure than in his native country and his capital. In his first visit to England he was stopped at Dover, and checked by a severe reprimand for presuming, without leave, to enter an independent kingdom. After some delay, he was permitted to proceed, and after a reception of cold civility, thankfully departed with a present of 700 marks. From the avarice of Rome he could only obtain the proclamation of a crusade, and a treasure of indulgences. By various humiliating and ruinous expedients, he at length returned to Romania, with an army of 30,000 soldiers, and obtained some partial and temporary success. But his poverty and weakness admitted of no effectual relief; and by the sale of sacred relics, such as the crown of thorns which had been placed on the head of Christ, the lance, the sponge, and the chains of his passion, the rod of Moses, and part of the skull of John the Baptist, he could only raise a treasure of very limited extent, and of short duration. His kingdom was soon reduced to the limits of Constantinople; and in 1261, this city was taken from him by Michael Palæologus. Baldwin, with some of the principal families, embarked on board the Venetian galleys, and steered first for the isle of Eubœa, and afterwards for Italy, where the royal fugitive was entertained by the pope and Sicilian king with a mixture of contempt and pity. Having consumed thirteen years in soliciting the Catholic powers to join in his restoration, without success, he died in 1273, and his son Philip became the heir of an ideal empire; and by Catherine, the daughter of Philip, it was transferred, in consequence of her marriage, to Charles of Valois, the brother of Philip the fair, king of France. Gibbon's Hist. vol. xi. 273—287.

BALDWIN, archbishop of Canterbury, was born of obscure parents at Exeter, where he received the rudiments of a classical education, and taught school; and afterwards he took orders, and was preferred to the archdeaconry of his native place. But changing his course of advancement, he assumed the monastic habit in the Cistercian order, and rose through the abbacy of his monastery to the episcopal see of Worcester, and from thence, in 1184, to the metropolitan see of Canterbury. From the monks he met with some obstruction in this last stage of his preferment; and therefore, in order to counteract their interest and power, he formed a plan for establishing a church and monastery at Hackington near Canterbury, for the reception of secular priests; but the monks, by their interest with the pope, disconcerted the design. Under the next pope the project was resumed, and Baldwin purchased a manor at Lambeth, where, upon the spot where the archbishop's palace now stands, he began to build his college, with the materials collected at Hackington; but he did not live to complete his design. In 1189, he performed the ceremony of coronation for Richard I. at Westminster; and upon the translation of the bishop of Lincoln to the see of York, he took occasion to establish the pre-eminence of the archbishop of Canterbury, by forbidding any English bishop to receive consecration from any other hands than those of this metropolitan. Archbishop Baldwin took a part in the crusade for the recovery of the holy land, and when Richard I. conducted an army into Palestine, this prelate appeared in his train; and by his private contributions and pious exhortations encouraged the enthusiastic adventurers to persevere. At the siege of Acre or Ptolemais, or, as some relate, at Tyre, the bishop was seized with a violent disorder, which terminated in his death, A.D. 1191, or A.D. 1193. During his illness, he directed his executor, the bishop of Salisbury, to distribute, at his discretion, all his effects among the soldiers. He was distinguished by his humanity and generosity; but the mildness of his temper betrayed him into remissness in his pastoral offices; so that a letter was addressed to him by pope Urban III. with this superscription; "Urban, bishop, servant of the servants of God, to Baldwin, a most zealous monk, a fervent abbot, a lukewarm bishop, and a negligent archbishop." Baldwin wrote several tracts, chiefly theological, which were collected and published by father Tissier, and which may be found in the fifth volume of the "Bibliotheca Cisterciensis." Cave, H.L. vol. ii. p. 250. Biog. Brit.

BALDWIN'S *Phosphorus*, in *Medicine*, a phosphorescent substance, formed by calcining the nitrat of lime in a low red heat. See PHOSPHORUS, *Baldwin's*.

BALE, JOHN, in Latin *Baleus*, in *Biography*, an English divine and historian, was born at Cove, near Dunwich, in Suffolk, in the year 1495. From the monastery of Carmelites at Norwich, where he was entered at the age of twelve years, he was sent to Jesus college in Cambridge. Bale, probably illuminated by lord Wentworth, and partly conceiving a dislike to celibacy, abandoned the church of Rome in which he was educated, and became a zealous protestant. The acrimony and virulence with which his writings against popery were tinged, exposed him to a variety of severe persecution; and after the death of lord Cromwell, whose protection he enjoyed in early life, he was under a necessity of seeking an asylum in the Netherlands. Upon the accession of Edward VI. he returned to England, and, distinguished by his zeal for the reformation, he was first presented to the living of Bishop's Stoke in the county of Southampton, and afterwards obtained, by nomination from the crown, the bishoprick of Ossory in Ireland; and in 1553,

was consecrated by the archbishop of Dublin. In this situation, by his attachment to the doctrines of the reformation, he was subject to constant terror, and his life was frequently in danger. On occasion of one tumult, five of his domestics were killed in his presence, and he escaped by the seasonable protection of an armed force. Of his alarms and troubles in Ireland, he has given a particular account in his "Vocacyon of John Bale to the Bishopricke of Ossory in Irelande, his Persecutions in the same, and final Deliverance;" printed in black letter, folio, 1553. In making his escape, after temporary concealment in Dublin, the trading vessel in which he was conveyed away was taken by a Dutch man of war, and he was stripped by the captain of all his money and effects. Being driven by stress of weather on the coast of Cornwall, the bishop was seized on suspicion of treason, in consequence of the accusation of a pilot, who wished to share his money; and a similar charge was brought against him at Dover, whither he was conveyed in the same ship. Being removed as a prisoner to Holland, he was under a necessity of purchasing his liberty by a large ransom; and after his liberation he removed from Holland to Basil in Switzerland, and remained abroad till the end of queen Mary's reign. Upon the accession of Elizabeth, he returned to England; and fearful of encountering the difficulties and hazards of his Irish see, he retired to a prebendal stall in the church of Canterbury, to which he was preferred in 1560; and here he died in November 1563, in the sixty-eighth year of his age. Before his conversion from popery, Bale composed many scriptural interludes, founded upon incidents recorded in the New Testament; such as the life of St. John the Baptist, Christ in his twelfth year, baptism, and temptation, the resurrection of Lazarus, the council of the high-priests, Simon the leper, the Lord's supper, and his washing the feet of his disciples, Christ's burial and resurrection, the passion of Christ, &c. His comedy of the three laws of nature, Moses and Christ, printed by Nicholas Bamburgh in 1538, was so popular, that it was reprinted by Colwell in 1562. In his "Vocacyon to the Bishopricke of Ossory," he informs us, that his comedy of "John the Baptist," and his tragedy of "God's promises to men," written in 1538, and first printed by Charlewood in 1577, 4to., were acted by the youths upon a Sunday, at the market-crofts of Kilkenny. But the fashion of acting mysteries seems to have expired with this writer. He says that he wrote a book of hymns, and another of jests and tales, and that he translated the tragedy of Pammachius, probably the same that was acted at Christ's college in Cambridge in 1544, and afterwards laid before the privy council as a libel on the reformation. After he renounced popery, the productions of his pen, both in Latin and English, were very numerous. Most of his English writings in prose were pointed against popery; and two of his pamphlets against the papists, all of whom he considered as monks, are entitled the "Mafs of the Gluttons," and the "Alcoran of the Prelates." Next to exposing the impostures of popery, literary history was his favourite pursuit. His "Chronicle concerning sir John Oldcastle," was reprinted in 1729. The only work of bishop Bale, which has given him distinction among authors, is his "Scriptorum Illustrium Majoris Britanniae Catalogus," or, "An account of the lives of eminent writers of Great Britain," commencing from Japhet one of the sons of Noah, and brought down through a series of 3618 years, to the year of the Christian æra 1557, the period at which the author was an exile in Germany. This work is compiled from various authors, and chiefly from the labours of the eminent antiquary, John Leland. The bitterness of his invectives against popery and papists gave great offence to

Roman catholic writers; and he has been charged with dissingenuity and credulity by several respectable critics; among whom we may reckon Wharton and Nicolson. Grainger (Biog. Hist. vol. i. p. 139, 8vo.) allows, that the intemperate zeal of this prelate often carried him beyond the bounds of decency and candour in his accounts of the papills; nevertheless, his sufferings may furnish some apology for his acrimony, and many things which he relates, though before designedly concealed or ingeniously glossed over by Roman catholic writers, might probably be true. His biographical work, with considerable allowances for the strong bias of party zeal, may be read with advantage. *Baleus de Scipio*, apud Script. Wharton, pref. to *Anglia Sacra*, and Hist. of English Poetry, vol. iii. p. 79. Nicolson's Eng. Hist. Library, p. 156. Biog. Brit.

BALE, in *Commerce*, a term denoting a quantity of merchandise wrapped or packed up in cloth, and corded round very tight, after having been well secured with hay or straw, to keep it from breaking, or to preserve it from the weather. Most of the merchandise, capable of this kind of package, that is sent to fairs, or intended for exportation, ought to be in bales; and too much care cannot be taken in packing them, to secure them from damage. To sell goods in the bale is to sell them in the lump, on shewing a specimen, without unpacking or taking off the cordage. Thus it is the East India company sell their bale-goods.

BALE-Goods, in the *East India Trade*, the bulky goods, as salt-petre, pepper, red-earth, tea, &c. The bale goods stand opposite to piece goods.

BALES of Camlet, at Smyrna, are called *tables*, on account of their flat square figure.

A bale of cotton yarn is from three to four hundred weight; of raw silk, is from one to four hundred; of lockram or dowlas, either three, three and a half, or four pieces, &c.

BALE of Paper, denotes a certain number of reams packed together in a bundle.

There are bales of more and fewer reams. Those sent from Marseilles to Constantinople usually contain twelve reams. A bale or ballon of crown paper manufactured in some parts of Provence, consists of fourteen reams, and is sold in the Levant for Venice paper.

BALE of Dice, denotes a little packet or paper, containing some dozens of dice for playing with.

BALE, in *Geography*. See **BASLE**.

BALEARES INSULÆ, or *Baleaic Islands*, in *Ancient Geography*, the name by which the two islands of Majorca and Minorca, and some others in the Mediterranean sea, were formerly distinguished. They derived their name from that of the inhabitants, who were denominated Baleares, as some have supposed from βαλλειν, to throw, because they were excellent slingers. Bochart (Geog. Sac. apud, Op. t. i. col. 634.) deduces the appellation, as well as the people, from a Punic or Phœnician origin; and he says, citing the authorities of Polybius, Strabo, and Stephanus, that the name is formed of the two words בל-ער, *bal-jareh*, denoting a master of throwing, and thus he adds, the terms בל-ער, *baale chisim*, Gen. xlix. 23. signify *skilful archers*. The Greeks called these islands *Gymnasia*, either as Livy or Diodorus suggest, because in summer the inhabitants were naked, or rather, as Hesychius observes, because they went to battle armed only with a sling. M. Gebelin intimates, that *Baal* signified among the orientals, *the sun*, and hence it became a denomination for *elevated objects*; so that the *Baleares* were persons who projected darts or stones from slings to a very great height. Whatever be the precise etymology of the name, the *Baleares* were famous for their

dexterity in the use of the sling; and in order to attain perfection, they accustomed themselves from their infancy to this kind of exercise; inasmuch that mothers did not put bread into the hands of their children, but obliged them to beat it down from a considerable eminence with their slings. They also united force with this address, and the best tempered arms were scarcely proof against the stones they discharged. When they went to battle they carried with them three slings of unequal length, according to the different distances at which they might have occasion to use them against the enemy. They were originally Phœnicians or Carthaginians, who possessed the islands called by their name from such remote antiquity, that their first arrival is prior to every thing related of them by every historian now extant, except their peopling the island Ebusus or Eresus, now Yvica, about 160 years, as Diodorus Siculus (l. v. c. 1 & 2.) informs us, after the foundation of Carthage. This island, according to Vitruvius, was reckoned to belong to the *Baleaic islands*. We learn from Justin (l. xlv.), that the first expedition which the Carthaginians made to Spain, was in order to assist the city of Gades (now Cadiz); and as the Carthaginian fleet, sailing from Carthage to Gades, might easily take Ebusus and the other *Baleaic islands* in its way, there is great reason to believe, that Gades was relieved, and Ebusus, with the other *Baleaic islands*, planted or reduced much about the same time. The *Baleares* lived for a long time in the simplicity of uncultivated nature. Caves under the rocks, or holes dug in the earth, served them for habitations. They were almost naked, except that during the cold of winter they covered themselves with sheep-skins. The soil of their country was fertile, and supplied them with the necessaries of life; but being very eager for wine, such of them as had served in the Carthaginian armies did not fail at their return to lay out all the money they had acquired in this article: indeed, they were not allowed to bring money into their country, as the use of it was prohibited in both islands. They said, as Diodorus Siculus informs us, that Geryon's riches had of old been fatal to him, in drawing Hercules upon him as an enemy; and that, taught by this example, they had from the most remote antiquity always dreaded introducing among them a metal, capable of exciting the avidity of other nations, and thus dangerous to their tranquillity. They were in general a pacific people. However, some individuals having leagued themselves with the pirates that infested the seas, Metellus, who was consul of Rome about the year of the city 630. B.C. 124, projected an expedition for invading their country. In order to secure his success, he is said to have rendered their slings useless, by placing skins on the sides of the decks, which deadened the blows. As soon as the Roman troops landed, the inhabitants fled, and dispersed themselves over the country, so that it was more difficult to find than to defeat them. Metellus, for securing his conquest, planted two colonies, viz. Palma and Pollentia, the one at the east, and the other at the west extremity of *Balearis major*. He obtained a triumph A.U.C. 631. B.C. 123, and assumed the surname of *Balearius*. Flor. l. iii. c. 8. The largest of these islands was called *Balearis major*, now Majorca, and the least *Balearis minor*, now Minorca. They were distant from one another, according to Pliny, thirty miles; and in the latter of the two islands, the most considerable towns were Mago and Janno. These were at first castles or forts; but being erected near the mouths of two convenient harbours, they became considerable sea-ports, especially that of Mago, now known as Port Mahon. The *Baleares* formed a part of the provincia Tarragonensis, and were denominated "*Fortunate*," on account of their situation and harbours.

BALEARICA,

BALEARICA Briss. *grus balearica* Aldr. *balearic crane* Ray, Willughby, Sloane, &c., in *Ornithology*, a trivial name given by these and some other ornithological writers to the *crowned heron* of Latham, and *ardea pavonia* Gmelin.

BALECHOU, JOHN JOSEPH, in *Biography*, a celebrated French engraver, flourished about the year 1750, and died not many years since at Avignon. He was perfect master of the graver, with which he entirely worked; and distinguished by the clearness of his strokes, and the depth of colour which he produced; but for want of drawing well, his prints fail in point of freedom, correctness, and harmony. His two large plates from Vernet, one representing a "Storm," the other a "Calm," are well known, and universally admired. Strutt.

BALEME PORT, in *Geography*, is a port of North America, two leagues distant from Louisbourg, on the coast of the island of cape Breton. The rocks, which are covered by a high sea, render it difficult of access.

BALEN, HENDRICK VAN, in *Biography*, a painter of history and portrait, was born at Antwerp, in 1560: and after having been a disciple of Adam Van Oort, he pursued his studies at Rome. By copying the antiques, and attending to the works of eminent modern artists, his improvement was such, that, in his return to his own country, he obtained the esteem of the ablest judges. He was distinguished by a good manner of designing, and his works are admitted into the cabinets of the curious, among those of the principal painters. He particularly excelled in the naked, and gave to his figures so much truth, roundness, and correctness of outline, that few of his contemporaries could enter into competition with him. Several of his fine portraits are at the Hague; and particularly one adorned with the figures of wisdom and justice, which is very highly commended. His designs of the deluge, of Moses striking the rock, and the drowning of Pharaoh, are grand and noble compositions. His "Judgment of Paris" is also accounted a masterly performance; in which the figure of Venus is so elegantly designed, so full of life, and so round, that it seems to stand forth from the surface. He died in 1632. Pilkington.

BALEN, JACOB VAN, a painter of history, landscapes, and boys, was born at Antwerp, in 1611, and derived from his father Hendrick Van Balen his knowledge of the art, and his fine taste of drawing and design. He afterwards travelled to Rome, and other cities of Italy. His particular merit was exhibited in his figures of boys, cupids, and nymphs bathing or hunting; and he gained wealth and fame by his landscapes and histories. His pictures were well handled, his trees touched with spirit, and his herbage and verdure appeared natural and lively. The carnations of his figures were clear and fresh, his colouring in general was transparent, and the airs of his heads were in the manner of Albano. Pilkington.

BALENBERG, in *Geography*, a town of Germany, in the circle of the Lower Rhine, and territory of Mentz, two miles north-west of Krautheim.

BALENGER, **BALENGARIA**, in *Middle Age Writers*, a kind of vessel of war, but what in particular seems not well known. Blount says, that by the stat. 28 Hen. VI. cap. 5. balenger seems to have been a kind of barge.

BALES, PETER, in *Biography*, an extraordinary master of penmanship and fine writing, was born in 1547, and deserves to be recorded on account of the skill which he acquired in the exercise of his art. Anthony Wood mentions him as "a most dexterous person in his profession," and as having "spent several years in sciences among the Oxonians, particularly as it seems in Gloucester hall; but that study which

he used for a diversion only, proved at length an employment of profit." Holinshed, in his Chronicle, A.D. 1575, records his skill in micrography or miniature writing; and Mr. Evelyn (Numismata, fol. 1697, p. 268.) says of him, "that in 1557 he wrote the lord's prayer, creed, decalogue, with two short Latin prayers, his own name, motto, day of the month, year of our Lord, and of the queen's reign, to whom he presented it at Hampton Court, all within the circle of a single penny, enclased in a ring and border of gold, and covered with crystal; so nicely wrote as to be plainly legible, to the admiration of her majesty, her privy-council, and several ambassadors, who then saw it." He possessed also an extraordinary skill in imitating the writing of others; and he seems to have been employed in this and similar ways for the service of the state, with a view to the complete discovery and conviction of traitors, between the years 1586 and 1589. At this time he had reason to expect some place or preferment at court; but being disappointed in his expectations by the death of secretary Walsingham, he pursued the business of a writing-master in the Old Bailey; and in 1590, he published his "Writing Schoolmaster, in three Parts," containing the art of brachygraphy, or swift writing; the order of orthography, or true writing; and the key of calligraphy, or fair writing. In 1595, he was engaged in a trial of skill with another performer in the same way, for a golden pen of 20*l.* value, which he gained; and in another more general competition, he obtained the arms of calligraphy, which are *azure, a pen, or.* By various exercises of his pen, he recommended himself to several persons of knowledge and distinction; and Anthony Wood says, that he was engaged in the treasons of the earl of Essex, in 1600; but the real fact was, that Bales was innocently employed in serving the treacherous purposes of one of the earl's mercenary dependants. Towards the close of life, he seems to have been reduced to a destitute and distressed condition, either by his own extravagance, or by imprudent confidence in others; and to have died about the year 1610. Biog. Brit.

BALESCOU DE THARARE, or *Valescus of Tarenta*, a Portuguese. It appears from his own testimony, that he began writing in the year 1418, after thirty-six years experience. His first publication "De Philonio," was printed at Venice, 1490: then at Lyons, in folio, in 1521; and his work, "De Morbis Curandis," edited by Guido Desiderius, at Lyons, in 1560, in 4to. and afterwards at Frankfurt 1590. A short tract, "Tractatus Chirurgie," is printed with the Philonium. He proposes extirpating cancers by an application, in which arsenic is an ingredient. This drug, we know, formed the basis of a preparation of late introduced, for the same purpose, by Plunket. Our author, however, admonishes practitioners, that arsenic is not used without danger. He saw a person who died suddenly in the night, whose head had been anointed with an arsenical preparation, for the cure of tinea capitis. It appears from his works, that he was well acquainted with the doctrine of Galen, and of the Arabic writers. Haller. Bib. Chirurg.

BALESIUM, in *Ancient Geography*, a town of Italy, in Magna Græcia, in the country called Messapia. Pliny and Mela.

BALESOS, an island of the Ægean Sea, between Thrace and the isle of Crete. Anton. Itin.

BALESSAN, in *Botany*. See **BALSAM**.

BALESTRA, ANTONIO, in *Biography*, an historical painter, was born at Verona, in 1666: at the age of twenty-one, entered himself in the school of Antonio Belucci, at Venice, and afterwards visited Bologna and Rome, at which latter place he became the disciple of Carlo Maratti. Hav-

ing made great proficiency in designing after the antiques, after Raphael, Correggio, Annibal Caracci, and other admired painters, he obtained the prize of merit in the academy of St. Luke, in the year 1694, when he was only twenty-eight years of age. From that time his reputation was established, and his paintings were admired in every part of Europe. His style is sweet and agreeable, not unlike that of Maratti; and men of judgment observed, with delight and approbation, a certain mixture in his works of the several manners of Raphael, Correggio, and Caracci. At Venice there are two capital pictures of this master; one representing the nativity of our Saviour, in the church of Santa Maria Mater Domini; and another, a dead Christ in the arms of the Virgin, in a chapel belonging to the church of St. Geminiano. We have some etchings by him, in a bold, masterly style, but very slight. According to Pilkington, he died in 1720; but Strutt says, he died in 1740, at the age of 74.

BALESTRINA, in *Geography*, a town of Italy, in the state of Genoa, a fief of the empire, nine miles north of Albenga.

BALET DE LA ROYNE, in *Musie*. This dance, more ancient than any mentioned in the long article on the subject, in the *Encycl. Meth.*, where it has not been honoured with notice, merited a place, as a *curiosity*, if not for its superior plan and execution.

Henry III. of France having, in 1581, married his favourite minion the duc de Joyeuse, to mademoiselle de Vaudemont, sister to his queen Louise de Lorraine, almost ruined his kingdom in balls, masquerades, tilts, tournaments, and every species of expensive festivity which could be devised on the occasion.

The queen, likewise, in honour of her sister's nuptials, gave an entertainment at the Louvre, in which a ballet was exhibited, called "Ceres and her Nymphs," which was then a new kind of spectacle in France, *avec une grande musique*, composed by the celebrated Claude le Jeune. The *Entrées de Balets*, in this fête, were invented by Baltazar de Beaujoyeux, the famous Piedmontese performer on the violin, who having published an account of his devices in a book which is now become extremely scarce, we shall present our readers with its title, and a sketch of its contents.

"Balet conique de la Roynie, faicte aux nopces de monsieur le duc de Joyeuse et mademoiselle de Vaudemont sa sœur. Par Baltazar de Beaujoyeux, valet de chambre du Roy, et de la Roynie sa mere." A Paris, 1582, 4to. The types and paper equal in beauty those of Elzevir in the next century; and the musical characters, though cut in wood, are much more clear and neat than any we ever saw of the kind. But as to the music itself, it is more barbarous, in point of melody, than any we have ever seen on paper. The counterpoint, indeed, is not incorrect; nor can the French be justly accused of ever being deficient in the mechanical rules of composition, since they were first established; but for fancy, air, and rhythm, there is not a passage in this whole performance, except in a few of the dances, by which we are reminded of their existence. But it seems as if dancing could not subsist without a marked measure; indeed, when poetry is sung without measure, it becomes worse than prose. In the operas of Lulli and Rameau, the music of the dances was always much more pleasing to foreigners than that which was sung, from its being necessarily more marked and accented: that is, in what was danced some determined measure and movement were always perceptible. But in the vocal part of de Beaujoyeux's balet, there is nothing that resembles an air, or that seems to imply a selection of notes, or to suggest a reason for one sound being higher or lower, more quick or more slow, than another.

But it should be remembered, that the music of this old French ballet was not composed by Baltazarini, the Italian, who only acted as ballet master on the occasion, but by Messrs. de Beaulieu and Salmon, of the king's band, whom his majesty had ordered to assist him in composing and preparing all that was *most perfect* in music for this festival; "and M. Beaulieu," says Baltazarini, "whom all professors regard as an excellent musician, has, on this occasion, even surpassed himself, assisted by Maître Salmon, whom M. Beaulieu and others highly esteem in his art."

We have dwelt the longer on this performance, as it is the only French theatrical music extant of the time. And in comparing it with that of Lulli, it appears that he did not disdain to comply with the national taste, which had been long established, with respect to measure and melody; he certainly added much to both, but conformed to the *genre*.

As it will be no kindness to curious readers to refer them to so scarce a book for examples of this music, we may venture to mention the *Gen. Hist. of Mus.* vol. iii. where copious extracts from it are inserted.

BALEY, WALTER, in *Biography*, born in the county of Dorset, in the year 1529, received his education at Winchester, and went thence to New college, Oxford. Applying himself to the study of medicine, in the year 1558 he was licensed to practise. About the same time he was made a prebendary in the cathedral church of Wells, which office he resigned the following year. He was then appointed Queen's professor of physic at Oxford. In the year 1563, he was created doctor in medicine (Wood's Fasti Oxon. vol. i. p. 92.), and soon after, physician to queen Elizabeth. For the remainder of his life, which was extended to the age of 63 years, he enjoyed a considerable share of reputation and practice. Of this physician we have the following works, three of which were published in his lifetime. "A Discourse of three kinds of pepper in common use," 1588, 8vo. "A brief treatise on the preservation of the eye-sight," in which he attributes great virtues to the herb eye-bright. This was re-published in 1616, and in 1622 was added to Banister's treatise of 113 diseases of the eyes and eyelids, but without the name of the author. "Directions for health, natural and artificial, with medicines for all diseases of the eyes," 1626, 4to. "A brief discourse of certain medicinal waters in the county of Warwick, near Newnham," 1587. In the library of Robert earl of Aylesbury was a MS. of this author, intitled "Explicatio Galeni de potu convalescentium, et senum, et præcipue de nostræ ætæ et biræ paracrine." *Biograph. Mem. of Med. J. Aikin*.

BALFRUSCH, in *Geography*, a town of Persia, the capital of the province of Masanderan, situate at the southern extremity of the Caspian sea. Hither the Russians and Armenians convey their merchandize, though the traffic is much less considerable than it was, on account of the impositions of the khan of Masanderan. The chief productions are silk, rice, and cotton, of which articles there is a large exportation. Merchants from Kasbin, Isaphen, Schiras, and Korasan resort to Balfrusch, and bring for sale the Persian and Indian commodities. N. lat. 33° 40'. E. long. 50° 30'.

BALGA, a town of Prussia, in the province of Natangen, 25 miles south-west of Königsberg.

BALGUY, JOHN, in *Biography*, an English divine, was born at Sheffield in Yorkshire, in the year 1686. Having received instruction first from his father, who was master of a free grammar school in that place, and after his death from his successor Mr. Daubuz, author of an esteemed commentary on the revelations, he was admitted in 1702, of St. John's

John's college, Cambridge. From the frivolous occupation of reading romances, in which he lost two years of his academic education, a circumstance which he mentions with regret, he was diverted by reading Livy, and afterwards devoted himself with pleasure to serious studies. In 1711, he took orders, and diligently discharged the duties of his profession in the living of Lameley and Tanfield in Durham, composing for several years a new discourse for the pulpit every week. Balguy was an early advocate for religious liberty in the Bangorian controversy; and in 1718, wrote a vindication of bishop Hoadly, intitled "An Examination of certain doctrines lately taught and defended by the Rev. Mr. Stebbing;" and in the following year, "A Letter to the Rev. Dr. Sherlock," both under the fictitious name of Silvius. In 1720, he published a third tract, intitled "Silvius's defence of a dialogue between a Papist and a Protestant." In a controversy concerning the nature and foundation of virtue, occasioned about this time by lord Shaftesbury, who, in his "Characteristicks" referred it to an instinctive sentiment; and by Hutcheson, who, in his "Inquiry into the Original of our Ideas of Beauty and Virtue," maintains the same notion; Mr. Balguy took a principal part. In 1726, he wrote, in reply to Shaftesbury, "A Letter to a Deist, concerning the beauty and excellence of moral virtue, and the support and improvement which it receives from the Christian revelation;" and in 1728, he published a tract, intitled, "The foundation of moral goodness, or a farther inquiry into the original of our idea of virtue;" which in the next year was followed by a second part, illustrating the principles and reasonings of the former, and replying to certain remarks communicated by lord Darcy to the author. (See VIRTUE.) In 1730, he published a treatise, under the title of "Divine Rectitude; or a brief Inquiry concerning the moral perfections of the Deity, particularly in respect of Creation and Providence. (See ATTRIBUTES.) This treatise was followed by "A Second Letter to a Deist," occasioned by Tindal's "Christianity as old as the Creation;" and by another tract, intitled, "The Law of Truth, or the Obligations of Reason essential to all Religion." In 1741, Mr. Balguy published an "Essay on Redemption," explaining the doctrine of atonement in a manner similar to that afterwards adopted by Dr. Taylor of Norwich. (See ATONEMENT.) Of this treatise, bishop Hoadly expressed his opinion, that the author had been more successful in refusing Christianity from some absurd doctrines, long considered as essential to it, than in substituting others in their stead. The only additional publication of Mr. Balguy was a volume of Sermons, to which has been since added a posthumous volume; the subjects of both are chiefly practical, and the discourses have been justly admired as models of the plain and simple style of preaching. Towards the close of his life, his health declined, and he found it necessary to withdraw from company, except such as he selected at Harrowgate, which he frequented every season, and where he died in 1748, in the sixty-third year of his age. The only church preferments which Mr. Balguy enjoyed were the vicarage of North-Allerton in Yorkshire, worth about 270*l.* a year, and a prebend in the church of Salisbury, to which he was collated by bishop Hoadly in 1728. Mr. Balguy may justly be reckoned among the divines and writers who rank with Clarke and Hoadly, and who associated with these illustrious characters in maintaining the cause of rational religion and Christian liberty. Candid and liberal in his own sentiments and disposition, he cultivated friendship with worthy persons of all denominations; and his writings very much contributed to promote liberal discussion and rational inquiry. Biog. Brit.

ALHARY, in *Geography*, a town of Hindoostan, in the Myfore country, seventy miles north-east of Chitteldroog, and twenty miles north east of Raidroog. N. lat. 15° 6'. E. long. 76° 54'.

BALI, or BALLY, one of the isles of Sunda, situate in the Java sea, on the east side of the strait of Balli, which separates it from Java; 25 leagues long, and 15 wide, fertile and populous. It seems only remarkable for furnishing slaves, cotton-yarn, and pickled-pork. S. lat. 8° 30'. E. long. 115° 10'.

BALI, or BALLY, *Strait*, lies on the west side of the island of this name, in the Indian ocean. Its north entrance is in S. lat. 7° 54', and the south entrance in S. lat. 8° 39'. E. long. 114° 25'. It is sometimes called the *Balambuan* channel. Through this strait the European East India merchant ships occasionally pass in their return from China. It is sometimes called *Java strait*.

BALI, a province which once belonged to Abyssinia, and the first taken by the Galla. It lies to the north-east of Narea, and to the west of the kingdom of Adal, which separates it from the sea, about N. lat. 10°, and E. long. 41°.

BALICASSE, *balicasse* des Philippines, in *Ornithology*. Under this name, Buffon describes the *corvus balicassius*, Gmel. in his Nat. Hist. Birds; in the Planch. Enl. it is called *choucas des Philippines*.

BALICASSIUS, a species of *Corvus*, of a greenish black colour, with a forked tail. Gmelin. *Corvus splendide nigro-viridans*. Briss. Av. The beak, legs, and claws, are black.

BALIKESRI, in *Geography*, a town of European Turkey, in the province of Natolia, fifty-two miles north-east of Pergamo. N. lat. 39° 45'. E. long. 27° 50'.

BALINCAILACH, a cape on the west coast of Banbecula, one of the western islands of Seotland.

BALINE *Head and Cove*, lie between cape Broyle and the bay of Bulls, on the coast of Newfoundland. The cove is a small place behind a rock, called the Whale's back, and a stage for fishing, with two or three boats.

BALIOI, or BALLIOI, JOHN, in *Biography*, king of Seotland, was descended from an illustrious family, which possessed large estates in Seotland and France, as well as England. He is supposed to have been born about the year 1260, or at a somewhat earlier period; and was a competitor with Robert Bruce for the crown of Seotland; the right of succession to which belonged to the descendants of David earl of Huntingdon, third son of king David I. Bruce was the son of Isabel, the second daughter of earl David; and Baliol, the son of John Baliol, who founded Baliol college in Oxford, was the grandson of Margaret, the eldest daughter of earl David. According to the rules of succession which are now established, the right of Baliol was preferable; and notwithstanding Bruce's plea of being nearer in blood to earl David, Baliol's claim, as the representative of his brother and grandmother, would be deemed incontestible. But in that age, the order of succession was not ascertained with the same precision; and though the prejudices of the people, and perhaps the laws of the kingdom, favoured Bruce, each of the rivals was supported by a powerful faction. In order to avoid the miseries of a civil war, to which it was feared recourse would be had for deciding a dispute which the laws could not settle, king Edward of England was chosen umpire, and both parties agreed to acquiesce in his decree. Under pretence of examining the question with due solemnity, this prince summoned all the Seottish barons to Norham, May 10th, 1291; and having gained some, and intimidated others, he prevailed on all who were present, not excepting

excepting Bruce and Baliol, the competitors, to acknowledge Scotland as a fief of the English crown, and to swear fealty to him as their sovereign or liege lord. He also demanded possession of the kingdom, that he might be able to deliver it to him whose right should be preferable. This strange demand obtained assent; and Edward finding Baliol the most obsequious, and the least formidable of the two rivals, soon after gave judgment in his favour. Baliol once more professed himself the vassal of England, A.D. 1292, and submitted to every condition which the sovereign whom he had now acknowledged was pleased to prescribe. Edward having thus, as he conceived, established his dominion, began too soon to assume the master; but his new vassals, fierce and independent, bore with impatience a yoke to which they were not accustomed. The passive spirit even of Baliol began to mutiny, upon which Edward forced him to resign the crown, and openly attempted to seize it as fallen to himself by the rebellion of his vassal. At this critical period, sir William Wallace, to whom his countrymen have ascribed many fabulous acts of prowess, ventured to take up arms in defence of the kingdom, and by his boldness revived the spirit of the nation. At last Robert Bruce, the grandson of Baliol's competitor, appeared to assert his own rights, and to vindicate the honour of his country. The nobles, ashamed of their former baseness, and enraged at the many indignities offered to the nation, crowded to his standard. In order to crush them at once, the English monarch entered Scotland, at the head of a mighty army; many battles were fought, but the Scots, though often vanquished, were not subdued. The ardent zeal with which the nobles contended for the independence of the kingdom, the prudent valour of Bruce, and above all, a national enthusiasm inspired by such a cause, baffled the repeated efforts of Edward, and counterbalanced all the advantages which he derived from the number and wealth of his subjects. And though the war continued, with little intermission, upwards of 70 years, Bruce and his posterity kept possession of the throne of Scotland, and ruled with an authority not inferior to that of its former monarchs. During the contest in favour of Bruce, John Baliol lived quietly as a private man on his own estates, which were very considerable, in France, without interfering in the affairs of Scotland. Some writers say, that he lived till he was blind, which, if true, must have been the effect of some disease, since it is certain that he died A.D. 1314, when he could not be above 55 years of age at most. "Thus ended," says sir David Dalrymple, in his *Annals of Scotland*, "the short and disastrous reign of John Baliol; an ill-fated prince! censured for doing homage to Edward, never applauded for asserting the national independency. Yet, in his original offence, he had the example of Bruce; at his revolt, he saw the royal family combating under the banners of England. His attempt to shake off a foreign yoke, speaks him of a high spirit, impatient of injuries. He erred in enterprising beyond his strength; in the cause of liberty, it was a meritorious error. He confided in the valour and unanimity of his subjects, and in the assistance of France. The efforts of his subjects were languid and discordant; and France beheld his ruin with the indifference of an unconcerned spectator." Robert-son's *Hist. of Scotland*, vol. i. p. 10, &c. *Biog. Brit.*

BALIPATNA, or **PALÉ-PATNA**, in *Ancient Geography*, a maritime town of India, nearly at an equal distance from the gulf of Canthi-Colpus, and that of Barigazenus. The periplus of the Erythrean sea places it to the south-east of Mandagora. See **PATNA**.

BALIPATUA, a town of India, on this side of the Ganges. Ptolemy.

BALIS, a town of Africa, in Libya, and in the vicinity of Cyrene, which had its name from a temple dedicated to *Baal*.

BALIS, in *Geography*, a town of Asiatic Turkey, in Syria, on the frontiers of Diarbekir, on the west bank of the Euphrates, twenty leagues east of Aleppo.

BALISBIGA, in *Ancient Geography*, a town of Asia, situate in the mountains north of the river Arsanias, placed by Ptolemy in Armenia Major.

BALISSUS, a stream in the deserts which anciently separated Assyria from Arabia, near the place where Crassus was defeated by the Parthians.

BALISTA, in *Artillery*. See **BALLISTA**.

BALISTA, in *Ancient Geography*, a mountain of Italy, in Liguria. Livy.

BALISTES, in *Ichthyology*, the name of a genus of branchiostegous fishes, in the Linnæan system. The character of the genus is, to have the head compressed, continued close to the body; and sometimes a spine between the eyes; mouth narrow; teeth in each jaw eight in number, of which the two anterior ones are longest, and three interior ones against the intervals between those on the side; aperture of the gills narrow, above the pectoral fins; no operculum; rays of the membrane two; body compressed, and carinated on each side; scales joined together, coriaceous, and rough, with minute prickles. Nearly all the fishes of this genus are remarkable for their splendid colours. The species mentioned by Linnæus and Gmelin are the following; monoceros, scriptus β , hispidus, tomentosus, papillofus, verrucosus, biaculeatus, aculeatus, vetula, maculatus, ringens, sinensis, affasii, capricus, forcipatus, punctatus, Kleinii, curassicus, and Americanus.

Lacepede has described twenty-four species of balistes, in his work on fishes, and which he divides into four sections; le baliste mamelonné, le baliste pralin, le baliste verdatre, le baliste Mungo-Park (Park); le baliste métallique, &c. are new or interesting species described by Lacepede, Bosc. &c. as will be noticed hereafter.

BALITO (*Guiffo Balito*), in *Ornithology*, the name of emberiza tridactyla, or three-toed grosbeak, in Buffon's *Hist. Birds*.

BALIVIS, a name given by the people of the Philippine islands to a kind of duck that is smaller than the common wild duck of this country. The species is unknown.

BALIVO amovendo, in *Law*, a writ to remove a bailiff from his office, for want of sufficient land in the bailiwick.

BALIZE, in *Geography*, a fort at the mouth of the Mississippi river.

BALK, in *Agriculture*, a ridge or bank between two furrows, or pieces of arable land.

BALKS, among *Builders*, denote large pieces of timber brought from abroad in floats; or a sort of beams imported from five to twelve inches square. The greater balks are accounted timber, if above eight inches square.

BALK, or *Bawlk*, is also used in some parts of England for the summer-beam of a building, for the poles or rafters laid over outhouses or barns; and, among bricklayers, for the pieces of timber that are used in making scaffolds.

BALK, in *Geography*, a province of Great Bucharia, in Independent Tartary, corresponding to the ancient Bactria or Bactriana. It lies to the south of the province of Samarcand, and east of Proper Bucharia, and has been estimated at 360 miles in length, and 250 in breadth. Bentink observes, that though this province is the smallest of the three into which Great Bucharia was formerly divided, the other two being Samarcand and Bucharia Proper; yet, being very fertile

fertile and well cultivated, the prince draws from it a considerable revenue. The country abounds with silk, which furnished the inhabitants with a valuable article of manufacture. The Usbecks, subject to the khan of Balk, are the most civilized of all the Tartars inhabiting Great Bucharia, which circumstance is attributed to their commerce with the Persians. This country has been divided into several provinces, of which the most remarkable are Khotlan, Tokarestan, and Badakshan. Its chief cities are Balk, Fariyab, Talkan, Badakshan, and Anderab. Mod. Un. Hist. vol. iv. p. 358.

BALK, a distinguished city of the above-mentioned province, seated towards the borders of Persia, on the river Dewash, which flows into the Amu from the mountains of Gaur or Paropamisus. It was probably the ancient BACTRIA, which see. The historians of Persia say that it was founded by Kaiumurath, the first king of Persia, and that he gave it this name because he had found his brother, whom he had lost, on this spot: *balkhiden*, or *balgiden*, signifying, in their language, to *receive and embrace a friend*. The first kings of Persia, who inhabited the province of Aderbijan in Media, considered this city of Bactriana as the frontier of their country. After severe contests between the oriental Turks and Persians, the kings of Persia of the second dynasty made this city the capital of their empire, as it served to prevent the people of Turkestan or Tokarestan from obtaining the passage of the river Oxus or Gihon. The kings of the succeeding dynasties established other principal cities, and Balk was merely the capital of Khorasan, which pre-eminence belonged to it when it was taken by Ahnaf, the son of Alkais, the Arabian commander, under the caliphate of Othman. Under the Abbasside caliphs, and succeeding sultans, Balk was a city of peculiar distinction; it was called *Cubat al Eslam*, or the *Metropolis of Mussulmanism*, and extended its jurisdiction over the countries of Badakshan, Khotlan, and Tokarestan. It was taken by the Moguls or Tartars, under Jenghiz Khan, in the year of the Hegira 618, A. D. 1221, and by his orders its inhabitants were removed out of the walls of the city, and cruelly massacred. In the year of the Hegira 771, A. D. 1369, Tamerlane compelled sultan Hussain, the last of the race of Jenghiz Khan, to surrender the city; and his successors retained possession of it till they were expelled by the Usbecks in the fifteenth century. Between the Usbeck Tartars and the Persians it has been the occasion of continual wars. The principal mosque of this city is constructed upon the model of that at Mecca. Herbel. Bibl. Orient. p. 167.

In the beginning of the last century, Balk was the most considerable of all the towns possessed by the Mahometan Tartars, as Bentink informs us, being large, handsome, and well peopled. Most of its buildings are of brick or stone; and its fortifications consist of earthen bulwarks, lined on the outside with a strong wall. The khan's castle is a magnificent structure, after the eastern fashion, built wholly of marble, dug out of the neighbouring mountains. In 1739, Balk was obliged to submit to the arms of Nadir Shah, or Kuli Khan; but has since recovered its independency. As foreigners have free liberty to trade in this city, it is the chief seat of the commerce between Great Bucharia and Hindoostan. N. lat. 36° 21'. E. long. 65° 31'.

BALKAN, a bay on the eastern coast of the Caspian sea, in which are islands inhabited chiefly by pirates of the race of Turcoman Tartars. These islands produce rice and cotton, and one of them, called Naphthonia, abounds in naphtha. The traffic, says Mr. Coxe (Trav. in Russia, vol. iii. p. 332.) might be increased to the advantage of Russia; as it would

be far more commodious to trade with the Tartars of Khiva and Bucharia from these parts than from Orenburg, through the country of the warlike and independent Kirghees.

BALKAN, a mountain of European Turkey, which divides Romania from Bulgaria.

BALKEE, a town of Hindoostan, in the country of Dowlatabad, 15 miles W.N.W. of Beder.

BALKERS, in the *Fishery*, persons placed on rocks and eminences at sea, to spy the herring-droves, and give notice to the fishermen by waving boughs, what way they go, and where they may be found. 1 Stat. Jac. I. cap. 23.

BALL, JOHN, in *Biography*, an English divine, was born at Cassington, near Woodstock, in Oxfordshire. Although educated at Oxford, he attached himself to the cause of the Puritans. Ordained by an Irish bishop without subscription, he served a curacy of 20l. a year at Whitmore in Staffordshire, and with this, together with the produce of a small school, he lived contentedly. In this obscure and lowly condition, he distinguished himself by his writings. His chief work was "A short Treatise concerning all the principal grounds of the Christian religion;" and so popular was this treatise that it passed through fourteen editions before the year 1632, and was translated into the Turkish language. He also wrote "A Treatise on Faith," 4to. 1631; "A Friendly Trial of the Grounds of Separation," 4to. 1640; and several devotional pieces. Although he disliked ceremonies, he wrote against those who thought them a sufficient ground of separation. He died in 1640, with the character of a laborious preacher, and an ingenious writer. Biog. Brit.

BALL, in a general sense, a round body, found naturally, or formed by art, of this figure.

BALL, in *Antiquity*, gives the denomination to a species of game or sport frequent among the ancients.

The Romans had four kinds of *pila*, or balls: the first called *trigon*, or *trigonalis*, because the three gamesters at it were placed in a triangle: these alternately caught and tossed the ball, and he who first let it fall to the ground, was the loser. The second called *follis*, or *folliculus*, was made of leather, blown up like our foot-balls: the largest sort of these were struck with the arm, the smaller with the fist: the former seems to have been distinguished by the appellation *paganica*, as being much used in country villages: the fourth was the *harpass*, a kind of small ball, so called, because the gamesters endeavoured to snatch it from each other.

Galen has an entire treatise on the exercise of the lesser ball.

BALLS, in *Architecture*, are represented at C, in the figure of the basilic (see BASILIC); and are used for supporting Attic pedestals.

BALLS, in *Brewing*. They are either *brown* or *pale*, and used to fine, feed, preserve, and colour malt-drinks, wines, and cyders. See the composition of them described under BREWING.

BALLS, *Martial*, in *Chemistry*, a preparation of iron now entirely disused in this form, but retained in the *Materia Medica* as a powder. It is the *ferrum tartarizatum*, *tartrate of iron*; or this metal united with, and partly dissolved by, cream of tartar.

To make martial balls, take one part of filings of iron, and two parts of powdered cream of tartar; mix them well together, and put them into an earthen or iron vessel with some water; stir the mixture from time to time, till it becomes almost dry; add more water, and stir it as before, till it acquires, when nearly dry, somewhat of the consistence and

and tenacity of softened rosin; then it is rolled into the form of a ball, generally kept tied up in a rag, and when it is used, infused into water, till it gives some colour to that liquid. Mac. Chem. Dict. Eng. Ed.

BALLS, Mercurial, an amalgam of mercury and tin sufficiently solid to be moulded, and to preserve a solid form.

To make mercurial balls, add mercury to its weight of melted tin, and pour the fluid mass into a round and hollow mould.

These balls have been employed to purify water in which they are boiled, an opinion which is perhaps in some degree well-founded, since mercury even in imperceptible quantity is known to destroy animalculæ. However, the boiling alone would probably produce nearly the same effect, and the mercurial balls are no longer in use. The tin is not an useless addition, since besides giving the mass a proper consistence, it assists most materially in the oxydation, and therefore the solubility, of the mercury.

BALLS, in Electricity, are two pieces of cork, or pith of elder, nicely turned in a lathe, to the size of a small pea, and suspended by fine linen threads; intended by Mr. Canton as electrometers, and of excellent use to discover small degrees of electricity, to observe the changes of it from positive to negative, and *vice versa*; and to estimate the force of a shock before the discharge, so that the operator shall always be able to tell very nearly before the discharge, by knowing how high he has charged his jars, what the explosion will be.

BALLS, Crystalline, in *Natural History*. There are two sorts of fossil bodies mentioned in authors by this name, and distinguished into the echinated and concave. The first are roundish nodules of strong matter, covered over with points of crystal; and the other, flints and other stones, having cavities in their middles, which are lined, or cruusted over with these crystals.

BALL, Vegetable, a very particular kind of plant of a deep green colour, of an irregularly spherical shape, hollow within, and of different sizes, from an inch and a half to three inches in diameter. It probably belongs to the *CONFERTA* genus, in the class of mosses; though Mr. Ray has ranged a similar plant under the genus of *ALCYONIUM*. (See *CORAL*.) Phil. Transf. vol. xlvii. art. 83. an. 1752.

BALL, Puff. See *LYCOPERDON*.

BALL, Hero's, Pila Heronis, in *Hydraulics*, is a kind of artificial fountain, wherein the water is made to spout from a hollow ball or globe.

It takes the denomination from the inventor, Hero of Alexandria, who has left the description of it in his *Spiritualia*. See *FOUNTAIN*.

BALLS of Fire in the air, in *Meteorology*, are meteors sometimes seen passing over countries, and computed by philosophers to be at a very considerable height in the atmosphere. They sometimes burst at that height; and though the air must be exceeding rare there, yet the explosion is heard at that distance, and for seventy miles round on the surface of the earth, &c. Does not this look as if a rare atmosphere, almost a *vacuum*, was no bad conductor of sound? Dr. Franklin's Works, p. 437.

Among the phenomena of the atmosphere, the large meteors called fire-balls, and *bolides*, have in modern times excited particular attention. Mr. C. F. Fulda has collected a variety of observations respecting these phenomena; in a paper read to the Physical Society of Gottingen, Dec. 7, 1796, and published in professor Gmelin's "*Gottingisches Journal der Naturwissenschaften*," vol. i. part 2. These meteors, he observes, appear in every climate in southern and

northern latitude, as well as under the equator. They are also seen at every season of the year, and at every period of the day, and for the most part when the sky is serene, some of them proceeding from light clouds, which has given occasion for supposing that they originated at a greater height than these clouds; and they have been observed to move with different degrees of rapidity, some proceeding at about 1530 feet in a second, or even with a slower motion, and others moving at the rate of thirty English miles in the same time, or with a velocity greater by $3\frac{1}{4}$ miles in a second than that of the earth in its orbit. They proceed from, as well as towards, all points of the compass; however, most of them have appeared in the northern or southern parts of the horizon; and yet no general conclusion, in respect of their connection with the northern or southern lights, can be deduced from this circumstance, though some observations made in Sweden seem to favour such an hypothesis. They do not always move according to the direction of the winds, nor is their velocity proportioned to that of the wind. When, indeed, they have appeared, it has generally been calm; but some of them have been succeeded by even a violent wind. They almost all descend towards the earth, and from a rarer to a denser atmosphere, as may be inferred from their soon becoming considerably enlarged. Some, however, have proceeded in an horizontal direction over the surface of the earth, but none of them appear to move upwards. Their form is sometimes perfectly globular, and sometimes more spindle-shaped, so that their length has occupied seven or eight degrees of the heavens. When they move with a great velocity, they have been followed by a long tail, which has been ascribed to the continuance of the impression made on the eye. Others, that have moved slowly, appeared as if the tail, or part of it, belonged to the body itself; and it should seem that the long train, which marks their course, ought often to be accounted for by traces left behind them rather than by mere impression. Their apparent magnitude has been very different; but frequently larger than that of the moon. Few of them have had an apparent motion round their axes. Most of them diffused a very lively dazzling light: but the smaller number have exhibited a faint light; their colour and splendor have been very different and variable, sometimes red, sometimes blue, sometimes violet, sometimes in part yellow or dazzling white, and sometimes exhibiting the prismatic colours. Some have been seen to burn with a bright flame, and others as if in a state of ignition. Their real diameter, ascertained by actual measurement or by conjecture, has been always very considerable. The diameter of that concerning which Sir John Pringle made calculations from various observations which he collected (Phil. Transf. vol. li. part 1. p. 218.), and that of the meteor seen by Mr. Rittenhouse at Philadelphia, in October 1779 (Americ. Transf. vol. ii. p. 175.), were at most about half a German mile. These meteors seem to originate at a very different, but most of them at a very considerable, height above the surface of the earth. All of them, whose mean or greatest height has been the subject of calculation, were elevated above the highest clouds, as clouds are scarcely perceptible at the height of 13,500 toises; and Silberschlag found the greatest height of the fire-ball, which appeared in July 1762, to be 72,276 toises. On this account their origin, as Reimaruss and Chladni have supposed, is not to be ascribed merely to electricity; but others have considered them as produced by the action of the electric fluid between the clouds and the northern lights; and this hypothesis sufficiently corresponds to their actual height, because by the measurement

of Bergman, Käftner, and Lambert, the northern lights have an altitude of more than 20 or 30 German miles, and according to every appearance, no fire balls have been seen higher. (See *AURORA BOREALIS*.) On the other hand, this general conclusion led Halley, Franklin, and Rittenhouse, to adopt the notion ingeniously defended by Chladni, that these phenomena, as well as shooting stars, are cosmical meteors belonging to the atmosphere of the sun, which, meeting our earth in its course round that luminary, are inflamed, by some cause or other, when they enter the earth's atmosphere. The time of their duration has been very different; some of them having continued half an hour, and others not longer than half a minute. Many of them in their course have thrown out sparks, and most of them have been seen to separate into several larger and smaller parts before they entirely disappeared. From this division it has been inferred, that these phenomena cannot be accounted for by the hypothesis of a tract of inflammable air set on fire; to which hypothesis Chladni has objected on other grounds. This separation has been accompanied with a rumbling noise like thunder, or a sudden report. Several, after bursting, seemed to dissolve into smoke; but most of them, after exploding, have left behind them no visible traces. In some cases, after their disappearance, a sulphureous smell has been perceived, which led Muschenbroeck to form his hypothesis of an accumulation of sulphureous inflammable vapours that arise from volcanoes and subterranean pits, which, being driven together by the winds, form clouds that are by some accident or other set on fire; but this hypothesis cannot be reconciled with their prodigious height any more than that of Silberchlag's oily and slimy vapours. As scoriaceous masses have frequently been either actually seen to fall at the time of the disappearance of these phenomena, or have been soon after found on the surface of the earth; and as it has been sufficiently proved by various accounts, that stones have fallen from the atmosphere, Dr. Chladni concludes that both these phenomena are connected; but this point can be determined only by future accurate observations.

This ingenious professor of Wittenberg, in his "Observations on a Mass of Iron found in Siberia by Professor Pallas, &c." has investigated the origin of fire-balls in general. This mass, described by Pallas in his "Travels," vol. iii. p. 311. was found between Krasnojarsk and Abekansk, in the high slate mountains, open and uncovered. It weighed 1600 pounds; resembled in figure a rough granite; was covered externally with a ferruginous kind of crust; and within consisted of malleable iron, brittle when heated, porous like a large sea sponge, and having its interstices filled with a brittle hard vitrified substance of an amber yellow colour. This texture and the vitrified substance appeared uniformly throughout the whole mass, and without any traces of slag or artificial fire. This mass, which the Tartars consider as a sacred relic dropped from heaven, Chladni refers to the same origin, and supposes to be of the same nature with the bolides, or fire-balls. From a variety of observations relating to these phenomena, he endeavours to prove that they do not arise from an accumulation of the matter of the aurora borealis; a transition of electricity from one part of the atmosphere to another; an accumulation of porous inflammable substances in the higher regions; or the catching fire of a long train of inflammable air; but that their component parts must be considerably dense and heavy, as their course shews in so apparent a manner the effects of gravity; and because their mass, though it distends to a monstrous size, retains sufficient consistency and weight to continue an exceedingly

rapid movement through a very large space, without being decomposed or dissolved, notwithstanding the resistance of the atmosphere. It seems to him probable, that this substance is by the effect of fire reduced to a tough fluid condition; because its form appears sometimes round and sometimes elongated, and as its extending till it bursts, as well as the bursting itself, allows us to suppose a previous capability of extension by elastic fluidity. At any rate, it appears to be certain, that such dense matter at so great a height is not collected from particles to be found in our atmosphere, or can be thrown together into large masses by any power with which we are acquainted; that no power with which we are acquainted is able to give to such bodies so rapid a projectile force in a direction almost parallel to the horizon; that the matter does not rise upwards from the earth, but exists previously in the celestial regions, and must have been conveyed thence to our earth. In the opinion of Dr. Chladni, the following is the only theory of this phenomenon that agrees with all the accounts hitherto given; which is not contrary to nature in any other respect; and which besides seems to be confirmed by various masses found on the spot where they fell.

As earthy, metallic, and other particles form the principal component parts of our planets, among which iron is the prevailing part, other planetary bodies may therefore consist of similar, or perhaps the same component parts, though combined and modified in a very different manner. There may also be dense matters accumulated in smaller masses without being in immediate connection with the larger planetary bodies, dispersed through infinite space, and which, being impelled either by some projecting power or attraction, continue to move until they approach the earth or some other body; when being overcome by their attractive force, they immediately fall down. By their exceedingly great velocity, still increased by the attraction of the earth, and the violent friction in the atmosphere, a strong electricity and heat must necessarily be excited, by which means they are reduced to a flaming and melted condition, and great quantities of vapour and different kinds of gases are thus disengaged, which distend the liquid mass to a monstrous size, till by a still farther expansion of these elastic fluids, they must at length burst. Dr. Chladni thinks also, that the greater part of the shooting stars, as they are called, are nothing else than fire-balls, which differ from the latter only in this, that their peculiarly great velocity carries them past the earth at a greater distance, so that they are not so strongly attracted by it as to fall down, and therefore in their passage through the high regions of the atmosphere, occasion only a transient electric flash, or actually take fire for a moment, and are again speedily extinguished, when they get to such a distance from the earth that the air becomes too much rarefied for the existence of fire. The professor illustrates and vindicates this theory, romantic, as he allows, some may be disposed to denominate it, by a variety of reflections; and in some subsequent publications, he has endeavoured to confirm it by adducing a great number of other phenomena of a similar kind. He concludes the whole elaborate detail with observing, that the accounts of scoriaceous masses, which contained iron, earth, sulphur, &c. having fallen from the heavens, with violent explosions, are not fictions, but true relations of real natural phenomena actually observed at various times; and that fire-balls, and the falling of such masses, are the same meteor. "Respecting the question," he says, "whence fire-balls and such fallen masses proceed, opinions are very different. Most people believe that they are owing to accumulations in the atmo-

atmosphere. But even when it is allowed that a great many foreign substances are dissolved in the atmosphere, the quantity of them, especially in regions at the distance of eighty miles or more, from which such fire-balls are seen to fall in the form of a luminous point, is too small to admit of our supposing such large masses to be formed of it. Should the solid particles, which may perhaps be dissolved in the atmosphere, precipitate themselves, it would be rather in the form of a fine powder. I consider it, therefore, with Anaxagoras, Maskelyne, Halley, &c. as more probable that these masses come to our regions from the common expanse of the universe; and that, besides planetary bodies, there are smaller accumulations of matter, which when they approach too near our earth must fall down. That material bodies actually exist in the remotest regions, is shown both by the single and accumulated luminous sparks which Dr. Schröter saw pass over the field of his telescope; as also by the shooting stars which pass by our earth, probably at a greater distance and with greater velocity than to allow their being attracted by it, and made to fall to its surface; and to which fire-balls, on their first appearance, when they seem to approach like a luminous point, have a perfect resemblance. There are many reasons for inducing us to believe that shooting stars cannot be mere electric phenomena, without the presence of some coarser substances.

The paradoxicalness of this mode of explanation, which is contrary to no known observations of nature, is rather apparent than real, and consists only in this, that people have not been accustomed to it; or that, on account of the rarity of these phenomena, many facts of this kind have been denied, or have escaped notice. For this reason, after I had written the *Treatise on the Mass of Iron* discovered by Professor Pallas, I hesitated whether I should publish it, because I expected that it would meet with considerable opposition. The more I endeavoured however to compare, without partiality, for any system, the observations already made, which correspond so much with each other, the more I found that these phenomena could not be properly explained in any other manner, without either contradicting observations already made, or well-known laws of nature: so that I see no grounds for retracting any thing I have advanced on this subject." See *Height of the ATMOSPHERE, and METEOR.*

BALL, in the *Military and Pyrotechnical Arts*, is a composition of divers ingredients, generally of the combustible kinds, serving to burn and destroy, give light, smoke, stench, or the like.

In this sense we read of fire-balls, light-balls, smoke-balls, stink-balls, sky-balls, water-balls, land-balls, &c.

Balls are likewise used for all sorts of fire-arms; those for cannon are made of iron, and are distinguished by their respective calibres; and those for muskets, &c. of lead.

BALLS, Fire, are bags of canvas filled with gunpowder, sulphur, saltpetre, pitch, &c. to be thrown by the soldiers, or out of mortars, in order to fire houses, incommode trenches, advanced posts, or the like.

The Greeks had divers kinds of fire-balls made of wood, sometimes a foot, or even a cubit long; their heads being armed with spikes of iron, beneath which were hemp, pitch, and other combustibles, which being set on fire, were cast among the enemy.

The preparation of fire-balls, among the moderns, consists of several operations, viz. making the bag, preparing the composition, tying, and, lastly, dipping the ball.

The bags for this purpose are either oval or round.

The composition wherewith fire-balls are filled is various.

To ten pounds of meal gun-powder, add two of saltpetre, one of sulphur, and one of colophony; or, to six pounds of gunpowder, add four of saltpetre, four of sulphur, one of powdered glass, half a pound of antimony, as much camphor, an ounce of sal ammoniac, and four of common salt, all pulverized. Sometimes they even fill fire-balls with hand grenades. For tying the fire-balls, they prepare two iron rings, one fitted round the aperture, where the ball is to be lighted, the other near its base. A cord is tied to these rings in such manner as that the several turns represent semicircles, or meridians of the sphere cutting the globe through the poles: over the cords, extended according to the length of the ball, others are tied, cutting the former at right angles, and parallel to each other, making a knot at each intersection. Lastly, putting in a leaden bullet, the rest of the space is filled with tow or paper. Thus completed, the fire-ball remains to be dipped in a composition of melted pitch, colophony, and linseed oil, or oil of turpentine; after dipping, they cover it round with tow, and dip again, till it be brought to the just diameter required.

BALLS, Land, those which, being thrown out of a mortar, fall to the ground, burn, and burst there. The ingredients are much the same as in the water-balls, only the specific gravity is not attended to.

BALLS, Light, are such as diffuse an intense light around: or they are balls which, being cast out of a mortar, or the hand, burn for some time, and illuminate the adjacent parts.

Those for the hand are made of ground powder, saltpetre, brimstone, camphor, and borax, all sprinkled with oil, and moulded into a mass with suet, common and Greek pitch, to the size of an ordinary grenade: this is wrapped up in tow, with a sheet of strong paper over it. To fire it, a hole is made into it with a bodkin, into which is put some priming that will burn slowly. Its use is, to cast into any works that are to be discovered in the night time.

For the larger light-balls, or those to be thrown to a greater distance, they are prepared by melting equal quantities of sulphur, turpentine, and pitch; and by dipping in this composition an earthen or stone ball, of a diameter much less than that of the mortar out of which the fire-ball is to be cast; then rolling it in gun-powder, and covering it round with gauze, the dipping is repeated till it comes to fit the cavity of the mortar; lastly, it is sprinkled around with gun-powder. This being once kindled, will strongly illuminate all round the place where it is thrown, and give opportunity for examining the state and condition thereof.

BALLS, Sky, those cast on high out of mortars, and which, when arrived at their height, burst like rockets, and afford a spectacle of decoration. Sky-balls are made of a wooden shell, filled with various compositions, particularly that of the stars of rockets.

These are sometimes intermixed with crackers and other combustibles, making rains of fire, &c.

BALLS, Smoke, or Dark, those which fill the air with smoke, and thus darken a place, to prevent discoveries. To prepare a darkening ball, make an oval or spherical bag; melt rosin over the coals, and add an equal part of saltpetre not purified, also of sulphur, and a fifth part of charcoal. The whole being well incorporated, put in tow first shred, and fill the bag with this composition, and dip it after the same manner as a fire ball.

BALLS, Stink, those which yield a great stink where fired to annoy the enemy.

Their preparation is thus: melt ten pounds of pitch, six of

of rosin, twenty of saltpetre, eight of gun-powder, and four of colophony; to these add two of charcoal, six of horse-hoofs cut small, three of assa-fetida, one of stinking faracen, and any other offensive ingredients. Then proceed as in making smoke and fire-balls.

BALLS, Water, those which swim and burn a considerable time in the water, and at length burst therein.

These are made in a wooden shell, the cavity of which is filled with a composition of refined saltpetre, sulphur, saw-dust boiled in water of saltpetre, and dried; to which sometimes other ingredients are added, as iron-silings, Greek pitch, amber-dust, glass powdered and camphor. The ingredients are to be ground and mixt up, and moistened with linseed-oil, nut-oil, olive-oil, hempseed-oil, or petrol. At the bottom is placed an iron coffin, filled with whole gun-powder, that the ball may at last burst with a great noise; and lastly, the ball is, by the addition of lead, or otherwise, made of the same specific gravity with water.

BALLS, Anchor, are made in the same manner as light balls, and filled with the same composition; and, besides, they have an iron bar two-thirds of the ball's diameter in length, and three or four inches square. One half is fixed within the ball, and the other half remains without; and the exterior end is made to grapple with a hook. These are useful for firing wooden bridges or buildings, the rigging of ships, &c.; as the pile end being the heaviest, flies foremost, and wherever it touches, fastens, and sets fire to all about it.

BALLS, Chain. See CHAIN-BALLS.

BALLS, Stang. See STANG-BALLS.

BALL, in *Mineralogy*, is also used in Cornwall, &c. for a tin-mine.

In this sense Godolphin's ball is said to be the most famous of all the balls or mines in Cornwall, for quantity of metal. Phil. Trans. N^o 138. p. 951.

BALL-Vein, a name given by the miners in Suffex to a sort of iron ore, common there, and wrought to considerable advantage. It yields not any great quantity of metal, but what it has runs freely in the fire; it is usually found in loose masses, not in form of strata, and is often covered with one or more crusts. It generally contains some sparkling particles, and is usually of a circular form in the perfect masses; thickest in the middle, and gradually thinner as it approaches the sides. The ores of Suffex in general are poor, but they require very little trouble in the working, so that a considerable profit is annually made from them.

BALL of a Pendulum, the weight at the bottom. In shorter pendulums, this is called the *bob*.

BALL, among *Printers*, a kind of wooden tunnel stuffed with wool, contained in a cover of sheep's skin, which is nailed to the wood; with which the ink is applied on the forms, to be wrought off.

The pressman holding one of these balls in either hand, first daubs them on the ink-block, then working them on each other, he applies them afterwards on the forms, which retain the ink necessary to make an impression.

BALLS for Horses, in *Veterinary Science*, masses made into this form which is the most usual and most convenient mode of administering medicine to these animals.

Being mixed with some viscid substance, the proposed medicine is formed into masses of an oblong or oval form, which are conveyed by the hand or otherwise to the root of the tongue, from whence they readily pass to the stomach.

This mode of administering medicines to horses is of great antiquity. These balls were termed by the Romans *assa*; by the Greeks, *τροχισμος*. They, however, generally

preferred giving their remedies as a potion or drink. The kinds of balls will necessarily be as various as the nature of the medicine which is administered; as purging balls, cordial balls, diuretic, diaphoretic, febrifuge, worm-balls, cough-balls, alterative balls, &c. Any tenacious substance not possessing active properties, will serve for the admixture of them, as paste made of boiled flour, or boiled linseed meal; these particularly serve for balls that are to be immediately given, and not kept for any length of time, as they are apt to grow hard and dry, and sometimes mouldy. To prevent this, they may be immersed in melted wax, which will effectually coat them over and preserve them, and this was a mode also well known to the ancients. Honey, treacle, turpentine, and tar, are not subject to the above objection, and are all used by different persons for this purpose. The two last, however, cannot be supposed devoid of effect as a medicine; and therefore should not be employed, unless when they co-operate with, or do not destroy, the effect of the medicine prescribed.

Soft soap is also an adhesive particularly useful in the admixture of diuretic and purging balls for horses, as not drying nor being particularly expensive. Aloes, almost the only purgative at present known for horses, operates better when united with this substance than in any other way that we have tried. Calomel also operates as a purgative on horses. For the particular method of preparing them, see PHARMACOPŒIA *Equina*.

These balls should not be made too large, or be suffered to get too hard; in either case, by lodging in the œsophagus, they may prove fatal.

It may not be unnecessary also to observe, that for the easy administration of them the following circumstances should be observed. The tongue should be drawn from the mouth with the left hand over the grinder teeth, the right hand holding the ball between the thumb and first finger, the ball should then suddenly and at once be thrust into the throat by gliding the hand along the roof of the mouth: when this is done slowly, the tongue rises, opposes the hand, and renders it difficult. An iron ring with a handle is sometimes used to distend their jaws; but in this country these balls are generally given without.

When the jaw is very narrow, so as not conveniently to admit the hand, the ball is placed on the end of a pointed stick, or it might be placed loosely in a cup or socket at the end of a small cane or whalebone, and be thus very conveniently given.

BALLS, in *Zoology*, various substances under this form found in the stomach and intestines of several animals; they occur most frequently in those quadrupeds which lick the surface of their bodies, in which case they are composed of the hair that has been removed by the tongue; the hair, partly by the operation of licking, and still more by the motion of the stomach, becomes mixt and interwoven in such a manner, that it resembles the texture of a hat, and when moulded into a round figure, receives a smooth, shining coat, or calculous incrustation. These are the sort of balls usually met with in the cow, sheep, and goat kind, especially the chamois. Every indigestible substance that is swallowed is liable, however, to give origin to these balls, or to form a nucleus for calculous concretion; hence we meet with them composed of the reedy fibres of vegetables, husks of seeds, feathers, and different animal and vegetable exuviz. When such substances as stones of fruit, nuts, or inorganic substances, as pebbles, coins, &c. are long detained, and have been covered with a deep incrustation, they constitute the bezoardic stones. See BEZOAR. See also ÆGAGROPILA.

Accord-

According to authors, the human subject is liable to the formation of balls in the intestines, in consequence of indigestible matters not being regularly expelled. Thus cases have been related of death ensuing from accumulations of gooseberry seeds, which had been rolled into a solid ball in the stomach; and sir Hans Sloane gives the history of a ball found in the intestines of a man, much afflicted with the colic, six inches in circumference, of a spongy substance, and which, when viewed with a microscope, appeared made up of small transparent hairs or fibres, wrought together like the *tophus bovinus*; in the middle was a common plumb stone, which made, as it were, the core or nucleus upon which the fibrous matter had collected, *stratum superstratum*. Phil. Transf. N^o 309. p. 2387. Sloane, in Phil. Transf. N^o 282. p. 1282.

BALLS of Silk-worms and Spiders, are little cases or cones woven of silk, wherein those insects deposit their eggs. See SILK.

Spiders are extremely tender of their balls, which they carry about with them, adhering to the papillæ about their anus. Grew speaks of balls or bags of a species of silk-worms in Virginia, as big as hen's eggs, and containing each four *aurelia*. Phil. Transf. N^o 362. p. 1037.

BALL of the Foot of a Dog, is the prominent part of the middle of the foot, called by Latin writers of the middle age, *pelota*, which is to be taken away in expeditation. Dugange Gloss Lat.

BALLS, Billiard, are ivory balls used in the game of billiards. Moxon describes the method of turning hollow ivory balls one within another. Mechan. Exerc. p. 219.

BALL, Tennis, is a little globe, made and covered with cloth or leather, used in playing at the game of tennis.

BALL is also used, in a well-known sense, for an assembly of both sexes, who dance to the sound of instruments.

BALLS, Glass. See GLASS BALLS.

BALL-Soap. See SOAP.

BALL and Socket, a machine contrived to give an instrument full play and motion every way. It consists of a ball or sphere of brass, fitted with a concave semi-globe, so as to be moveable every way, horizontally, vertically, and obliquely. It is carried by an endless screw, and is principally used for the managing of surveying instruments; to which it is a very necessary appendage.

The ancient balls and sockets had two concaves, or channels, the one for the horizontal, the other for the vertical direction.

BALLS, Wool. See WOOL.

BALL's Pyramid, in *Geography*, a rock in the great Southern Pacific ocean. S. lat $31^{\circ} 30'$. E. long. $159^{\circ} 8'$.

BALLABUAN, Straits of. See BALI.

BALLAD, or **BALLET**, a popular song containing the recital of some action, adventure, or intrigue.

The French confine their ballads to stricter terms. A ballad, according to Richelet, is a song consisting of three strophes, or stanzas, of eight verses each, besides a half strophe; the whole in rhyme, of two, three, or four verses, with a burden repeated at the end of each strophe, as well as of the half strophe.

In the old English version of the Bible, the book of Canticles is entitled the *ballad of ballads*, which has given scandal to some Romish writers as countenancing the opinion of those who hold that book a ballad of love, or a recital of the amours between Solomon and his concubine, as Castalio and some others have conceived it to be.

Some have suggested that a collection of ballads is necessary to a minister, in order to learn the temper and inclina-

tions of a people, which are here frequently uttered with great simplicity. The great Cecil, chief minister to queen Elizabeth, is said to have made a most ample collection of ballads on this account.

A very ingenious political writer, Mr. Fletcher of Saltoun, says, that if he could but make the ballads of a nation, he would care very little who made the *religion* of it. There is a very curious collection of old English and Scottish ballads, published in 3 vols. 8vo. by Dr. Percy; in which, and in a dissertation prefixed to Aikin's Collection of songs, &c. the curious in this way may find abundance of entertainment and information concerning the old ballads, and ballad-makers.

BALLAD, a mean and trifling song, generally, such as is sung in the streets. In the new French Encyclopedie we are told, that we dance and sing our ballads at the same time, as the French do their *vaudevilles*. We have often heard ballads sung, and seen country-dances danced; but never at the same time; if there was a fiddle to be had. The movement of our country-dances is too rapid for the utterance of words; though the term ballad, we have no doubt, was derived from the Italian *ballata*, a song to be sung and danced at the same time, as it is defined in the Crusca Dictionary: *canzone, che si canta ballando*. *Ballatella*, and *Ballatetta*, are diminutives of the same word: *piccola canzonetta a ballo*. The English ballad has long been detached from dancing, and since the old translation of the Bible, been confined to a lower order of song. In Shakspeare's time this species of vulgar and popular poetry was wholly degraded and turned into the streets—

“An I have not ballads made on you all, and sung to filthy tunes, may a cup of sack be my poison.” Hen. IV.

BALLADUK, in *Geography*, a town of Arabia Deserta, 140 miles E.N.E. of Damascus.

BALLA-GAUT, denoting the *higher* or *upper Gauts*, an elevated tract of the peninsula of India, being the western part of the Carnatic, or of that part of the peninsula that lies south of the Godegama and Toombuddra (or Tungebadra) rivers, from the coast of Coromandel eastward to the Gaut mountains westward, and containing the districts which lately composed the country of Tippoo. The other or eastern part, which is the Carnatic according to its present definition, is denominated *Payen-Gaut*, or the lower Gauts. (See BALAGAT.) The *Balla-Gaut* mountains denote that elevated tract, across which goods were formerly conveyed from TAGARA, or the modern DOWLATABAD, to BAROACH. See Asiatic Researches, vol. i. p. 369, &c. 8vo.

BALLAGHAN Point, a cape on the east coast of Ireland, in the county of Louth, at the south-west entrance of Carlingford bay; eleven miles south-east of Newry. N. lat. $53^{\circ} 58'$. W. long. $6^{\circ} 4'$.

BALANTIRE, or **BALANTRAE**, a sea-port town or rather populous village of Scotland, on the west coast of the county of Ayr, in that subdivision called Carrick, on the frith of Clyde, containing about eighty houses, and 300 inhabitants. They have a good salmon fishery at the mouth of a small river called Ardstinchar, which joins the frith near the town; but the principal fishery of this district is that of haddocks, whittings, cod, ling, skate, &c.: twenty-eight miles S.S.W. of Ayr.

BALLARD, Cape, lies on the east coast of Newfoundland, four leagues N.N.E. from cape Race, and four miles from Fresh-water bay. N. lat. $46^{\circ} 49'$. W. long. $52^{\circ} 40'$.

BALLARD's Point, a cape on the west coast of Ireland, in the county of Clare. N. lat. $52^{\circ} 42'$. W. long. $9^{\circ} 32'$.

BALLA-

BALLARINA, in *Ornithology*, a name under which Olinia describes the white-wagtail, motacilla alba.

BALLAS, a town of Egypt, ten miles south of Dendera.

BALLAST, in *Navigation*, any heavy matter used to sink a vessel to its proper depth in water, or to give it a just weight and counterpoise, and enable it to bear sail upright, without overturning.

The word comes from the Flemish *belast*, formed of *be*, and *last* or *lest*. The French call it simply *lest*. In the Mediterranean, *quartelage*. In Latin writers of the lower age it is denominated *lascium*.

The ordinary ballast is sand or stones, stowed in the bottom, or hold, next the false keel of a vessel: sometimes, iron, lead, corn, or other heavy goods, serve for ballast.—Ships are said to be in ballast, when they have no other loading.

That ballast is best which is heaviest, lies closest and fastest, and driest, both for the ship, bearing a sail, stowing of goods, health of the company, and saving of casks and other goods. If a ship have too much ballast, she will draw too much water; if too little, she will bear no sail. The ballast is sometimes one-half, sometimes a third, and some times a fourth part of the burden of a vessel. But there is often great difference in the proportion of ballast required to prepare ships of equal burden for a voyage; the quantity being always greater or less, according to the sharpness or flatness of the ship's bottom, which seamen call the *floor*.

Although ships in general will not carry a sufficient quantity of sail till they are laden so deep that the surface of the water will nearly glance on the extreme breadth amidship, yet a great weight of heavy ballast, as iron, lead, &c. in the bottom, will place the centre of gravity too low in the hold; and in this case, though they may be able to carry a great sail, they will move heavily, and hazard being dismasted by their violent rolling. The art of properly ballasting a ship is that of disposing the materials of which it consists, &c. so that it may be duly poised, and maintain a just equilibrium on the water, and be neither too *stiff* nor too *crank*. In the first case, though the ship may be able to carry a great sail, yet its velocity will not be proportionably increased, whilst her masts are more endangered by her sudden jerks and excessive labouring; and in the last case she will be incapable of carrying sail, without the danger of oversetting. Stiffness in ballasting is occasioned by laying a great quantity of heavy ballasts as lead, iron, &c. in the bottom, which of course will place the centre of gravity very near the keel; and crankness is occasioned by having too little ballast, or by disposing the ship's lading in such a manner as to raise the centre of gravity too high.

As the tendency of a ship to pitch or roll depends, not only on her form, but also in a greater degree upon the due distribution of the heaviest part of her cargo, the knowledge of properly ballasting a ship, as well as of stowing her cargo, is of great importance to the mariner. Particular attention should be paid to moderate her pitching, as this most fatigues a ship and her masts; and it is usually in one of these motions that masts break, particularly when the head rises after having pitched. Rolling, indeed, is a more considerable movement than pitching; but it is slow, and seldom attended with any accident. However, it should be prevented as much as possible; and this may be easily done in general, without any detriment to the ship's stiff carrying of sail, by stowing up the ballast, when it is iron, to the floor-heads; because the ship will be restored by it with less violence after she has inclined, and it will act on a point at a little distance from the centre of gravity.

For the farther illustration of this important subject, let it be premised, that various methods have been recommended for finding the following points of a ship; viz. its centre of gravity, centre of cavity, centre of motion, and metacentre. (See these articles.) Some of these points are fixed; others are variable. When a ship is completely loaded, the centre of gravity is fixed, howsoever the vessel may alter her position. The centre of motion is always in a line with the water's edge, when the centre of gravity is even with or below the surface of the water; but, whenever the centre of gravity is above the water's surface, the centre of gravity is then the centre of motion. In circular bodies the centre of motion will be the centre of the circle. The centre of cavity varies with every inclination of the ship, because that depends upon the shape of the body immersed. The metacentre, called the shifting centre, depends upon the situation of the centre of cavity; for it is that point where a vertical line drawn from the centre of cavity cuts a line passing through the centre of gravity and perpendicular to the keel. The centre of gravity must not by any means be placed above this point; because, if that were the case, the vessel would overset.

Let the segment of a circle 1 2 3 (*fig. 14. Plate II. MECHANICS*), represent the transverse section of a vessel's bottom; W L the surface of the water; M the metacentre as well as the centre of motion, because this is a circle; C the centre of cavity; G the centre of gravity; and the line 2 4 the vertical axis of the vessel which may be turned round the point M, as on a fulcrum, supported by the centre of cavity. By thus simply considering the vessel as a lever in the direction of her vertical axis playing round her centre of motion, it is plain, that if the centre of gravity was placed above the point M, being the metacentre too, the vessel would upset; therefore that the ship may have stability, the centre of gravity must be below this point: and it may be observed, that the farther G is removed from the metacentre, the greater must be its force, as the gravity then acts with a greater length of lever, considering the fulcrum of that lever to be at the centre of motion; or, if the weight at G be augmented, it will likewise increase the force; therefore the force of G may be expressed, by multiplying the balance of weight beneath the centre of motion, by the distance of the centre of gravity from the centre of motion.

The centres of cavity and motion (in circular bodies) will ever be in a line perpendicular to the horizon, but the centre of gravity may be either on one side or the other of this line. When such a body is at rest, the centre of gravity will be in this line; but if in motion, it will be diverted from it. Thus the points M and C, will always be perpendicular to W L; but the point G, by the body's rolling, may be on either side; for instance at g. While G is perpendicularly beneath the centre of motion, its action can only tend to *preserve* this circular body in her erect position; but if it is removed to either side as to g, its action is to *return* it to the erect position; and this action increases as the distance Gg, which is the sine of the angle of roll g M G, the distance M G being considered as the radius. Thus, to gain the force of gravity with any roll as g M G, let the balance of weight beneath the centre of motion be multiplied by the sine of the angle of roll Gg.

But the tendency to roll may be also diminished by the shape of the hull; for, let us suppose that the transverse section be allowed more beam, and increased by the dotted lines. Now when this vessel is rolled over, it is plain that the cavity will be augmented towards the side L, of course its

its centre must remove towards L, say to e ; and, if from e be erected a perpendicular to the horizon, it will cut the vertical axis at n ; which will, in this case, be the metacentre, above which, if the centre of gravity were placed, it would act in conjunction with the centre of cavity to overset the vessel: but, as the centre of gravity is here below it at g , her stability will be increased by the increased distance of G from n , the metacentre; and the vessel will roll round the point M as her centre of motion.

When sailing in smooth water, the greater the stability the better; but if a vessel with a heavy cargo, stowed low in her bottom, be sent out into a rough tempestuous sea, where every wave will throw her from her equilibrium, she will return with such violence as to endanger her masts; and should she be dismasted, her roll will then be with still greater force, possibly to the destruction of her hull. Was the cargo in this laboursome vessel to be removed higher up towards the centre of motion, so as to lessen her stability, she would be found considerably easier; her roll would be by such deliberate motions, as to lessen the danger to her masts and hull.

The ballast is placed round and very near the centre of gravity of the ship, because it will prevent the motion of the pitching being so hard as it would be, if that weight were distant either afore or abaft that point. Whenever the sea runs a little high, the ship is never carried by a single wave; there are generally two or three always passing under at the same time, unless when the sea is extremely long, the swells coming from a great distance, and in latitudes very remote from land; for, then, it happens that the largest ships are sometimes carried by one single wave. But, in either circumstance, the ballast ought not to be stretched afore or abaft the centre of gravity, as soon as the ship is in the parallel to her draught of water marked for the ballast, which it is absolutely essential to pay attention to. To prove this principle, suppose in either case a long or short surge, and that the water strikes the ship forward, that thereby she may be exposed to the greatest and hardest pitching; for when the wave takes a ship under the stern, her motions, if she has got a little head-way, are not dangerous; because, as she flies before the wave, she recedes in some measure from its impulse; while, in the first case, she increases on the contrary that same impulse in the ratio of the square of all her velocity.

First, the ship whose extremities are light or little loaded, being supposed to run with any velocity whatever against the wave which comes to her a-head, shocks that wave with a force expressed by the square of the sum of the two velocities; she divides it and goes through it, at the same instant that she is raised by the vertical impulse of that column of water, which opposes to her a supporting power too considerable for her weight to displace; the wave which follows produces the same effect in receiving the fall of the ship, because the first is already under the middle of the ship, whence it passes to the stern, which is supported by it, while the second takes its place in the middle, and the third is come to support the head; and this in an uninterrupted succession. This motion continuing thus as long as the sea is agitated, it follows that the ship is never at rest; no sooner has she been raised by a wave, but she falls again when that wave is gone, which falling is proportionably less sharp as her head is less heavy; the shake is then less violent, since she shocks the water with a less mass, which prevents her pitching so deep as she would do, if she were more heavy; consequently, the masting does not suffer, and the headway is less delayed, as the fullest part of the bows is not so much exposed to the shock of the water.

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Secondly, when the ship is carried by one single wave, her fall is still less sharp, if little loaded a-head, than when she is carried only by the middle. She rises, therefore, more easily at the moment the other wave comes to strike her, and the shake is not so violent. Was she to plunge deeper into the fluid, it might happen that the column of water would become higher than her head, and, passing partly over it, would expose her to the danger of foundering.

In the stowing of the cargo, it is proper to place the heaviest part of the stowage as low as possible, taking care to preserve that draught of the ship which is most advantageous for her, whether she be in ballast or when laden. Those points are marked both at the head and stern; in a word, the great art of stowing lies, in endeavouring that each of the vertical parts, in which the extremities of a ship may be supposed to be equally divided, be lighter, when her lading is complete, than the weight of the mass of water they are to displace; observing always, that the vertical parts of the middle admit of being loaded more heavily than the weight of water they are able to displace.

In the royal navy, the iron ballast is first stowed fore and aft, from bulkhead to bulkhead in the main hold, next to fir cants nailed on the limber-trakes on each side the keelson, five or more inches clear of the limber-boards; and is winged up three or more pigs above the floor-heads in the midships, or bearing part of the ship, and there are two tiers of pigs in the wake of the main hatchway and well-wings. Ships, built with a very clear run aft, seldom have any iron ballast stowed abaft the pump-well or after-hold. Ships that have floor and futtock riders, have the iron ballast stowed either lengthways or athwart ships, agreeably to the length of the chambers, which are the clear spaces between the riders.

The shingle ballast is next spread and levelled over the iron ballast; on which is stowed the ground tier of water, bung up and bilge free from the sides, either chine and chine, or bouge and chine, beginning at the coal-room bulkhead, that being the foremost, and making the breakage, if any, at the main hatch. The midship tiers, fore and aft, are the first laid down, and the casks are sunk about one quarter of their diameter into the shingle; the sides are filled-in with wingers of small casks, as half-hogheads, gang casks, or breakers; observing not to raise the wingers above the level of the tier, to cause a breakage in the next tier above, which is stowed in the cuntline of the ground tier, bung up and bilge free; and so on, for as many tiers as can be stowed sufficiently clear of the beams.

In the after-hold, between the aft-side of the pump-well and fish-room bulkhead, are stowed the provisions above the ground tier; between the casks, billet, or other wood, and shingle ballast.

In the fish room are stowed some of the spirits, or wine, and sometimes coals; and in the spirit room, are stowed the wine and spirits for the ship's use.

In the merchant service, the stowage consists, besides the ballast, of casks, cases, bales, boxes, &c. which are all carefully wedged off from the bottom, sides, pump-well, &c. and great attention paid that the most weighty materials are stowed nearest to the centre of gravity, or bearing of the ship; and higher or lower in the hold agreeably to the form of the vessel. A full low-built vessel requires them to be stowed high up, that the centre of gravity may be raised, to keep her from rolling away her masts, and from being too stiff and laboursome; as, on the contrary, a narrow high-built vessel requires the most weighty materials to be stowed low down, nearest the keelson, that the centre of gravity may be kept low, to enable her to carry sail, and to prevent her oversetting.

Ballast allowed to the following Ships.

Guns	Ton nage	Iron Tons	Shingle Tons.	Guns.	Ton nage	Iron Tons.	Shingle Tons.
110	2290	180	370	36	870	65	160
100	2090	180	370	32	700	65	140
98	2110	160	350	28	600	60	100
90	1870	160	350	24	500	50	80
80	1620	140	300	22	450	50	70
74	1700	80	270	20	400	50	60
64	1370	70	260	Sloop	300	50	40
50	1100	65	170	Brig	160	30	15
44	900	65	160	Cutter		20	Seldom
38	930	70	170	Sloop		15	any.

By the 19th Geo. II. it is enacted, that if after June 1, 1746, any master or owner, or any person acting as master of any ship or other vessel whatsoever, shall cast, throw out, or unlade, or if there shall be thrown out, &c. of any vessel, being within any haven, port, road, channel, or navigable river within England, any ballast, rubbish, gravel, earth, stone, wreck, or filth, but only upon the land, where the tide or water never flows or runs; any one or more justices for the county or place where or near which the offence shall be committed, upon the information thereof, shall summon or issue his warrant for bringing the master or owner of the vessel, or other person acting as such, before him; and upon appearance or default, shall proceed to examine the matter of and upon proof made thereof, either by confession of the party, or on view of the justice, or upon the oath of one or more creditable witnesses, he shall convict the said master, &c. and fine him at his discretion for every such offence any sum not exceeding 5l. nor under 50s. &c.; and for want of sufficient distress, the justice is to commit the master, or person acting as such, and convicted as aforesaid, to the common gaol or house of correction, for the space of two months, or until payment of the penalties.

Besides the above general act relating to ballast, there are the 6 Geo. II. c. 29. and the 32 Geo. II. which regulate the ballasting of merchant vessels in the river Thames, placing it under the direction of the corporation of Trinity-house. Elements and Practice of Rigging and SeamanSHIP, vol. ii. p. 283, &c.

BALLAST, *to trench the*, denotes, to divide the ballast into two several parts or more, in the ship's hold, commonly done to find a leak in the bottom of a ship, or to undock her.

BALLAST, *the, shoots*, that is, runs over from the one side to the other. Hence it is that corn, and all kinds of grain, is dangerous lading, for that is apt to shoot. To prevent which, they make *pouces*, that is, bulk-heads of boards, to keep it up fast, that it may not run from side to side, as the ship heels upon a tack.

BALLASTAGE. See LASTAGE.

BALLATOONS, large, heavy luggage-boats, carrying goods by the river from Astracan and the Caspian sea to Moscow. These will carry from a hundred to two hundred ton; and have from a hundred to a hundred and ten, or twenty, men employed to row, and tow them along.

BALLENDEN, or BELLENDEN, *for John*, in *Biography*, an elegant Scots writer of the sixteenth century, descended of an ancient and honourable family in Scotland, was probably born and educated in France. Having in his youth served in the court, and, as some writers suggest, having been employed in the education of James V., he was distinguished by the favour and patronage of that prince, and ob-

tained extraordinary preferment in the church, as well as the office of clerk of accounts, occupied by his father Mr. Thomas Ballenden of Auchinoul, in 1541. The work by which he gained the highest reputation, was his translation of Hector Boethius out of Latin into the Scots tongue, performed by the command of his royal master, intitled, "The History and Chronicles of Scotland, &c." and published in folio at Edinburgh, A.D. 1536. This version, in which the translator took the liberty of augmenting and amending the original as he thought proper, was well received both in Scotland and England, and soon became the standard of that history. In the succeeding reign, he was one of the lords of session; and being a zealous Romanist, he assiduously laboured, in conjunction with Dr. Laing, to hinder the progress of the reformation. His zeal involved him in disputes, which obliged him to quit Scotland, and remove to Rome, where, it is said, he died A.D. 1550. He was a man of great parts, and one of the finest poets of which his country could boast. His works, that are still extant, are distinguished by that noble enthusiasm, which is the soul of poetry. His poem, intitled "Vertue and Vyce," was addressed to the monarch of the Scots, James V.; and his other pieces, both printed and in MS. are now buried in oblivion. In Carmichael's collection of Scottish poems, there are some of this author on various subjects. Biog. Brit.

BALLENDEN Point, in *Geography*, a projecting point in the bottom of Donegal bay, on the north-west coast of Ireland, south-west by south $\frac{1}{2}$ south. Eight miles from Enismurphy island.

BALLENESSE ISLANDS, are four small islands on the south of Troy island, off the N.W. point of Ireland, called Beg, Doway, Bofin, and Maghere Welley. Between Troy island and Ballenese, there is a good road and safe anchorage from a southerly or easterly wind.

BALLENTAY PORT is about $2\frac{1}{2}$ leagues east from Skerries island, or port Rusch, upon the main, on the north coast of Ireland; south and somewhat west from Rathlin island, and Dunmore's rocks.

BALLEROY, a town of France, in the department of the Calvados, and chief place of a canton in the district of Bayeux, six leagues south of Caen, and $2\frac{1}{2}$ S. S. W. of Bayeux. The place contains 1176 and the canton 14,484 inhabitants: the territory includes 197 $\frac{1}{2}$ kilometres and 29 communes.

BALLERUS, in *Ichthyology*, the name under which the Gmelinian *cyprinus latus* is noticed by Jonst. and other old authors.

BALLERUS, a species of CYPRINUS, with forty rays in the anal fin. Linnæus Fn. Suec. This fish inhabits the lakes in some parts of Europe, and near the Caspian sea. The head is small, obtuse, and brown in the front; cheeks and gill-covers alternately blue, yellow, or red; eyes large; iris yellow, with two black spots; jaws equal, lower one curved; back carinated; lateral line straight, variegated with brown dots; edges of the fins blue; dorsal fin placed farther back from the head than the pectoral one; anal fin very broad; tail lunated. Weight in general about a pound; deposits an immense number of eggs in April; grows slowly, is thin, and covered with minute lax scales; the colour above is blackish-blue, yellowish on the sides, silvery below, and reddish on the belly; flesh not very good. Bloch observes that the number of rays in the anal fin amount to one more than Linnæus mentions, and characterises the species as having forty-one rays in the anal fin; cyprinus pinna ani radii 41. Bloch.

BALLET, or BALET, BALETTO, a kind of dramatic poem, representing some fabulous action or subject, divided into

into several entries; in which several persons appear, and recite things under the name of some deity, or other illustrious character.

BALLET, from βαλλειν, *to cast*, is more particularly used for a stage dance. Rousseau defines this word a theatrical action, represented by dancing, guided by music. The term is derived from the old French word *baller*, to dance, sing, divert one's self. The music of a *ballet* ought to be still more cadenced and accented than mere vocal melody; as it is the business of music to suggest to the dancer that animation and expression which the finger acquires from the words; and it is likewise her business to supply, in the language of the soul and the passions, all that the dancer cannot present to the eyes of the spectator.

BALLET is likewise the name given in France to a whimsical kind of opera, where dancing is hardly more in place than in the others, or productive of better effects. In most of these ballets, the several acts seem to many different subjects, connected together only by some general relation foreign to the action, which the spectator would not discover, if the author did not make it known in the prologue.

These ballets contain other little ballets, which are called festivals or entertainments; they are likewise called suits or series of dances, which succeed each other without subject or connection with the principal action, and where the principal dancers tell you nothing but that they dance well. This arrangement, by no means theatrical, may do very well for a private ball, where each individual has fulfilled his object sufficiently, when he has amused himself, and where the interest which the spectator takes in this individual, dispenses with his giving him any other gratification. But this defect in the subject and connection, ought never to be suffered on a public stage, nor even in the representation of a ball, where the whole ought to be combined by a secret action, which keeps up the attention and interests of the spectator. In general, every dance which represents nothing but itself, and every ballet which is only a ball, should be banished from the theatre. Indeed every action on the stage is the representation of another action, and what we see there is only the image of what we suppose there; so that it ought not to be merely this or that dancer who presents himself to your observation, but the person whose character he has assumed. Thus, though the private dance can represent nothing but itself, the theatrical dance ought necessarily to be the representation of something else, in the same manner as the singer represents a person that is speaking, and the decoration of other places than those which he occupies.

The worst ballets are those which are founded on allegorical subjects, and which represent nothing but an imitation of an imitation. The whole art of this kind of dramas consists in the personifying intellectual images, and in making the spectator see what he disbelieves; as if, instead of attaching him to the stage, it were meritorious to carry him from it. Besides, this species of representation requires so much subtilty in the dialogue, that the composer of the music finds himself lost in the land of points, allusions, and epigrams, while the spectator does not forget himself a moment. When the words of an opera speak sense, the music will learn to speak it likewise.

These reflexions of Rousseau, according to M. Framery, are now useless, as this kind of spectacle no longer exists. But as we wish to record the productions of each art, Rousseau's account of the ballets of his time will be historical of what they were at the period when he wrote, that is about fifty years ago; and we think what Jean Jaques says of allegorical ballets, would suit the mythological nearly as well.

Ballet is one of the longest and most elaborate articles of the new French Encyclopedie. When M. Framery seems to have exhausted the subject, it is resumed by his colleague in the musical department, M. Guinguené, who has still found much to say on the subject. Ballet, he informs us, is a term that includes three different kinds of exhibition on the Lyric stage. In the first, the dance constitutes only a subordinate part of the action represented; in the second it is the principal part, poetry and vocal music then becoming accessories in their turn; and, lastly, in the third, the whole business is performed in dancing; and in representing an action in which the performers neither speak nor sing; they dance. The first kind is simply called a *ballet*: the second a *ballet-opera*, or *opera ballet*; an opera with dances analogous to the drama: the third is called a *pantomime ballet*.

"To treat this subject in its full extent (says M. Guinguené) would require a volume."—And an excellent volume has already been written on the subject, by the celebrated Noverre, intitled "*Lettres sur la Danse*," 1760. In 1754, M. Cahusac had published a pleasing work in 3 vols. "*Sur la Danse ancienne et moderne*," an historical treatise. But father Menestiere's treatise, "*Des Ballets anc. et mod. selon la regle du Theatre*," 1682, is perhaps the most curious of them all, in the historical part.

Music is so inseparable from the dance, that the word *ballet* may be regarded as a musical term. The music to opera dances used to be furnished by the composer of the airs and relatives. Hasse, Jomelli, and Gluck, distinguished themselves as much by the music of grand ballets, as by the opera itself; as did our countryman Dr. Arne, by the dances in *Comus*. Of late years, it has been generally assigned to the principal second violin to compose the music and head the band, in the dances between the acts of an opera. Agus, Noferi, and Le Brun the hautboy player, performed this office during many seasons; and their business was executed for a considerable time to the satisfaction of the public and the performers, by the late Sig. Bossi. The airs of many ballets were usually brought from France, particularly those of Rameau; but Teller, a German, about twenty years ago, acquired great reputation by the music of his *chacannes* and *ballets heroïques*. See **DANCE**, and **PANTOMIME**.

BALLET, in *English Poetry*, &c. See **BALLAD**.

BALLEXFORD, JAMES, in *Biography*, born at Geneva, in October 1726, became a distinguished practitioner of medicine in that city, where he lived much esteemed, to the year 1774, and published the following: "*Dissertation sur l'Education Physique des Enfants*," Paris, 1762, 8vo. "*Dissertation sur les causes principales de la mort d'un aussi grand nombre d'Enfants*, &c." Geneva, 1775, 8vo. Eloy Dict. Histor.

BALLEZE, **BALLIZE**, or **WALLIS**, in *Geography*, a river in the peninsula of Yucatan, New Spain, runs north-easterly above 200 miles, and discharges itself into the bay of Honduras, opposite to the north end of Turneff island. By the treaty of peace in 1783, it is agreed that British subjects shall have the right of cutting and carrying away logwood in the district lying between this river and that of Rio Honda on the north, which falls into Hanover bay. The unalterable boundaries are the course of the rivers.

BALLIACE, in *Ancient Geography*, a town of Illyria, in the vicinity of Apollonia. Strabo.

BALLIAGE, a small duty paid to the city of London, by aliens, and even denizens, for certain commodities exported by them; which they claim by their charter, dated the 5th of September, in the sixteenth of Charles II. confirmed by the twentieth rule of the Book of Rates and by 2 W. & M. cap. 8.

BALLIANI, JOHN BAPTIST, in *Biography*, a senator of Geneva, was born in 1586, and distinguished himself among natural philosophers by a Latin treatise, "On the natural motion of heavy bodies," first printed in 1638, and republished in 1646, with many valuable additions. Having passed with honour through many public offices, he died in 1666.

BALLIBAY, in *Geography*, a market and post town of the county of Monaghan, province of Ulster, Ireland, situated 53 miles north by west of Dublin. This town was in a wretched state; but of late years, since the establishment of its linen market, it is greatly improved, and several new houses have been built. There is a market-house, and a market on Saturdays, at which webs are purchased to the amount of 1500*l.* weekly. In the neighbourhood of the town are the extensive bleach-grounds and mills of Crieve, at which 50,000 webs are bleached. Turf is so abundant, that it is sold in the town of Ballibay at 6*d* for a horse-load. A district called the Cahills, in this neighbourhood, is remarkable for producing a heavy crop of flax, equal to twenty-eight stone of scutched flax to the quarter of an acre, and from one bushel of seed sown; this is an immense produce, but the quality is proportionably coarse. Sir Charles Coote's Statistical Account of Monaghan.

BALLIBOY, a small post and fair town of the King's county, province of Leinster, Ireland, situated on the Silver river, and giving name to one of the baronies in that county; which from the average rent, stated by Mr. Young, and compared with that of the other baronies, seems to contain the worst ground in it. Distance from Dublin 56 Irish miles. N. lat. 53° 8'. W. long. 7° 39'. Young's Tour.

BALLIELLA, or *BALLIELLA Point*, the south-east point of Galway bay, on the west coast of Ireland, eleven leagues north-east by east from Loup's head.

BALLIMONEY, a post and market-town of the county of Antrim in Ireland, not far from Coleraine, and 107½ Irish miles from Dublin. It is a pretty large town, and has a good market, especially for linens; the wide, called Coleraines. Between it and Ballymena is much grazing land, from which Belfast is in great measure supplied with provisions for exportation. N. lat. 55° 4'. W. long. 6° 23'.

BALLIMORE, a small post town, or rather village, of the county of Westmeath, in Ireland, seated on the west side of Lough Scudry. It was a strong garrison of the English forces towards the latter end of the war of 1641, being conveniently situated between Mullingar and Athlone, and deriving great advantage from the lake. The name of this place implies the *great town*, and it may probably have declined considerably in importance; but the idea of a great town, when this name was given, must have been very different from that now entertained. Distance from Dublin 50 Irish miles. N. lat. 53° 26'. W. long. 7° 33'. Collect. Hibern. Beaufort's Map &c.

BALLIMORE Enclave, a small town, in a detached part of the county of Dublin, in Ireland, pleasantly situated on the Liffey, over which it has an handsome bridge; it has decayed on account of the great southern road from Dublin having been turned so as to pass through Kilcullen. Near this town is Russborough, the seat of lord Milltown, universally esteemed one of the most superb in Ireland, and containing a valuable collection of paintings by several eminent masters. There is also a great natural curiosity in the neighbourhood, the water-fall of Poll-a-phuca, or the demon's hole, formed by a river which rises in the county of Wicklow, and here falls into the Liffey. Lord Milltown, the proprietor, has spared no pains to assist the natural beauties

of the spot, having planted its fine hanging banks; and built several cottages and grottoes for the reception and accommodation of the numerous parties that resort to it. Distance from Dublin 17½ miles. N. lat. 53° 7'. W. long. 6° 73'. Wilson's Book of Roads. Dodd's Traveller's Director, 1801.

BALLIMOTE, a village in the county of Sligo, Ireland, which deserves to be mentioned, on account of the flourishing aspect which the linen business wears in its neighbourhood. The great exertions of the late Mr. Fitzmaurice, brother to the present marquis of Lansdowne, first established this manufacture, which is spread throughout all the adjoining country. Beaufort. Young.

BALLINA, a town of the county of Mayo, in Ireland, situated on the river Moy, and connected by a bridge over that river with Ardnace, in the county of Sligo, forming together one town, which is neat and thriving, and has a brisk market for linen every week. Mr. Arthur Young describes its situation as uncommonly pleasing. It has a salmon fishery, which is one of the most considerable in the island, supplying seventy or eighty tons of salted fish, besides the fresh. It was let for 520*l.* a year in 1776. This town being near Killala, was soon taken possession of by the French under general Humbert in the late invasion, and many depredations were committed there by the rebels. Its distance from Dublin 129 Irish miles. N. lat. 54° 6' 30". W. long. 8° 59'. Beaufort. Young.

BALLINACOURTY POINT, a cape on the south coast of Ireland, in the county of Waterford, and north side of Dungarvon bay, four miles east of Dungarvon.

BALLINAHINCH, a barony in the western part of the county of Galway, and province of Connaught, Ireland, better known by its ancient name of Connamara, or *Connacnemara*, which implies the *chief tribe on the great sea*. This large district is very rude and mountainous, and as might be expected, very thinly inhabited. Some of the hills are very high; especially the vast ridge called Beannabeola, or the twelve pins, which is a well-known feamark, consisting of almost perpendicular rocks. At the foot of this ridge, close to the little village of Ballinahinch, a charming lake spreads itself for some miles; and on the river which runs from it into Roundstone bay, there is a great salmon fishery. On the sides of hills, and in the vallies, which are watered by rivers and small lakes, and sheltered in some places by the venerable remains of ancient woods, the soil is mostly inclined to a black bog; but gravel, sand, or rock lie at no greater depth than from one to three feet below the surface. Great quantities of kelp are made all along the coast, and by manuring with sea wreck, the land is rendered very productive to the scattered families that inhabit it, who are all little farmers and hardy fishermen. Besides the herring fishery, which employs a great many persons, there is a fishery of sun-fish on the coast from the 10th of April to the 10th of May, which is carried on by the herring boats. Mr. Young says, that one fish is valued at five pounds, and that if a boat takes three fish in the month, it is reckoned good luck. The number of boats employed is from 40 to 50. The indented shores of this barony abound in well sheltered havens, of which no use is made except by smugglers, who carry on business very extensively, and almost without interruption. The bays of Kilkerran, Birterbuy, Roundstone, and Ballinakill, are the largest, and the fine harbour of Killery, on which is a fishing town, is at the northern extremity of this district. On the promontory of Slymehead, forming the north extremity of Birterbuy bay, is a light house. In this barony are made those woollen stockings, known throughout Ireland by the name

name of Connamara, and very good blankets; and the encouragement given by the present professor (Col. Martin, M.P. for the county) to settlers from Ulster, will probably contribute much to the improvement of what is now one of the most rude and uncivilized districts in Ireland. A late traveller observes, that even in Galway, within 15 miles of it, Connamara was less known than the islands of the Pacific ocean; and that he was advised not to venture into it. Such a dread had the inhabitants of this town of the clan of O'Flahertys, which possessed it, that death was threatened, by an inscription over the gate, to every person of that name found within the walls. Yet notwithstanding their ancient character, the above-mentioned traveller, in his ramble through the country, found the people peaceable and friendly, and less savage in their appearance than the peasantry near the capital. They are in general much better clothed, and are more industrious. The women, like those of Wales, knit as they go from one place to another. Smuggling is very general; and it is considered such an asylum for deserters, that it is not uncommon for poor peasants to go across Lough Corrib, and enlist; and when they are paid and clothed, take the first opportunity of returning, after which they are never heard of. There are many traces throughout the country of its having been cultivated in ancient times by some intelligent people. Dr. Beaufort's Memoirs. Mr. Young's Tour. Latocnaeye's Rambles through Ireland.

BALLINAHINCH, a market and post town of the county of Down, in Ireland, situated nearly in the centre of the county, and for that reason occasionally fixed on for meetings of the farming society, and others of a public nature. It was the scene of a dreadful engagement in the late rebellion, the insurgents being numerous, and strongly posted in the lawn before lord Moira's house, which is close to the town. They were however defeated with considerable loss, and one side of the town entirely destroyed. In its neighbourhood, at the skirt of *Slicbh Croob* mountain, is a sulphureo-chalybeate spring, which is much frequented. The water is very clear and cold, and of a highly disagreeable smell and taste, like some of the waters of Aix la Chapelle. Distance from Dublin, 76 Irish miles. N. lat. 54° 23'. W. long. 5° 48'. Dr. Beaufort's Map. Book of Roads. Ratty on Mineral waters.

BALLINAKILL, a fair, market, and post town, of the Queen's county, in Ireland, situate 48 Irish miles south-west of Dublin. Until the union took place it was also a borough town, and returned two members to parliament. It now has a brewery and three tan-yards, besides some inconsiderable woollen factories. The ruins of a castle yet remain, which was battered by general Fairfax, and bravely defended by the garrison. Coote's Statist. Account of Queen's County.

BALLINASKELIGS, a haven in the county of Kerry, Ireland, between Kenmare river and Dingle bay. It is deep and open, but not sheltered from southerly winds. It takes its name from a town, of which scarcely a trace is now to be seen; but which is in Stanishurst's Catalogue of the haven towns of Ireland, prefixed to Hollinhead's Chronicle. The ruins of a monastery are near the shore, which formerly belonged to the Augustine order, and was removed from the greater Skellig island to this place. From these islands the town took its name. In the neighbourhood is St. Michael's well, one of those holy springs to be met with in every part of Ireland, which are frequented by the common people on the day of the patron saint, and which are supposed to cure all manner of diseases. This devotion paid to wells has been mentioned as one of the remains of Druid-

ical superstition, though seemingly without sufficient authority. N. Lat. 51° 42'. W. long. 9° 20'. Smith's History of Kerry. Rambles through Ireland. Hollinhead's Chronicle.

BALLINASLOE, a small but neat and well-built town of the county of Galway, in the province of Connaught, Ireland. It is situated on the west side of the river Suck (though in many maps it is placed on the east side, in the county of Roscommon), which river from the nature of the country might be easily made navigable to the Shannon. It is one of the most thriving towns in the county, having a great wool fair on the 13th of July, and several cattle fairs, at which 10,000 oxen and 100,000 sheep were sold annually from the pastures of Galway, Clare, and Mayo. From the increase of tillage however, and other causes, the number of sheep is said to have decreased. At one of these fairs, a show of cattle and premiums have lately been introduced, under the auspices of the farming society of Ireland, for the laudable purpose of improving the breeds. The wool fair was established in 1757, by Mr. Trench, father of the present lord viscount Dunlo, to whom the town belongs; and on account of the more convenient situation of Ballinasloe in the heart of the wool country, and the great attention paid to the accommodation of those who frequent it; it has taken the lead of Mullingar fair, and is now perhaps the greatest for wool in the united kingdom. Several days generally elapse before the buyers and sellers can agree respecting the price; during which period, the news of the day is as eagerly sought as on the Stock Exchange, and often produces a considerable effect. The number of bags usually brought to the fair for some years past was about 1500, each containing about eight hundred weight; but this is scarcely a fourth part of what is engaged from the country gentlemen at the same time, at a somewhat higher price. Mr. A. Young has made a comparison between the price of wool in the fleece in Ireland, and in Lincolnshire; from which it appears, that for 16 years ending in 1779, the average price in Ireland was 13s. 8d. per stone of sixteen pounds; and in Lincolnshire during the same years, it was 9s. 3d. for the same quantity. The height of price in Ireland, he attributes to a decrease in the quantity produced, from ploughing up great tracts of sheep-walks, and an increase in the consumption. The same causes have continued to operate in a still greater degree, so that the average price for four years ending in 1801, was 18s. as the writer of this article was informed by an eminent manufacturer. A good deal of large combing wool was bought indeed at a lower price, but not that fit for making cloth. In comparing the price of English and Irish wool, it should be mentioned that in Leinster and Connaught, the bags are always paid for as wool, which makes an addition of fourpence per stone to the price. Yet though the price of wool is so much higher, such is the difference in the price of labour, that there is in time of peace a considerable export of worsted yarn to Norwich and Manchester. The distance of Ballinasloe from Dublin is 72 Irish miles. N. lat. 53° 15'. W. long. 8° 8'. Mr. A. Young. Dr. Beaufort.

BALLINROBE, a market, post, and occasionally an assize town of the county of Mayo, in Ireland, which is small, but flourishing, situated on the River Robe, which runs into Lough Mask. Here are the ruins of an abbey, and in the neighbourhood a charter school for forty boys. Within a few miles of it, on the road to Castlebar, are the ruins of Ballintobec abbey. The part that yet remains entire of this venerable structure, exhibits a fine specimen of Gothic architecture; the rafters, if they may be so

termed, being formed of hewn-stone joined in a very singular manner. A view and description of this abbey may be found in Ledwich's edition of Grose's *Antiquities of Ireland*. The distance of Ballinrobe from Dublin is 120 miles. N. lat. $53^{\circ} 34' 30''$. W. long. $9^{\circ} 6'$.

BALLINTOY, a small town on the northern coast of the county of Antrim, formerly called Belletree, which has a tolerably good bay. A vein of coals was discovered here in 1756, which is wrought with such effect, as not only to supply a saltwork here, but others also at Portrush and Colerain. A grant of 2000 pounds was made by parliament in 1758 for improving the harbour. The distance from Dublin is 150 miles. N. lat. $55^{\circ} 14'$. W. long. $6^{\circ} 12'$.

A little to the eastward of Ballintoy, on an abrupt and romantic shore, is a small rocky island called *Garrick-a-rede*. This rock is separated from the adjacent land by a chasm full sixty feet in breadth, and of a depth frightful to look at; at the bottom of which the sea usually breaks with an uninterrupted roar among the rocks. This island is peculiarly well situated for the salmon fishery; but being inaccessible from the water except at one spot, and the turbulence of the sea making it difficult to land even here unless the weather be extremely calm, the fishermen have contrived a singular bridge over the abyss. Two strong cables are extended across the gulph by an expert climber, and fastened firmly into iron rings mortised into the rock on each side. Between these ropes, a number of boards about a foot in breadth are laid in succession, supported at intervals by cross cords; and thus the pathway is formed, which, though broad enough to bear a man's foot with tolerable convenience, does by no means hide from view, "the rocks and raging sea beneath;" which in this situation exhibit the fatal effects of a fall in very strong colouring, while the swinging and undulations of the bridge itself, and of a single hand rope, which scarcely any degree of tension can prevent in so great a length, suggest no very comfortable feelings to persons of weak nerves. Upon the whole, it is a beautiful bridge in the scenery of a landscape, but a frightful one in real life. Hamilton's *Letters on the Coast of Antrim*.

BALLISTA, or BALISTA, in *Antiquity*, a military engine in use among the ancients, somewhat like our cross-bow, though much larger, more forcible, and more complicated in its form. It was used in the besieging of cities, to throw in stones and sometimes darts and javelins; and received its name from the Greek *βαλλειν*, to throw.

Marcellinus describes the ballista thus: a round iron cylinder is fastened between two planks, from which reaches a hollow square beam placed cross-wise, fastened with cords, to which are added screws; at one end of this stands the engineer, who puts a wooden shaft with a big head into the cavity of the beam; this done, two men bend the engine, by drawing some wheels; when the top of the head is drawn to the utmost end of the cords, the shaft is driven out of the ballista, &c. According to Vitruvius, the ballista was made after divers manners, though all used to the same purpose: one sort was framed with levers and bars; another with pulleys; another with a crane; and others with a toothed-wheel. The ballista was ranked by the ancients in the sling-kind; and its structure and effect reduced to the principles of the sling: whence some writers called it *funda* and *fundibulus*. Gauthier calls it *Balearica machina*, as a sling peculiar to the Balearic islands.

M. Rollin joined the account of the catapultæ and ballista together (*Arts and Sciences*, vol. ii. p. 52.), observing that though authors distinguish them, they also often confound them. The ballista was at first chiefly used for throw-

ing stones, and the catapultæ for lancing darts and arrows; but by degrees they were confounded and indifferently appropriated to both. (Grose *Hist. Eng. Army*, vol. i. p. 366.) The ballista, however, must have been the heaviest and most difficult to carry; because there were always a greater number of the catapultæ in the army. Livy, in his description of the siege of Carthage, says there were an hundred and twenty great, and two hundred small catapultæ taken; with thirty-three great ballistæ, and fifty-two small ones. Josephus mentions the same difference among the Romans, who had three hundred catapultæ and forty ballistæ at the siege of Jerusalem.

Vegetius says, that the ballistæ discharged darts with such rapidity and violence, that nothing could resist their force. Athenæus tells us, that Agesistratus made one of little more than two feet in length, which shot darts almost five hundred paces. There were others of much greater force which threw stones of three hundred weight upwards of twenty-five paces. The surprising effects of these machines are particularly recorded by Josephus (*Bell. Jud.* v. 6.); at Jerusalem, they projected stones which beat down the battlements, and broke the angles of the towers; there was no phalanx so deep, but one of them would sweep an whole file of it from one end to the other: and a man who stood by Josephus, had his head taken off by a stone at the distance of three hundred and seventy-five paces. (*Rollin Arts & Sc.* ii. 52, 53.) Tacitus too has recorded more than one instance of their force. (*Annal.* xv. 9. *Hist.* iv. 23.)

Among the Saxons, as we have already mentioned (see *ARTILLERY*), great military engines of almost every kind seem to have been unknown; it is to the middle ages we look for the introduction of any thing like field artillery. William of Poictou (p. 201.) says, that machines for throwing darts and stones were used with great success at the battle of Hastings. The darts that were shot from these machines, as well as from the cross-bows, were called *quarrels*; and were pointed with heavy pieces of steel like pyramids, which made them very sharp and very destructive. The ballistæ were more frequently used in sea fights than in battles on shore; nor was this particularly the case in the middle ages; Livy (xii. 21.) says, that both scorpions and ballistæ were used in a similar way by the Tarentines so long ago as 281. Nor was it in the ancient times alone that the names and properties and even the uses of the catapultæ and ballista were confounded. In the Latin of the middle ages, ballista, in lieu of arbalest, was frequently the term for the cross-bow; and catapultæ for the sling.

Perrault, in his notes on Vitruvius, gives a contrivance similar to that of the ballista, for throwing bombs without gunpowder.

When the ballista is painted in *Armory*, it is represented, as charged with a stone. Guillim and other heraldic writers call it a *sweep*.

BALLISTA, in *Practical Geometry*, the geometrical cross, called also *Jacob's staff*. See *CROSS STAFF*.

BALLISTA, or *Os Ballistæ*, is a denomination given by some anatomists to the first bone of the tarsus, otherwise called *talus* and *astragalus*.

BALLISTARIÏ, or BALISTARIÏ, in *Antiquity*, slingers in the ancient armies, or soldiers who fought with the ballistæ. There were two kinds of ballistarii milites; the former cast stones and other missile weapons with the hand, and were called manuballistarii, or sometimes simply manuballistæ; the latter, called carroballistæ, made use of a machine. Some writers speak of a third kind called arcuballistarii, but these are better reduced to the second. The ballistarii were scarce heard of before the age of Constantine.

Ballistarius

Balistarius in our ancient history is to be differently explained. Sometimes it refers to the men who shot stones and darts out of cross-bows; at others to the officers of the steel-bow-men, or directors of the great brakes or engines, with which the walls of any place were battered; and occasionally, even to the slingers. (See Kelham on Doomsd. Book, p. 161.) Our kings, so early as the Conquest, had an officer styled *Arbalistarius* or *Balistarius Regis*, and lands were held in capite of the king, by the service of presenting annually a cross-bow-string as often as he passed through a certain district. (See Blount's Ten. p. 57. 70. 81.) Walter de Mofely in the thirty-second year of king Hen. III. held lands in Surry by the serjeantry of being the king's balistarius (or cross-bow-man) in his army for forty days in the year. (Pat. rot. in turr. Lond.) And it is not perhaps improbable, that the inspector of the works relating to the balistæ might occasionally bear the same title. Such an officer occurs in the patent rolls of the same king two years before. (Ibid. 37 Hen. 3. m. 8.)

BALLISTES, in *Ichthyology*. See **BALISTES**.

BALLISTEUM, or **BALISTEA**, in *Antiquity*, a military song or dance used on occasions of victory.

The *ballista* were a kind of popular ballads composed by poets of the lower class, without much regard to the laws of metre.

BALLISTIC Pendulum. See **PENDULUM**.

BALLISTICA, **BALLISTICS**, is used for the art of throwing heavy bodies. F. Merfennus has published a treatise on the projection of bodies, under this title.

BALLITORE, in *Geography*, a small post town in the county of Kildare, in the province of Leinster, in Ireland, pleasantly situated in a well planted valley on the banks of the river Grees, a little on the right of the great road from Dublin to the south. It was chiefly a settlement of Quakers, but the number of these has considerably decreased; and the active part taken by many of the inhabitants in the late rebellion, caused it to be in a great measure destroyed. The celebrated Edmund Burke received his early education in this town at the school of Mr. Abraham Shakleton, one of the respectable class above-mentioned; which school was then held in high estimation, and has been continued by his descendants of the same name to the present day. Distance from Dublin 28 miles. N. lat. 53°. W. long. 6° 51'.

BALLIUM, or **BAILEY**, in our ancient *Military Tactics*, was used to signify a certain plot of ground within a fortified place. The outer ballium was that which presented itself immediately on entering the outer gate of the castle, where we usually see a mount of earth to command some distant work of the besiegers. It was separated by a strong embattled wall and towered gate from the inner ballium, where were commonly the houses and barracks for the garrison, the chapel, stables, and hospital; and within which, or at one corner of it, in the early castles, surrounded by a ditch, stood the keep or dungeon, generally a large square tower, sometimes flanked at its angles with small turrets; this keep was to our old fortresses, what the citadel is to modern ones, the last retreat or reduct of the garrison. (See Grose Hist. of the Eng. Army, ii. 3.) And here may be noticed, that the small remains of Oxford castle exhibit a remarkable instance of the double ballium; in the outer space stands the mount, and at no great distance from it (though without the castle precincts), the church of St. Peter in the *Bailey*; behind it at a considerable distance stands the ancient Norman keep, in the upper part of which, on the different sides, are round-head arches filled up with masonry, whence, as from the last retreat of the garrison, the besiegers, though in possession of the mount, might be annoyed. The *Old Bailey*, or outer space near Ludgate in the ancient forti-

fication of London, has perhaps a similar etymology with St. Peter in the *Bailey* at Oxford.

BALLOCK, in *Geography*, the name of rocks on the N. W. coast of the island of Ila.

BALLOGISTAN, a district of Hindoostan, in the country of Delhi, bordering on the north of Mewat, and approaching by its eastern limit within twenty-four miles of Delhi. It is eighty or ninety miles long, and from thirty to forty broad. Within the present century, and more probably since the rapid decline of the Mogul empire, this territory was seized by the Balloges or Balloches, whose proper country adjoins to the western bank of the Indus, opposite to Moultan. Some tribes of them are also found in Makran. They are represented as a most savage race, and appear to be very proper neighbours for the Mewatti. This territory is full of ravines, and difficult of access to invaders. It has, however, undergone the fate of its neighbours, and been successively tributary to the Rohilla chief, Nidjib Dowlah; to the Iats; and Nudjuff Cawn. Westward, it borders on the Seiks. Ren. Mein. Introd. p. 120.

BALLON, in *Geography*, a town of France in the department of the Sarthe, and chief place of a canton, in the district of Le Mans: the place contains 3561 and the canton 15,598 inhabitants: the territory includes 162½ kilometres and 16 communes.

BALLOON, in *Architecture*, is used for a round ball, or globe, placed at the top of a pillar, or the like, by way of acroter or crowning. That on the top of St. Peter's at Rome is of brass sustained by an iron arming within; and being at the height of sixty-seven fathoms, is above eight feet in diameter.

BALLOON, in *Chemistry*, *Ballon Fr.* is a large globular vessel, generally of glass, with a short neck, which is employed in a variety of chemical operations, particularly in receiving the products of distillation; in containing gases for experiments in which heat or combustion is used; and for several other purposes. Frequently, it is made with more than one orifice. It is larger than the matrafs, has a shorter neck, and if heated on a sand bath, great care must be taken to do it gradually on account of the greater thickness of the glass. In making the glass-balloon, it is simply blown, without a burr at the bottom like the matrafs, whereas the receiver is generally fashioned at the neck, and therefore must have the above imperfection at the bottom, unless it is afterwards ground off.

BALLOON, in *French Commerce*, denotes a quantity of paper, containing twenty-four reams.

BALLOON, *Ballon*, or *Ballot*, signifies a certain quantity of glass-plates, greater or less according to their quality. The balloon of white glass contains twenty-five bundles, of six plates per bundle; but the balloon of coloured glass consists only of 12½ bundles, each bundle including three plates.

BALLOON also denotes a kind of game something resembling tennis.

The balloon is played in the open field, with a great round ball of double leather blown up with wind, and thus driven to and fro with the strength of a man's arm, fortified with a brace of wood.

BALLOON, or *Balloen*, is more particularly used among *Voyagers*, for the state barges of Siam.

The balloons are a kind of brigantine, managed with oars, of very odd figures, as serpents, sea-horses, &c. but by their sharpness and number of oars, of incredible swiftness. The balloons are said to be made of a single piece of timber, of uncommon length; they are raised high, and much decorated with carving at head and stern: some are gilt over, and carry 120, or even 150 rowers on each side. The oars

are either plated over with silver, or gilt, or radiated with gold; and the dome or canopy in the middle, where the company is placed, is ornamented with some rich stuff, and furnished with a ballustrade of ivory, or other costly matter, enriched with gilding. The edges of the balloon just touch the water, but the extremities rise with a sweep to a great height. Some are adorned with a variety of figures, made of pieces of mother of pearl inlaid: the richer sort, instead of a dome, carry a kind of steeple in the middle; so that considering the slenderness of the vessel, which is usually 100 or 120 feet long, and scarce six broad, the height of the two ends, and of the steeple, with the load of decorations, it is a wonder they are not overset.

BALLOON, in *Pneumatics*, a name lately given to an aerostatic machine, employed for the purpose of aerial navigation. See **AEROSTATION**.

BALLOON, in *Pyrotechny*. See **BALLS**, **FIRE-WORKS**, and **PYROTECHNY**.

BALLOTA, in *Botany*, horehound. Lin. g. 720. Schreb. 975. Juss. 114. Class, *didynamia gymnospermia*. Nat. Ord. *verticillata*, or *labiate*. Gen. Char. *Cal.* perianth one-leaved, tubular, salver-shaped, five-cornered, oblong, ten-freaked, erect, permanent, equal; mouth acute, patulous, plaited, five-toothed; involucre of linear leaflets under the whorls. *Cor.* monopetalous, ringent; tube cylindric, the length of the calyx; upper lip erect, ovate, entire, crenate, concave; lower trifid, obtuse; the middle segment emarginate, largest. *Stam.* filaments four, the two shorter subulate, bending towards the upper lip, and shorter than it; anthers oblong, lateral. *Pist.* germ quadrifid; style filiform; stigma slender, bifid. *P.r.* none. *Calyx* unchanged, fostering the seeds in its bosom. *Seeds* four, ovate.

Eff. Gen. Char. *Cal.* salver-shaped, five-toothed, ten-freaked. *Cor.* upper lip crenate, concave. It is observed that this genus has the involucre of clinopodium; the calyx of marrubium; and the corolla of stachys.

Species, 1. *B. nigra*, stinking or black horehound. Smith. Brit. 635. Hudson 260. With. 533. Eng. Bot. 46. "Leaves ovate, undivided, ferrate, calyxes dilated upwards, somewhat truncate." A hairy plant with an acrid pungent smell; stem two or three feet high, erect, branched, covered with recurved hairs; leaves petioled, ovate, or subcordate, ferrate; flowers numerous, in axillary whorls, pedunculated, leafy, bracteated; bractes brittle-shaped, ciliate, half the length of the calyx; calyx tubular, hirsute, ten-ribbed, plaited or furrowed at the margin, obtusely five-lobed, reticulated with veins, teeth awned, spreading; corolla purple, the upper lip of which is emarginate, hairy, on the outside; the under three-lobed, beset with white veins. It is a perennial plant, common in waste places, and hedges, flowering in July. 2. *B. alba*, white flowered black horehound. "Leaves cordate, undivided, ferrate, calyxes subtruncate." This Swedish plant has not yet been satisfactorily determined. 3. *B. lanata*, woolly black horehound. Phlomis fol. multifidis. Gmel. lib. iii. 241. n. 72. t. 54. "Leaves palmate, toothed, stem woolly." Stems white with wool; whorls extremely hirsute; leaves like those of gooseberry, with blunt three-toothed lobes, smooth above, hirsute underneath; corolla a pale yellow, extremely hairy. A native of Siberia, cultivated here in 1776, by Mr. J. Gordon. 4. *B. suaveolens*, sweet smelling black horehound. Jac. Amer. 172. pict. t. 163. *Eysenhardia suaveolens*. L'Herit. Sert. Ang. 19. *Mesophrum*. Brown Jam. t. 18. f. 3. *Mentastrium*. Sloane Jam. t. 1. 102. f. 2. "Leaves cordate, spikes leafy, calyxes truncate, awns linear." A shrubby, annual, upright plant; leaves roundish or elliptic, crenate, nerved, villose, on long footstalks; peduncles axillary, from three to five-flowered; flowers blue; calyx and branches villose; filaments longer

than the throat of the corolla. *Seeds* two, black, a little compressed. A native of the West Indies, where it is used in warm baths for its odour. 5. *B. disticha*, betony leaved black horehound. "Whorls halved, two-parted, half-spiked." Stem pubescent, from one to two feet high; leaves stalked, subcordate, ferrate, tomentose; whorls single on each side; each two-parted; flowers alternate, sessile, rising on a simple flexuose rachis. A tapering bracte under each flower. A native of the East Indies. Introduced in 1783, by the earl of Bute. 6. *B. pilosa*, Lour. Cochinch. 364. "Leaves ovate, tomentose, crenate, whorls hairy, calyxes ten-toothed." Stem perennial, four feet high, weak, streaked, hairy, branched; leaves acute; flowers white in hairy whorls; calyx recurved, ten-toothed. A native of Cochinchina.

Propagation and Culture. The European sorts are never introduced into gardens. The third species is hardy, but the three last require the protection of a stove. They may all be increased by seeds. See Martyn's Miller's Dict.

BALLOTADE, or **BALOTADE**, in the *Manege*, is a leap in which the horse seems as if he intended, to kick out without doing it; he only offers or makes a half kick, shewing only the shoes of his hind feet. Berenger farther observes, that the horses destined to these airs (croupades and balotades), ought to have a light and steady mouth, and an active and lively disposition, with clean nervous strength; for all the art and knowledge of the horseman can never confer these qualities, which yet are essentially necessary to the perfection of this manege.

The croupades and balotades are different from curvets, inasmuch as they are much higher behind, and consequently their time and measure not so quick and close, but slower and more extended; therefore, the rider should keep his horse's croupe in awe, by striking it from time to time with the switch, supporting him not quite so high before, and observing to aid with his legs slower, and not so forward as in curvets.

To manage the strength and vigour of the horse you intend to work upon the volts, in croupades and balotades, let the line of the volt be larger than for curvets, and let the action of the shoulders be not quite so high; thus you will not only check and confine his activity and lightness, but by raising his shoulders in a less degree, will give liberty to his croupe, and he will be enabled to furnish his air altogether, that is, before and behind, better and with more ease; there is still another reason for this, for when the shoulders come to the ground from too great a height, the shock alarms and disorders the mouth, and thus the horse losing the steadiness of his appuy, he never will raise his croupe so high as he ought to make perfect balotades.

BALLOTING, a method of voting at elections, &c. by means of little balls, which are usually of different colours, by the French called *ballotes*; which are put into a box privately.

BALLTOWN, in *Geography*, a township of America, in Saratoga county, New York, formerly in Albany county, contained in the year 1790, 7333 inhabitants, including sixty-nine slaves. By the state census in 1796, there appear to be 266 electors in this township. It lies 36 miles N. from Albany, has a Presbyterian meeting-house, and is in a thriving state. The medicinal waters called "Balltown Springs," from their being situated within the limits of this town, have acquired celebrity on account of their sanative virtue, and the accommodations adjoining to them for valetudinarians. The springs are found in the bottom of a valley, or excavation, forming a kind of basin, and comprehending in their extent about fifty acres. In the vicinity of the springs are several neat bathing-houses, and shower baths, for the convenience

venience of invalids. Most of them are private property, belonging to a merchant of New York; but the largest spring belongs to the public. The waters of these springs contain iron, a mineral alkali, common salt and lime; they are brisk and sparkling like champagne; and they possess the properties of other waters of the mephitic kind, in which there is an intermixture of fixed air or carbonic acid; they are reckoned cathartic, diuretic, and sudorific; and recourse is had to them by invalids of various descriptions.

BALLTOWN, or *Ballsfown*, a township in Lincoln county, in the district of Maine, containing 1072 inhabitants; 195 miles N. E. from Boston.

BALLUS, in *Entomology*, a species of *PAPILIO* (*Pleb. Rur.*), with entire fulvous wings dotted with black; posterior one green, with a brown margin. Gmelin, &c. Inhabits Spain.

BALLUSTER, or **BALLISTER**, in *Architecture*, a small kind of column or pillar whereof ballustrades are formed.

The word is French, *balustre*, which signifies the same, formed from the Latin *balustrum* or *balustrum*, a place among the ancients where the baths were railed in.

Ballusters are of divers forms, as well as matters, according to different occasions, and different orders of architecture.

BALLUSTER of the Ionic capital, denotes the lateral part of the volute answering to what Vitruvius calls *pulvinata* on account of its resemblance to a pillow.

BALLUSTRADE, an assemblage of one or more rows of ballusters high enough to rest the elbow on, fixed upon a terrace, or the top of a building, by way of security; sometimes also to make a separation between one part and another, as those around altars, fountains, &c. See figure of **BASILIC**.

BALLY, **BALLIN**, or *Baily*, prefixed to names of places in Ireland, signifies a town or inclosed place of habitation. It comes from the Irish *baile*, which O'Brien, in his dictionary, supposes to be derived from the Latin *villa*, changing *v* into *b*, and that both come from *vallis*, on account of the preference given to low situations. General Vallancey derives it from the Arabic *balad*, a province; and quotes J. Bapt. Pafferi, as explaining the Phœnician *bal* in the same sense as the Irish *baile*. But Mr. Ledwich, in his Antiquities of Ireland, observes, that it is plainly the Teutonic *bailie*, an inclosure.

BALLYCASTLE, a sea-port town, in the northern part of the county of Antrim, province of Ulster, Ireland, situated on the west of Fairhead, near the mouth of the little river Glensheik, and opposite to the island of Raghery. Between this town and Fairhead are valuable collieries, in an abrupt bank which overhangs the sea; a circumstance, however, from which little advantage can be derived, as the unsheltered situation of the place, and the prevailing westerly winds make a delay on the coast extremely dangerous, and render it difficult to embark the coals. As the want of capital has always been an impediment to such undertakings in Ireland, application was made to the legislature, on the discovery of the mine in 1721, for aid to work it; and 6000 pounds were granted for this purpose, as well as the large sum of 23,000*l.* at different times for making a harbour there, and building a pier to protect it; which expence was incurred in the hope that Dublin would be in a great measure supplied from this colliery, and thus be rendered less dependant on the proprietors of the Cumberland mines. The pier, however, has been washed away, and the harbour so choaked up with sand, that like many other public grants in Ireland, it has been productive of little or no national benefit. By the exertions of an individual, some years ago,

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much coal was procured, and several manufactures were established in the town, but since his death the latter have been neglected. The collieries, however, continue to be worked, and from the latest accounts seem to be productive, though not to the degree that was expected. The coal is said to resemble the Scotch coal, but does not burn so fast. The different fossils commonly situated above it are iron-stone, black shivery slate, grey, brown, or yellowish sand-stone, and whin-stone. The accidental discovery of an old mine in 1770, which was very extensive, and was found to be a complete gallery, branching into numerous chambers, which were dressed in a workmanlike manner, and must have been wrought by persons at least as expert in the business as the present generation, has furnished Mr. Hamilton with an argument in favour of the ancient civilization of Ireland. As no coal mine at this place is mentioned either by Boate, or by sir William Petty, the latter of whom visited Ballycastle between 1660 and 1670, and is particular in his account of it; as for many centuries previous to the reign of James I. a work of this nature was not likely to have been carried on; as the cinders of fossil-coal are visible in the cement with which a castle of great antiquity in the adjoining isle of Raghery was built; and as the tradition of the natives refers it to a very early period, he concludes that it must have been worked previously to the eighth century. This opinion seems to be strengthened by Mr. Whitaker's reasons for supposing fossil-coal to have been known to the ancient Britons. Mr. Ledwich, on the other hand, affirms, on the authority of Lombard, that coal was not discovered and used in Ireland long before A. D. 1632. Near Ballycastle are two mineral springs, one of them vitriolic, and the other chalybeate. Distance from Dublin 113 Irish miles. N. lat. 55° 11'. W. long. 6° 6'. Hamilton's Letters on Antrim. Statutes of Ireland. Latocnaye's Rambles. Ledwich's Antiquities. Beaufort's Memoirs. Ruddy on Mineral Waters.

BALLYCLARE, a post and fair town in the county of Antrim, province of Ulster, Ireland, ninety-five miles north of Dublin.

BALLYCONNELL, a small market and post town of the county of Cavan, Ireland, situate sixty-seven Irish miles northwest from Dublin, on the borders of a wild and mountainous district. The peasants are hardy and industrious, yet hitherto much depressed for want of encouragement. The women spin a good deal of wool as well as flax, and frizes are made for home use; but every thing is on a very narrow and contracted scale. Agriculture has lately improved, and the culture of wheat has been increased by the establishment of a good flour-mill; and there is also an excellent bleach-green near the town. The mineral treasures of this neighbourhood are, however, the most valuable. Coal is found in the adjoining mountain of Slieve-Ruffell, and generally dug out of the side of the hill, in blocks, near the surface. No attention to this valuable concern has yet actuated the proprietors on whose estates this mineral is found in such abundance, and so easily raised. In the mountain of Ortnacullagh, both silver and lead ore are carried down the stream which flows from it. Besides these, pure sulphur is frequently found; and fuller's earth is in abundance. There is much pipe-clay also, which is found very soft, and when baked in the sun acquires a proper consistency.

BALLYCOTTON, a village on the sea-coast of the county of Cork, province of Munster, Ireland, inhabited by fishermen, and frequented for sea-bathing. It is four miles from Cloyne, and has some ruins in the neighbourhood. It gives name to a large but dangerous bay, nearly semicircular, which is remarkable for abundance of

fine flat fish and lobsters, which are chiefly sent to Cork. There is a small island of the same name, which forms one extremity of the bay, and is almost covered, in the season, with the nests and eggs of various sea-fowl, especially puffins. N. lat. $51^{\circ} 50'$. W. long. $7^{\circ} 59'$.

BALLYDONEGAN, a bay on the south coast of Ireland, in the county of Cork, on the south side of the entrance into Kenmare river. It has an open entrance, with a good depth of water and anchorage.

BALLYELA, a bay in the Atlantic ocean, on the west coast of Ireland, twelve miles south-east of South Arran islands. N. lat. $52^{\circ} 53'$. W. long. $9^{\circ} 20'$. See **BALIELA**.

BALLYGELLY HEAD, a cape on the east coast of Ireland, in the Irish sea. N. lat. $54^{\circ} 54'$. W. long. $5^{\circ} 44'$.

BALLYHAVEN, in *Geography*, lies within the entrance of Strangford haven, on the east coast of Ireland, beyond Port Ferry on the east side.

BALLYHAUNIS, a post-town, or rather village, in the county of Mayo, province of Connaught, Ireland, where are the ruins of a monastery; 100 Irish miles north-west of Dublin.

BALLYHAYES, a small town of the county of Cavan in Ireland, which has an improving market, and mills for flour and oatmeal. The market-house and the ring of the old town are arched, and built of brick. These antique and fantastical buildings shew it to have been once a place of considerable note, being remarkably furnished with all the old-fashioned ornaments to which the lords of this county were particularly attached. This town and the adjoining demesne have suffered much from a long dispute respecting the possession. Distance from Dublin 57 Irish miles north-west.

BALLYKAIA, an island on the north-west side of the sea of Azof, and near the northern extremity of it. N. lat. $46^{\circ} 38'$. E. long. $56^{\circ} 18'$.

BALLYLANY, a small island in the Atlantic ocean, near the west coast of Ireland. N. lat. $53^{\circ} 23'$. W. long. $10^{\circ} 16'$.

BALLYLEIGH HEAD, or *Kerry-head*, the south point of the entrance of Shannon river.

BALLYLESS BAY, a small harbour on the north-west coast of Ireland, towards the western point, having Dunfine head for its eastern limit, and directly west from Sligo bay, and east from Broad haven.

BALLYMACHUS POINT, the western point of the entrance into Oyster-haven, without the eastern point of the entrance into Kinsale harbour, on the south-east coast of Ireland.

BALLYMEHON, a market and post town in the county of Longford, province of Leinster, Ireland, 58 Irish miles north-west of Dublin.

BALLYMENAH, a town of Ireland, in the county of Antrim; ten miles north of Antrim.

BALLYNAMORE, a post-town in the county of Galway, province of Connaught, Ireland, eighty-five Irish miles west of Dublin.

BALLYQUINTON POINT, a cape on the east of the county of Down in Ireland, in the Irish sea, at the east of the entrance into Strangford lough; seven miles east of Downpatrick. N. lat. $54^{\circ} 19'$. W. long. $5^{\circ} 26'$.

BALLYSERAY CAPE, lies north-east of Ballykaia island in the sea of Azof, on a peninsula. N. lat. $46^{\circ} 50'$. E. long. $56^{\circ} 48'$. It is also called *Kossa Bielo Sierai Kaya*.

BALLYSHANNON, a town of the county of Donegal, in the province of Ulster, Ireland, situated on the river

Erne, which discharges the waters of Lough Erne into the bay of Donegal, at the distance of about three miles from the sea. It is the principal town in the county, and was formerly of some consequence as a fortified place, though at present it derives its importance chiefly from its salmon fishery. The harbour is a barred one, but at high water is navigable for vessels of 40 or 50 tons burden up to the waterfall, where is safe anchorage for a great deal of shipping; but the bar is for some hundreds of yards so exposed to south-westerly storms, as to render it quite inaccessible during high winds. The salmon leap, which is near the town, has a very beautiful appearance; the fall is down a ridge of rocks about twelve feet high, and at low water forms a very picturesque object. It is one of the principal salmon leaps in Ireland, and when last rented was set for near 1100 l. It has during the two last years (1802) been much more productive. There is also an eel fishery, which sets at 325 l. 10 s. 6 d. yearly. Before the fall, in the middle of the river, is a rocky island, on which is a curing-house, instead of the turret of a ruined castle for which it seems formed. The coast of the river is very bold, consisting of perpendicular rocks with grass of a beautiful verdure to the very edge; it projects in little promontories which grow longer as they approach the sea, and open to give a fine view of the ocean. The town is prettily situated on the rising ground on each side of the river, over which there is a bridge of fourteen arches. It has improved much within a few years, and is acquiring some degree of importance in trade, which would increase much more if a strong wall was built to shelter the entrance of the harbour. The completion of the canal which has been undertaken to join Lough Erne to the sea at Ballyshannon, would also be of material service to it. Near the town, the Rt. Hon. Thomas Conolly has established a linen manufactory, viz. twenty houses with two looms in each house, and a certain portion of land annexed to it. The Tyrhugh Farmers Society has also offered premiums for establishing a linen market at Ballyshannon. A little north of the town of Ballyshannon, on Mr. Conolly's estate, is a large bank of yellow pyrites. This town was made a corporation in 1611, and sent two members to parliament; but this privilege has been discontinued since the union. Its distance from Dublin is 101 Irish miles. Longitude $8^{\circ} 2'$ west of Greenwich, latitude $54^{\circ} 31'$ N. Young's Tour. Boate. Dr. Beaufort. M'Farlane's Stat. Account of Donegal.

BALLYTEIGH BAY lies round the east point of the entrance into Bannock or Bannow bay. (See **BANNOCK**.) At the south end is a small island called Inch island.

BALLYVAGHAN, a bay on the western coast of Ireland, and north part of the county of Clare, in the south part of Galway bay.

BALLYVARY, a post and fair town in the county of Mayo, province of Connaught, Ireland, 135 Irish miles north-west of Dublin.

BALLYWATER, the mouth of the entrance into Carrickfergus bay, on the north-east coast of Ireland, and the opening of Belfast river. The name is sometimes given to the sea southward along the east coast of the peninsula, of which Stangford lough, or lake, is the west side.

BALM, in *Botany*. See **MELISSA**.

BALM of Gilead. See **DRACOCEPHALUM**.

BALM, or **BALSAM**. See **BALSAM**.

BALM, in *Geography*, a town of Germany, in the circle of Upper Saxony, and Hinder Pomerania, 17 miles S. W. of Stargard, and 17 south of Old Stettin. N. lat. $53^{\circ} 8'$. E. long. $14^{\circ} 48'$.

BALMALA,

BALMALA, a town of Africa, in the desert of Berdoa.

BALMAMAT, a town of Asiatic Turkey, twelve miles west of Karahisar.

BALMARINO, in the county of Fife, in Scotland, is the name of a parish within whose limits is a small harbour, and the remains of an abbey which bears the name of the parish. From the former a considerable quantity of grain is annually exported; and a salmon fishery is established near this place in the frith of Tay. The abbey of Balmarino, which was founded in 1229, for monks of the Cistercian order, has been a magnificent and extensive pile of building; but its grandeur is nearly annihilated, and only a few fragments remain to mark its site and character. It is about ten miles to the east of Perth.

BALMING. See **EMBALMING**.

BALMUCCIA, a town of Piedmont, in the valley of Sesia, seven miles west of Varallo.

BALNAVES, HENRY, in *Biography*, a Scots Protestant divine, was born in the shire of Fife in the reign of James V., and educated in the university of St. Andrews. He finished his studies in France; and on his return to Scotland, was admitted to the family of the earl of Arran, but dismissed in 1542, for embracing the Protestant religion. Having joined the murderers of cardinal Beaton in 1544, he was declared a traitor, and excommunicated. During the siege of St. Andrews, he was sent by his party to England, and returned with a considerable supply of provisions and money; but being compelled to surrender to the French, he was sent with the rest of the garrison to France. After his return to Scotland, about the year 1559, he was appointed one of the commissioners to treat with the duke of Norfolk on the part of queen Elizabeth. In 1563, he was made one of the lords of session; and appointed, with other learned men, to revise the book of discipline. Knox, who was his fellow-labourer, gives him the character of a very learned and pious divine. He died at Edinburgh in 1579. His writings are "A Treatise concerning Justification," and "A Catechism, or Confession of Faith." *Encycl. Brit.*

BALNEARI SERVİ, in *Antiquity*, servants or attendants belonging to the baths.

Some were appointed to heat them, called *fornicatores*; others were denominated *capfarii*, who kept the clothes of those that went into them; others *alipie*, whose care it was to pull off the hair; others *unctuarii*, who anointed and perfumed the body.

BALNEARIUS FUR, a kind of thief who practised stealing the clothes of persons in the baths; sometimes also called *fur balnearum*.

The crime of those thieves was a kind of sacrilege; for the hot baths were sacred: hence they were more severely punished than common thieves, who stole out of private houses. The latter were acquitted with paying double the value of the thing stolen; whereas the former were punished with death.

BALNEUM, in *Chemistry*. See **BATH**.

BALNIA, CABO, in *Geography*, Balnea, or White Cape, a small white cliff, about six leagues from cape Pasfado, nearly under the equator, on the coast of Peru, in South America.

BALOG, a town of Hungary, twenty miles east of Altfol.

BALOHA, a town of Africa, on the river Grand, inhabited by the descendants of a mixture of Portuguese and Africans.

BALONGO, three islands in the bay of Bengal, near

the coast of Arracan. N. lat. $19^{\circ} 50'$ to $20^{\circ} 5'$. E. long. 93° to $93^{\circ} 20'$.

BALONICH, in the *Materia Medica* of the ancients, a name given by Avicenna, Averrhoes, and others, to a kind of camphor, which they describe as coarse, brown, and of less value than the other sorts. This is probably the same with our rough camphor, as brought over to us from the East Indies.

BALONTES, in *Geography*, a people of Africa, who inhabit the banks of the river Geves, the channel of which separates Bissao from the main land. Their territory is about twelve leagues in length, and about as much in breadth. The Balontes maintain no intercourse with the neighbouring negroes, either on the continent or islands; and though they sometimes travel beyond their own limits, they will permit no foreign negroes to pass their frontiers. Their religion is idolatry, and their form of government an aristocracy. They allow of no slavery; they are bold, intrepid, and warlike; but crafty, treacherous, and fraudulent. Their arms are assagayes, arrows, and fabres. The Balontans are supposed to have gold mines in their country; and under this idea the Portuguese assembled a large body of troops at Bissao in 1695, and invaded the country. But the rain of the season rendered their arms and ammunition useless; and the Balontans attacked them with this disadvantage so vigorously, with their assagayes and fabres, as soon to rout them and force them to retire with a considerable loss of men, and of all their ammunition and stores.

BALOU, a town of Asia, in Armenia, twenty-five miles northwest of Cars.

BALQUHIDDER is a parish in Perthshire, in the highlands of Scotland, and is noted for its mountainous scenery. Some of the mountains are very high and steep; among them, those of Benmore and Benvoirlich are the most lofty and conspicuous; the first rising to the height of 3903 feet above the level of the sea, and the latter to that of 3300 feet. In this parish is a considerable extent of the ancient Caledonian forest; but it is annually abridged by the inclosing system, which has at length found its way into these northern regions. Here are also several lakes or lochs, of which the principal are those of Lochdoine, Lochvoil, part of Lochlubuaig, and part of Lochearnq. The military road from Stirling to Fort William passes through this parish. The great inequality of ground prevents the farmers from appropriating any of their lands to arable; and the pasture on the sides of the hills is chiefly fed by sheep.

BALS, a river of Greenland, which runs into the sea. N. lat. $64^{\circ} 30'$. W. long. $50^{\circ} 10'$.

BALSA, in *Ancient Geography*, Tavira, a town of Hispania, in Lusitania; belonging, according to Ptolemy, to the Turdetani. It was in the part called *Cuneus*, near the sea, and not far from *Anas* to the west.—Also, a burgh of the interior of Africa, reckoned by Pliny among the conquests of Cornelius Balbus.

BALSAM, in *Chemistry and Medicine*, $\beta\alpha\lambda\sigma\alpha\mu\omega\upsilon$, Gr.; *balsam*, *balsamum*. Lat; *beaume*, Fr. Various meanings have been affixed to this term, which it is of some importance to distinguish, as the class of natural balsams have been esteemed from the earliest ages as some of the most valuable productions of the vegetable kingdom, have formed the most precious articles of commerce in the East, and have been used for medicinal purposes, and about the human body, as long as the art of medicine and the practice of adorning the person have been cultivated.

The term balsam appears to have been originally confined

to a certain fragrant viscid juice exuding from a tree in Arabia and Egypt, and now denominated the balsam of Mecca, or Opobalsamum. Hence it was extended to other productions of the same nature; and we may define the true meaning of a balsam to be a fragrant, oily, viscid, inflammable juice, exuding from various trees and plants, not soluble in water, incapable of putrefaction, and possessed of the power of preserving animal nature from spontaneous change for a considerable length of time. This latter property has given rise to the term *embalming* or *balsamation* of bodies, so universally practised among the Egyptians.

Balsams are generally more or less acrid to the taste, particularly after having been for some time chewed in the mouth. They have the strongest affinity to RESINS, from which they seem to differ only in containing a larger portion of essential oil, so that if any of the liquid balsams (turpentine for example) be distilled *per se* with a gentle heat, an oil rises in considerable quantity, and the residuum is a substance now dry and brittle, scarcely in any respect different from a resin.

Of late years a distinction has been made, and admitted into the French nomenclature, between balsams and resins, in the circumstance of the former containing a portion of the Benzoic acid, which considerably adds to the penetrating fragrance of these substances, especially when warmed, and may be expelled from them by a gentle heat. This distinction was proposed by Bucquet, and has since been very generally adopted. We cannot however allow of its propriety, since it would confine the term to a very small number of substances, even to the exclusion of the original balsam of Mecca and many others to which the term has long been appropriated; and it would extend to the solid and brittle gum benzoin contrary to the quality of *unctuousness* or *viscidness* which has always been considered as essential to a balsam, so much that even the solution of sulphur in oil has on this account been termed a balsam.

Balsams are natural or artificial. The latter are compositions exclusively belonging to pharmacy, and generally composed of essential oils, resins, and aromatics brought to the consistence of a balsam, sometimes by oil, sometimes by ardent spirit. These preparations are so numerous and often complex, that we shall only mention a few of the most celebrated; but first we shall notice the—

§ 1. Natural Balsams.

Balsamum Mecca.—B. *Opobalsamum.*—B. *Gileadense.*—B. *Judaicum.*—B. *Syriacum.*—The genuine opobalsam or balm of Mecca.

This celebrated balsam has preserved almost from time immemorial the high value in which it has been invariably held by the eastern nations. This indeed is partly owing to the exclusive spirit of oriental despotism, which prevents this precious drug from entering the common markets; so that all our knowledge of its properties is derived either from report, or from the rare opportunities which individuals have enjoyed of possessing a specimen of it.

The tree that yields it is the *AMYRIS*, of which there appear to be several species, all of them fragrant and balsamic. It is commonly obtained by incisions: the *xylobalsamum* being prepared from the wood, and the *carpobalsamum* from the fruit. It is chiefly collected in Arabia, in the interior of the country, between Mecca and Medina. According to Bruce, when fresh from the tree, the balsam is of a light yellow colour, a little turbid. It presently grows clear and yellow like honey, which deepens by age. Its smell is exquisitely fragrant and very pungent, giving a sensation like that of volatile salts. This remains for years if

the balsam is kept carefully corked. The taste is bitter, acrid, aromatic, and astringent.

The quantity yielded by one tree is very small, seldom more than about a dram daily, which alone must render it an expensive article; but in all probability it might be obtained without much difficulty by Europeans, if it was likely to repay the expence. On pouring a drop of this balsam on a glass of cold water, it spreads itself over the surface in a thin pellicle, which may afterwards be taken off by a pin, whilst the water becomes strongly impregnated with the scent and flavour of the balsam. This is generally mentioned as a test of the genuineness of this article, but it is entirely fallacious, for when long kept the true balsam will not exhibit this appearance, and many of the other thin balsams will shew it with as much ease as the opobalsam. When rubbed with water it becomes milky, and is resolved into a mass resembling lard in appearance. On adding more water it separates altogether, and swims at the top. Spirit of wine highly rectified dissolves this balsam without much difficulty: on adding water, the whole becomes milky. It is also soluble in the expressed and the essential oils. If a solution in olive oil is mixed with water very gradually, it forms a kind of pomade.

This costly balsam is in the highest esteem among the Turks and other eastern nations both as a medicine and a cosmetic. The Turks take it in the dose of a few drops to fortify the stomach and excite the animal powers: externally it is used as a vulnerary. It may readily be imagined that the oriental spirit of exaggeration should have extolled the superior virtues of this admired balsam; but fair experiments on its medicinal properties are still wanting, nor is it probable that it would be found to exceed the other balsams in this respect, so much as it does in fragrance and scent.

The Mecca balsam is also employed at Constantinople as a cosmetic in the seraglio, according to the testimony of lady Wortley Montague. Under what form it is used does not appear, but its acrimony is such as to irritate the skin very considerably when rubbed on the face unmixed, as the same eminent lady experienced on her own person. It is scarcely necessary to add that the substance sometimes sold in the shops for balsam of Mecca, and at no great price, must be a mixed and adulterated compound in no degree to be depended on as the true opobalsam.

The dried berries of this tree were formerly kept in the shops, and called, as well as the balsam, *carpobalsamum*; and the dried twigs, *xylobalsamum*.

Balsamum Copaiba.—B. *Copaiba.*—B. *Brasiliense.*—*Copaiba* or *Capivi Balsam*.

This balsam, one of the most active and valuable for medicine, is obtained from the *COPAIFERA officinalis*, Linn. a tall and elegant tree growing in Brasil and several other parts of South America. To procure it, several incisions or sometimes augre holes are made near the ground penetrating through the bark into the substance of the wood, when the balsam flows out in such abundance, that sometimes in three hours twelve pounds have been obtained.

This balsam is colourless when flowing from the tree; after a while it becomes of an amber yellow, and considerably viscid, but retains its transparency; it is never known to become perfectly solid. The smell of capivi balsam is fragrant and powerful; to the taste it is bitterish, heating, aromatic, and permanent on the tongue; it stains paper as oil does. It is nearly insoluble in water; but on being long rubbed with it, a kind of milky emulsion is produced, from which however the balsam soon separates and rises to the top. It is readily soluble in fixed and volatile oils, and in

spirit of wine: the latter makes a very strong penetrating tincture. Distillation readily separates the balsam into an oil which has all the sensible properties of the capivi, and into an insipid resin. If carefully distilled with water, from a fifth to half the weight of oil is obtained, which is highly fragrant and nearly colourless. The residuum is a resin, at first green and tenacious, afterwards growing yellow and brittle, soluble in alcohol, but not in water. The water with which the balsam has been distilled becomes slightly impregnated with the odour and flavour of the capivi. Distilled *per se*, or mixed with ashes and subjected to a strong heat, the oil which rises is at first fragrant and clear, afterwards bluish, thick, empyreumatic, but not ungrateful to the smell.

The capivi balsam is unquestionably an active substance when taken into the stomach; and its medicinal virtues, though perhaps over-rated, are however very considerable. Like turpentine, it determines powerfully to the kidneys, and impregnates the urine with its qualities, and has therefore been supposed peculiarly suited to diseases of these organs. As its effects, however, are heating and irritating, it is capable of producing much mischief as well as good, and its use is now chiefly confined to the cure of gleet and gonorrhœa. It is also serviceable in certain states of hæmorrhoids and diseases of the rectum, a fact which may well be credited, when it is considered of what acrid materials the celebrated Ward's paste is composed. In pulmonary affections it has been used strictly as a *vulnery* or *balsamic*, but it is too apt to produce or increase the general fever, and can seldom be employed with safety in these cases. The usual dose of this balsam is about twenty drops, but it is so viscid that this method of division cannot be adopted till it is warmed. The best form of exhibition is triturated with yolk of egg, almonds or mucilage, and thus united with water into an emulsion. This balsam is easily adulterated with the thinner turpentine or with oils, and the detection of this fraud is often difficult on account of the potency of the smell and taste of the capivi, which covers almost every other.

Balsam Peruvianum exudes from a large tree growing in Peru, Mexico, Brasil, and other parts of America. See *MYROXYLON Peruvianum*.

There are two species of the Peruvian balsam, the white and the brown: the white balsam is very rarely met with in the shops. It is procured by incision of the bark, but very sparingly, and it soon concretes into a fragrant brittle resin, which is brought over in gourd shells. It is also called the *white styrax*. It is less hot and more fragrant than the black balsam, and more approaches to the properties of *styrax*.

The common Peruvian balsam is of a dark colour approaching to black; the smell highly fragrant; the taste aromatic, rather bitter, and considerably acrid; the consistence always thick and viscid. Dropt into water, it sinks to the bottom, and refuses to mix with it: but by agitation gives it a fragrant smell and somewhat of the sensible properties of the balsam. It dissolves readily in spirit of wine. When mixed with the fixed oils and heated, it is decomposed; its essential oily ingredient, which gave it fluidity, is absorbed by the expressed oil, and a thick tenacious resin remains, which gradually becomes solid in the air. In this insolubility in fixed oils it remarkably differs from the other balsams, nor does it readily mingle with the other balsams. Distilled with water, it gives about a sixteenth of an essential fragrant reddish oil, very sparingly soluble in alcohol. Distillation *per se* gives a similar oil, but empyreumatic. By

regulated heat a small quantity of benzoic acid may be sublimed out of this balsam.

Peruvian balsam is one of the most stimulant of all this species of substances, and is therefore applied with advantage in several diseases. It is also particularly recommended as an external application, where a warm stimulant is required. A tincture is made by dissolving it in spirit of wine (*Tinctura Balsami Peruviani*, Ph. Lond.), and it enters into several of the artificial or compound balsamic preparations. The dose of this balsam is from two to twelve grains, and it may be given in the form of an emulsion mixed with water through the medium of yolk of egg. Aloetic and warm cordial pills are conveniently made up with this balsam, and their virtue is somewhat increased by it.

Bcaumé asserts that it is sometimes falsified by the second oil that rises from gum benzoin in distillation, digested upon poplar buds, which have a fine terebinthous odour, and afterwards mixed with a little of the true balsam. The comparatively low price of the genuine balsam, however, would seem to render this falsification scarcely worth the trouble.

Balsamum Tolutanum is the product of the *TOLUIFERA Balsamum*, a tree which grows in the province of Tolu, in Spanish America, behind Carthagena. The balsam is obtained by making incisions on the bark of the tree, and is brought over in small gourd shells. This balsam is of a reddish yellow colour, and pellucid; its consistence when fresh is extremely tenacious, but by age it becomes brittle; but in hot weather, pieces of this balsam generally coalesce and adhere to the bottom of any vessel in which it is kept. The smell of this balsam is extremely fragrant and grateful: it has but little taste; when chewed, it sticks to the teeth, and appears almost insoluble in the saliva, but gives a gentle aromatic warmth to the tongue. The Tolu balsam is one of those that contain a notable proportion of the benzoic acid, and is therefore strictly a balsam according to the modern acceptation, and probably owing to the presence of this acid, it readily imparts its flavour to watery liquids, though it appears to be scarcely at all soluble in this fluid. Eight ounces of this balsam boiled for two hours in a close vessel in three pints of water make a very fragrant decoction, which, when mixed with the requisite quantity of sugar, forms the *syrupus Tolutanus*, Ph. Lond. In the Edinburgh Pharmacopœia the syrup is formed by the admixture of two pounds of simple syrup recently prepared and not yet cold, with one ounce of the tincture of Tolu.

This balsam is perfectly soluble in spirit of wine. The *tinctura Tolutana*, Ph. Ed. and *tinctura balsami Tolutani* Ph. Lond. are prepared by dissolving an ounce and a half of Tolu balsam in a pint of rectified spirit of wine. It is easily soluble in the essential oils, but with difficulty in the fixed. By distillation *per se*, the sublimed benzoic acid is first given out in a very gentle heat, together with a fragrant empyreumatic oil. On account of the benzoic acid, this balsam burns with a remarkably aromatic penetrating smoke; and was often an ingredient in those fumigations which were formerly so much employed either with a view of purifying an infected atmosphere, or for diffusing a grateful scent. When taken medicinally, either the tincture is employed, or the balsam is united with water by egg or mucilage. Its powers are gently stimulating; but it appears altogether a trifling article of the *Materia Medica*, except on account of its odour. It is given with more security in pulmonary complaints than the other balsams; and it appears to have some effect in checking or disguising the excessively offensive factor of the breath of persons suffering under ulceration of the lungs.

Balsamum

Balsamum Rackasira is a balsam described by Murray (App. Med.), which Spielman relates to be brought from India. In consistence, and other sensible properties, it much resembles the Tolu balsam, but appears to be weaker. Its origin is unknown, and it is supposed to be factitious. It is seldom seen, and never used.

Balsamum Carpathicum, Carpathian or Hungary balsam, *Krummbolzbaum*, Germ.; called also *balsamum Libani*. This fine balsam is procured from the pinus Mugo and the pinus Ambra, which grow abundantly on the Carpathian mountains, the Tyrol, and many parts of Hungary, Germany, and Switzerland. The balsam is esteemed by the common people as a sovereign remedy for almost every disorder, external and internal. The *Oleum Templinum*, or *Krummbolzöl* is an oil of turpentine prepared by distilling this balsam, and is in equal repute. For a further description of this and all of the turpentine, which are truly and properly *balsams* in the usual meaning of the term, see the articles PINUS, and TURPENTINE, particularly the latter, under which we mean to include most of the resinous products of the different species of fir.

Balsamum Canadense, a very fine fragrant and powerful TURPENTINE, procured from the PINUS *balsamea*, the Virginian or Canada fir.

Balsamum Styracis, storax, or liquid amber. See STYRAX.

§ 2. Artificial Balsams.

These are preparations of the Materia Medica formerly in much repute, and compounded of a vast variety of resinous and aromatic drugs, the whole brought to a thickish consistence, so as to resemble the natural balsams. They are but little employed at present. Any preparation in which oil was so thickened as to be brought to a treacly consistence, was termed, in the older Pharmacopoeias, a balsam, and many of this species were equally used as external and internal applications. We shall only mention a few of these preparations.

Balsamum Locatelli.—Of the former London and Edinburgh Pharmacopoeias. In the former, it was prepared by melting half a pound of yellow wax with about half a pint of olive oil, then adding another half pint of oil, with half a pound of Strasbourg turpentine, and when nearly cold, stirring in six drams of red sanders wood to colour the whole. In the latter, instead of the red sanders, balsam of Peru, and powdered dragon's blood were added to the melted wax, oil, and turpentine. Another variety of this preparation used in the Paris Pharmacopoeia, is to employ wax, olive oil, white wine (which was evaporated off the wax and oil), turpentine, sanders wood, and Peruvian balsam.

Balsamum Commendatoris, *Baume du Commandeur*.—*Balsam of Berne*.—*Wade's Balsam*.—*Jesuits Drops*, or *Friar's Balsam*. Under all these appellations, and with some variation in the ingredients, was this celebrated balsam known and prepared. In the Paris receipt, a tincture is first made of angelica root and the flowers of hypericum in spirit of wine, in this are dissolved myrrh, olibanum, aloes, storax, benzoin, Peruvian balsam, and ambergris. The whole makes a thick, fragrant, and highly stimulating liquid; which is used either internally as a cordial and supposed vulnerary, or externally to promote the cicatrization of wounds. A judicious reformation of this balsam is retained by the London and Edinburgh colleges, under the name of—

Balsamum Traumaticum, or *Tinctura Benzoes Composita*. This is prepared by dissolving three ounces of benzoin, two ounces of storax, one ounce of balsam of Tolu, and half an

ounce of aloes, in two pints of rectified spirit of wine. The Edinburgh college omits the storax.

Balsamum Vitæ, *Beaume de Vie*. This powerful medicine was prepared by Hoffman, under whose name it went. It consists of a solution of several essential oils, and a small portion of Peruvian balsam, in highly rectified spirit of wine. It is extremely fragrant and stimulating, and is employed almost entirely as an internal medicine in languors, faintings, violent colic, and other cases that require a sudden and powerful stimulant. The ingredients in the Brandenburg pharmacopoeia, adopted as an improvement of Hoffman's balsam of life, are the essential oils of lavender, nutmegs, cloves, rhodium, wild thyme, cinnamon, lemon, bergamotte, and balsam of Peru, dissolved in spirit of lavender. The present laudable custom of simplifying the pharmacoeutical preparations, would probably diminish the number of these essential oils which appears to be quite arbitrary.

A mixture of eight ounces of vitriolic acid and two ounces of olive oil forms the—

Balsamum Arthriticum, a very powerful external application, in which the corrosive power of the vitriolic is moderated, but it requires to be used with great caution. In preparing it, the acid must be added very gradually to the oil with constant agitation, otherwise part of the oil will be charred and reduced to a hard black mass. When well prepared, it is of a very dark brown colour, and an uniform balsamic consistence.

The last of the artificial balsams which we shall mention, are the combinations of sulphur with oil.

Balsamum Sulphuris, or *Oleum Sulphuratum*; Ph. Lond. and Edin. prepared by melting in an iron pot flowers of sulphur, with four, or with eight times the weight of olive oil.

The result is a thick, foetid, tenacious balsam.

Petroleum Sulphuratum is prepared the same way, only with the use of petroleum, instead of olive oil.

Balsamum Sulphuris Terebinthinatum. B.S. *Anisatum*, which are now nearly disused, were prepared by digesting the sulphur in oil of turpentine, in glass vessels on a sand heat, and in the latter case, also adding oil of anise seed. Oil of turpentine readily dissolves the sulphur, and with vehemence when in quantities, so that this preparation should be made in a very large matrafs. All the sulphur balsams differ from the other balsams, in having a very offensive smell and taste. They are hot and irritating, and their internal use is very limited. Externally, the thick sulphur balsam is used in farriery.

BALSAM Apple, *Male*, in Botany. See MOMORDICA.

BALSAM Bay, in Geography, lies on the west side of Old Cape François, and on the north side of the island of Hispaniola, or St. Domingo, in the West Indies. N. lat. 19° 42'. W. long. 69° 35'. See BAUME.

BALSAMATION. See EMBALMING.

BALSAMELEON, in the *Materia Medica*, a name given by some authors to the halm of Gilead, or true *balsamum Judaicum*.

BALSAMICS, in Medicine. Before we conclude the article of balsams, it may be proper to make a few observations on their use in medicine. Of the properties which have been attributed to the internal use of all balsams, none is more ancient, and commonly prevalent than that of *healing* or *vulnerary*. This idea appears to have arisen from the observations of their use, when externally applied to a recent wound. If a gash is made in the hand with a clean cutting knife, and the parts are brought together and bound up with a rag dipped in any balsam, and left undisturbed for some days,

it is a matter of common remark, that the wound will generally heal without any suppuration, by simple union of the divided parts. However, it is highly probable that the balsam acts, in this case, principally as a cement to keep the divided lips in more complete re-union, and to exclude the external air; for the same application to the surface of an open lacerated wound, is known by every surgeon frequently to bring on extreme pain and inflammation, and to increase all the danger of too extensive suppuration or gangrene. The natural balsams are some milder than others, but all have a certain degree of acrimony, which renders their indiscriminate use in injuries of the body extremely hazardous; though under due management they may be of essential service. But scarcely a single circumstance which recommends their external use, can apply to internal ulceration or rupture of vessels. The healing power depends chiefly on the mode of application, the degree of *topical* stimulus, and probably the exclusion of external air; and hence, the value which has been set on balsams as *internal* vulneraries is entirely lost. A languid indolent ulcer in the kidney might perhaps be assisted by local stimulating remedies, but when the remedy must enter the stomach, and pervade all the vessels mixed with and diluted by the common circulating fluid, the remedy is no longer local, and the irritation which it produces, is either counteracted during the circulation, or is equally diffused over the whole system. Balsams, therefore, though they are by no means to be despised, are no longer viewed with that degree of partiality which the older physicians entertained for them, and repeated experience has shewn them to be sometimes absolutely useless, and often positively detrimental in internal ulceration of the lungs, kidney, or other diseases for which they have been long celebrated.

BALSAMINA, or BALSAM, in *Botany*. See IMPATIENS.

BALSAMITA. See ACHILLEA, CHRYSANTHEMUM, and TANACETUM.

BALSAMITA, in the *Materia Medica*. See TANACETUM.

BALSAMITA, in *Entomology*, a species of APHIS, that feeds on the *tanacetum balsamita*. Müll. Zool. Dan.—The general colour is black; abdomen green; eyes red.

BALSAMON, THEODORE, in *Biography*, an eminent master of the canon law, flourished in the Greek church towards the close of the twelfth century. He was appointed guardian of the laws and records, i. e. Nomophylax and Chartophylax, of the church of Constantinople; and he was nominated by the Greek church to the patriarchate of Antioch; but this see being seized by the Latins, never came into his possession. By the emperor Isaac Angelus Comnenus he was flattered, for serving his own purposes in favour of Dositheus, with the hope of being advanced to the patriarchate of Constantinople; and thus seduced, he maintained, in the assembly of the prelates, that the translation of the patriarch of Jerusalem to this elevated station, was agreeable to the canon law, and the prelates acquiesced in his opinion. But after this exercise of ingenuity and violation of conscience, he was deceived and disappointed; for Dositheus was preferred, upon the authority of his decision. Balsamon wrote several learned works on canon law; particularly "Commentaries on the Apostolical Canons, the General and Particular Councils, and the Canonical Letters of the Greek fathers," printed in folio, in Greek and Latin, at Paris, in 1620; and in two volumes folio, in "Beverge's Pandects of Canons," printed at Oxford in 1672. He also wrote a "Collection of Ecclesiastical Constitutions, which may be found in Greek and

Latin in "Justelli Bibliotheca Canonica," and other learned works. Fabr. Bibl. Græc. t. v. p. 33. t. ix. p. 184. t. xi. p. 47. t. xii. p. 403, &c.

BALSANO, in *Geography*, a town of Italy, in the kingdom of Naples, and province of Bari; seven miles south of Bari.

BALSAS, a town of South America, in Peru, in the jurisdiction of Caxamarca, near the river Maragnon.

BALSAS, in *Navigation*. See CATAMARAN.

BALSEY Cliff, in *Geography*. See BAWDSEY.

BALSHAM, HUGH DE, in *Biography*, an English divine, bishop of Ely, and founder of St. Peter's College, or Peter-house, in Cambridge, was born, probably, at Balsham in Cambridgeshire, towards the beginning of the thirteenth century. In 1247, he was nominated by the monks of the Benedictine monastery of Ely, of which he was sub-prior, to the see of Ely: but Henry III. refused to confirm the nomination. Balsham appealed to the pope, and the business remained for ten years undecided. At last, however, the pope and monks prevailed. When the prelate was seated in his see, he projected the laudable design of providing education for poor scholars, and instituted a college, since known by the name of Peter-house. He died at Dodington, in 1286, and was buried in the cathedral church of Ely. By his will he left many books to his scholars, and 300 marks for erecting new buildings. By an instrument, dated in 1291, his memory is annually celebrated in his college. The distinction of jurisdiction between the chancellor of the university of Cambridge, and the archdeacon of Ely, was settled in 1276 by this prelate. Biog. Brit.

BALSIO, in *Ancient Geography*, a town of Spain, twenty miles from Turiaso, near the Iberus, and south-east of Calzuriis.

BALSORA, in *Geography*. See BASSORA.

BALTAGI, among the Turks, porters, and hewers of wood, in the court of the grand signior; who also mount on horseback, when the emperor rides out. Part of them also, who for that purpose must be castrated, keep watch at the gates of the first and second courts of the seraglio. These last are called *capigi*, and their commander *capigi pascha*.

BALTAS, in *Geography*, a town of Courland, 20 miles east of Seelburg.

BALTAZARINI, in *Biography*, an Italian performer on the violin, who seems first to have brought that instrument into favour at the court of France, before any honourable mention is made of it elsewhere in that kingdom. He was sent, 1577, at the head of a band of violin players from Piedmont, by marshal Brissac, to Catharine de Medicis, and appointed by that princess her first valet de chambre, and superintendent of her music. The violin, however, seems to have been well known and in general use in Italy at this time, as Montagne, who was at Verona in 1580, says that there were organs and violins to accompany the mass in the great church. Journ. du Voyage. Baltazarini having contributed greatly to the amusement of the royal family and nobility, by his ingenuity in suggesting magnificent plans, machinery, and decorations, for ballets, divertissements, and other dramatic representations, received the quaint title of *de Beau-joueux*. See BALET de la Reyne.

BALTCHATSKO, a town of Siberia, 48 miles east of Krasnoiarsk.

BALTEATUS, in *Entomology*, a species of CIMEX (*Spinofus*) that inhabits South America. It is oblong, ferruginous, with a transverse yellow line, and many teeth on the hinder thighs. Fabricius. Gmelin.

BALTEATUS, a species of *ELATER*, of a black colour; anterior half of the wing-cases rufous. Linn. Fn. Suec. A native of Europe.

BALTELUK, in *Geography*, a town of European Turkey, in the province of Bulgaria, twelve miles north-east of Varna.

BALTEUS, in *Entomology*, a species of *CERAMBYX*, that inhabits Lufitania. The thorax is spinous; body ferruginous; abdomen ovate; wing-cases with a blackish band. Linnæus.

BALTHAZAR, ANTHONY, in *Biography*, surgeon at Leyden, published in 1722, "Pathologia chirurgicæ, &c." 8vo. in which are some judicious observations on hernia congenita, and on wounds of the cerebellum, which he does not consider as mortal. He mentions a hernia of the brain, reaching from the occiput to the shoulder, and persons living to an adult age, who were born with spina bifida. True schirri are not curable, he maintains, by internal medicinae. The work has considerable merit; of the author, however, we have no particular account. Haller Bib. Chirurg.

BALTHAZAR, CHRISTOPHER, a learned French Protestant, was born about the year 1588, at Villeneuve-le-roi, and though educated in the Romish church, induced by the study of ecclesiastical history to embrace the reformed religion. On account of this change in his religious profession, he was obliged to abandon the lucrative post of advocate to the presidia of Auxerre, and to remove to Charenton, at a distance from his relations and friends, where he was publicly received among the Protestants. He was afterwards patronised by a wealthy young counsellor of Castres, who, as an acknowledgment for the benefit of his instructions, allowed him a liberal pension. But attached to the Protestant cause, and desirous of promoting it, he left the house of his patron, and devoted himself to writing. His talents and zeal attracted the notice of the reformed party, and in 1659, the national synod of Loudon granted him a pension of 750 livres. In his dissertations on the subjects in dispute between the Catholics and Protestants, he particularly opposed cardinal Baronius, and his papers having been read and approved by M. Dailé, moderator of the synod of Loudon, were ordered for publication. But being returned to their author, who soon after died, they were probably suppressed by him on account of the defect of their style, as they could not be found. In his animadversions on the annals of Baronius, he is said to have been so attentive to his style, that he was not able to finish a single page of his work in a day. Of his Latin, a favourable specimen may be seen in his "Panegyric on M. Fouquet," printed in 4to. in 1655. He also wrote in French "A Treatise on the Usurpation of the Kings of Spain upon the Crown of France," 8vo. Paris, 1626, and another tract upon the same subject, published in 1657. Gen. Dict.

BALTHEUS Orionis, belt of *Orion*, in *Astronomy*, a part of the constellation of Orion, consisting of three bright stars of the second magnitude, placed nearly in a right line in Orion's girdle.

BALTHICA, in *Conchology*, a species of *TELLINA* that inhabits the Baltic sea. This shell is roundish, smooth, outside carnation colour. Linn. Fn. Suec. About the size of a horse-bean, and very rarely larger; extremely thin, pellucid, brittle, and white within. Chemnitz, &c.

BALTHICA, a species of *HELI*X found on the shores of the Baltic sea. The shell is imperforated, ovate, and pointed; with elevated wrinkles; aperture ovate, and very

ample. Linn. Fn. Suec. This animal is black, with two tentacula; shell pellucid, and with four whorls.

BALTHICUS, a species of *NAUTILUS*, of the smaller kind, that is found adhering to the roots of fuci. This shell is sometimes opaque, sometimes glossy, frequently pellucid; and the wreaths either smooth, striated, ribbed, or tuberculated. It is specifically distinguished by being white, convex, aperture linear, and the first wreath much larger than the others. Schróëb.

BALTIC, or **EAST-SEA**, anciently called *Variatskoi moré*, or the sea of the Varags or Varagians, in *Geography*, lies westward of Russia. Ptolemy calls it *Venedicus finus*; Tacitus, *mare Suevicum*; and Pliny speaks of it under the name of *Codanus finus*. The Russians denominate it *Baltiskoi moré*; the Germans the *Ost-see*; and the Swedes *Oster-sjön*. That part of it which washes the coasts of the governments of St. Petersburg, Reval, and Vyborg, is called the gulf of Finland, which is above four hundred versts in length, and from a hundred to a hundred and twenty broad; the part extending between the government of Riga and the island of *Ösel*, is called the gulf of Riga. The chief harbours in the Baltic are, Riga or *Dunamünde*, Reval, Pernau, *Hab-fal*, *Rogervyk*, now called *Baltic-port*, *Petersburg* or *Cronstadt*, *Vyborg*, *Frederickshamm*, and *Arensburg* in the isle of *Ösel*. The principal islands in this sea are, *Rügen*, *Bornholm*, *Oland*, *Gottland*, *Ösel*, *Dago*, *Falster*, *Mohn*, *Seitfari*, *Penisfari*, *Lavanfari*, *Tyterfari*, *Hochland*, *Cronstadt*. There are great fisheries in these parts, and numbers of seals are taken; but far more considerable is the navigation; as it may be computed that every year upwards of two thousand ships of burden pass to and from the Russian ports alone. Much skill and caution are requisite for navigating this sea, and especially the gulf of Finland, both on account of the heavy squalls and gales of wind so frequent here, and the multitude of rocks and shelves with which these seas abound. The water is only brackish, and has a very perceptible current, so that in northerly winds it is almost fresh to the taste. It is asserted, on very good foundation, that the water of the Baltic is every year decreasing; indeed, by repeated observations made in Sweden, it is found to subside at the rate of forty-five inches every hundred years. Mr. Otto (*ubi infra*) is of opinion, that nothing certain can be determined upon this point. Since the time when the Baltic was confined within its present boundaries, the decrease and increase of its water are, as he conceives, merely apparent; and it may have happened from various causes, that land may have been gained in one quarter and lost in another. Large rivers, which flow with great rapidity, may, for example, have carried with them into the sea a great deal of earth and sand, by which the beds at their mouths may have been raised, and the banks extended towards the sea. The Baltic has Denmark on the south, Sweden to the west, Lapland to the north, and to the east Bothnia, Finland, Livonia, Ingria, Courland, and a part of Poland. It communicates with the Cattegat to the south by the Sound, the great and the lesser Belt. At Pillau and Memel it communicates with two large lakes, the Frisch Haff and Curisch Haff, both of which contain fresh water. The waves of the Baltic are less high than in the ocean, but they succeed one another in greater number and with more impetuosity, and thus are more harassing to the ships. In its agitations it deposits amber on the shores of Courland and Prussia. It appears from Tacitus (*De Moribus German. c. 44. 45.*) that the knowledge which the Romans acquired of the maritime powers of the Baltic was obtained by their land journeys in search of amber. The Baltic is liable to be frozen for about three months in the year, which may probably be in part owing to the freshness of

of its water, which again may be occasioned by the numerous rivers that flow into it. The number of streams which directly or indirectly empty themselves into this sea, amount, according to Buffon, to 40; and among these the Oder, the Vistula, &c. are the most considerable. We are assured by history, that this sea has been sometimes totally frozen during severe cold. This was the case in 1333, at which time people could travel on the ice from Lubec to Prussia and Denmark; and on this occasion tents were erected in different places for the accommodation of travellers. A similar phenomenon occurred in 1399, and in 1533; and in 1423, people could walk and ride over the sea in a straight line from Königsberg to Lubec. Journeys of the like kind were undertaken, six years after, not only from Prussia to Holstein, but also from Mecklenburgh to Denmark; and this was done likewise in 1459. The frost of the year 1709, and also of 1740, were also very remarkable. The depth of the Baltic, in most places, never exceeds 50 fathoms. In some few places of the gulf of Bothnia no bottom is to be found; but in others, quite near, the depth is not more than 50 fathoms.

It has been observed, that the water in the Baltic is cooler even in the hottest summers than that of the other seas. The Baltic has no tides, or is not subject to a regular ebbing and flowing, as it is surrounded by land, and is united with the North sea only by the Sound and the two Belts; which circumstance has given occasion to its being called the inactive sea, or "*Mare pigrum*." During a long continuance of the west wind its natural efflux is prevented, and a considerable quantity of water is forced into it from the North sea; so that it then rises on the coasts a little above its usual level. This connection, however, with the German ocean is sometimes the cause that the ebbing and flowing of the latter, though weak, co-operates with the Baltic, so that traces of their effects may be perceived. See *Physical Observations on the East or Baltic Sea*, by F. W. Otto, from "*Abris einer Naturgeschichte des Meeres*, Berlin, 1792 and 1794, 2 vols. 8vo.

BALTIC Port, formerly called Rogervyk, was raised to a circle town in 1783, and one of the five districts of the government of Reval, or Esthonia, according to the geographical division of the Russian empire in 1782 and 1783. Situate in a bay on the Baltic, in the government of Reval, lat. $59^{\circ} 22'$ long. $41^{\circ} 51' 3''$. it has 110 timber houses, 211 inhabitants, and a brick church. This harbour has been greatly improved of late by art. Its trade arises from the fishery, &c. but it has few or no manufactures.

BALTIC Fishery and Commerce. A considerable fishery is carried on along the coasts of the Baltic. The gulfs of Riga and of Finland contain generally the same species of fish and the employment which the produce of both occasion is nearly equal. The naturalist of Livonia (Fischer) enumerates in the waters belonging to that province forty-nine different species of fish, among which the salmon, streamlings, pike, and lampreys, if not for home consumption, yet for exportation, are the most important. The salmon is caught in almost all the rivers, but those in the Dvina and the Narova are the best, though they come far behind those of Archangel in delicacy and plumpness; they are exported smoked and salted. The streamlings, a degenerate species of herring, are every where found on the shores of the Baltic, but especially about Pernau, where they are in such quantities, that 300 of these small fish are brought for three or five kopecks; a ton of them when salted costs from three to six rubles. Formerly they were exported; but the northern herrings have annihilated this branch of commerce, which are at present even bought by Livonia, the streamlings being not sufficient for the home and the foreign consumption.

Yet instances are not wanting of 300,000 of them having been taken at one successful draught. One species of fish quite peculiar to these waters is the kylo streamling, a smaller and more delicate variety of the true streamling, caught in great numbers in autumn near Reval and Rogervyk. They are pickled, and form a good substitute for anchovies and sardelles, and are accordingly, thus prepared, sent abroad to various parts. Not less exquisite are the potted lampreys that come particularly from Narva. The greatest store of the gulf of Finland consists in sterlets, salmon, and carp; even sturgeon are found in the gulf of Cronstadt, and likewise at times in the Neva. Of the smaller sorts of fish with which the government of Vyborg is provided to a great superfluity, an exceedingly great quantity is brought alive in pierced vessels to St. Peterburg, and there sold cheap at the water-side in the barks which form a sort of fish market, and others that lie in various parts of the canals. In winter the transport of frozen fish from the remoter parts of the empire is also very considerable. The Russian commerce, in all the ports, which may be generally termed the Baltic trade, as it is stated by Mr. Tooke, from Hermann and Taube, amounted in 1790 to a sum of 35,750,000 rubles, of which the exports make 21,200,000 and the imports 14,550,000 rubles. Tooke's *View of the Russian empire*, vol. iii. p. 73, 436.

BALTIMORA, in *Botany* (a plant so named by Linnæus in honour of F. C. lord Baltimore, proprietor of Maryland in North America). Lin. g. Schreb. 1333. Juss. 187. Gært. t. 169. Clafs, *syngenesia polygamia necessaria*. Nat. Ord. *compositæ oppositifoliae*. *Corymbifera*, Juss. Gen. Char. Cal. common cylindric; leaflets seven, lanceolate, erect; the interior ones shorter. Cor. compound, radiate; corollules hermaphrodite of the disk (eleven); females of the ray five; proper of the hermaphrodites funnel-form, with a five-cleft, tomentose border; of the females ligulate, ovate, trifid, the middle ones less. Stam. in the hermaphrodite, filaments five; anther cylindric. Pist. in the hermaphrodite, germ obscure; style short; stigma none: in the females, germ oblong, crowned with a toothed deciduous calycle; style filiform, very short; stigmas two, filiform, longer than the corollule. Per. none. Calyx unchanged. Seeds, in the hermaphrodite, none; in the females, three-seeded, naked, gibbous at the top. Rec. chaffy.

Ess. Gen. Char. Cal. cylindric, many-leaved; ray of the corolla five-flowered; down none. Rec. chaffy.

Species, 1. *B. reða*. Gært. Fruct. 2. 444. An annual upright plant about two feet high. Stem four-cornered, channelled, green, rugged at the angles. Branches short, lateral; leaves opposite, stalked, ovate, acuminate, serrate, three-nerved, somewhat tomentose; flowers yellow, in terminal panicles; corollules of the disk tomentose, with black anthers. This is a distinct genus from *Milleria*, although the plant much resembles it. A native of Maryland, near Baltimore. Introduced in 1781 by Mons. Thouin. It flowers in June and July.

BALTIMORE, in *Geography*, a county of Maryland, in North America, lies between Patapsco and Gunpowder rivers; the former separating it from Ann Arundel county on the south and south-west, and Gunpowder and Little Gunpowder dividing it from Hartford county on the east and north-east. It has Frederick county on the west and north-west, Pennsylvania on the north, and Chesapeake bay on the south-east. Besides the rivers which bound it, and their branches, this county has Back and Middle rivers, between the two former, but they are rather arms of Chesapeake bay than rivers. In this county there are numerous iron works; and it contains 25,434 inhabitants, including 5,877 slaves.

BALTIMORE, the chief town in the above county, and the largest in the state of Maryland; ranks in size the fourth, and in commerce the fifth, in the United States. It is seated on the north side of Patapsco river, at a small distance from its junction with the Chesapeake, and surrounds what is called the Bafon, in which the water rises at common tides to the height of five or six feet, and which is reckoned one of the finest harbours in America. This bafon, says Weld, affords about nine feet of water, and is large enough to contain 2000 sail of merchant vessels. Along this bafon are wharfs and stores through the whole length of the town. Baltimore is divided into the part called the town, and that called Fell's point, by a creek, over which are two bridges; but the houses are irregularly scattered from the one to the other. At Fell's point the water is deep enough for ships of burden, but only small vessels go up to the town. Wharfs have been built at this point, by the side of which vessels of 600 tons burden may lie with perfect safety. Here many persons have been induced to settle, on account of its contiguity to the shipping. Upwards of 700 houses have been already erected there, and regular streets laid out, with a large market place. These houses, generally speaking, are considered as a part of Baltimore, though they apparently form a separate town, being more than a mile distant from the other part of the town. Fell's point is chiefly the residence of seafaring people, and of the younger partners of mercantile houses, who are stationed there to attend the shipping. The situation of Baltimore is low, and it was formerly thought insalubrious; but by its rapid increase, and the improvements attending it, the air is less loaded with vapours, and the town is become more healthy. The season of the year, least favourable to health, is autumn, when the more opulent inhabitants retire to their country seats, delightfully situated in the neighbourhood. The principal street, called Market street, is nearly a mile long, and about eighty feet wide, and runs nearly from east to west, parallel with the water; it is crossed at right angles, much after the manner of those in Philadelphia, by other streets, several houses of which are well built, leading from the water. North and east of the town the land rises, and affords a fine prospect of the town and bay; the town, the point, the shipping both in the bafon and at Fell's point, the bay as far as the eye can reach, rising ground on the right and left of the harbour, a grove of trees on the declivity at the right, and a stream of water breaking over the rocks at the foot of the hill on the left, all conspire to complete the beauty and grandeur of the prospect.

In 1787, Baltimore contained 1955 dwelling-houses, 1200 being in the town, and the rest at Fell's point. It then contained 152 stores. The number of the inhabitants of the town and precincts amounted, in 1791, to 13,503, including 1,255 slaves. But the number of houses and inhabitants have since that time very much increased. Mr. Weld, who visited this place in 1795, says that it contains about 16,000 inhabitants; among whom are to be found English, Irish, Scots, and French; but the Irish, of whom many are the principal merchants of the town, are the most numerous. Since the war it has received a great accession of French, both from France and from the West India islands.

Most of the inhabitants are engaged in trade. They are mostly plain people, sociable, however, among themselves, says Weld, and very friendly and hospitable towards strangers. "There are many respectable families in Baltimore," says Morse, "who live genteelly, are hospitable to strangers, and maintain a friendly and improving intercourse with each other; but the bulk of the inhabitants, recently collected from almost all quarters of the world, bent on the pursuit

of wealth, varying in their habits, their manners, and their religion, if they have any, are unsocial, unimproved, and inhospitable." The churches and places for public worship are ten in number; one respectively for Episcopalians, Presbyterians, German Lutherans, German Calvinists, Reformed Germans, Nicolites or new Quakers, Baptists, Roman Catholics, and two for Methodists. The best building, and the handsomest in the town, is the Presbyterian church, lately erected. At Baltimore there are two theatres, that are used occasionally; cards and dancing are favourite amusements, both in private and public assemblies, which are held every fortnight. They have three incorporated banks in this town, and the number of notes issued from them, some of which are for so small a sum as a single dollar, is so great as almost to preclude the circulation of specie. Gold is extremely scarce. As for the state of the trade of this town, Morse informs us, that, in 1790, it owned 27 ships, one snow, 31 brigantines, 34 schooners, and 9 sloops; in all 102, whose total tonnage was 13,564. The exports in the same year amounted to 2,027,770, and the imports to 1,949,899 dollars. In July, August, and September of this year, they amounted only to 343,584 dollars; but in the same months in 1795, they were advanced to 1,675,748 dollars. The police of the town is conducted by a board of town commissioners, a board of special commissioners, and a board of wardens; the first board supplies its own vacancies, and is perpetual; the two last are appointed by electors, chosen every fifth year by the citizens. Baltimore is distant 53 miles S.W. from Elktown, 176 N.E. from Richmond in Virginia, 50 N.E. from the city of Washington, and 103 S.W. from Philadelphia. N.lat. $39^{\circ} 21'$. W.long. $77^{\circ} 48'$ Morse's Geog. p. 353. Weld's Travels through N. America, in 1795, 1796, and 1797, vol. i. p. 43.

BALTIMORE Bay, lies near the extremity of the southern coast of Ireland, between two headlands, and runs a considerable way into the land toward the north-east. The town, or village, from which it takes its name, was formerly a place of trade, but being plundered by the Algerines, in 1631, it never recovered itself. It was one of the Irish boroughs, and sent two members to parliament. It stands on the south point of the eastern headland, in N.lat. $51^{\circ} 15'$ and W.long. $9^{\circ} 10'$; and has a good harbour. The bay extends from Baltimore point on the east to Mizen head on the west, which are eight leagues asunder. It has several coves or harbours besides that of Baltimore, and contains many small islands.

BALTIMORE, in Ornithology, a species of ORIOLE, of a blackish colour, with a fulvous breast and belly, and a band on the wing of the same colour. G. Lin. Linn. Syst. Nat. This is *le Baltimore* of Brisson, Buffon, &c.; *Baltimore bird* of Catesby; and *Baltimore oriole* of Latham.

"Baltimore birds are found in many parts of North America, the northern parts of which they occupy in summer, being seen sometimes as far as Montreal in Canada, where they come in May; returning southward in the winter, which accounts for their being seen in Maryland and Virginia at that time. They make the nest of soft downy matter, in the shape of a purse, tying it with threads to the very extreme forked twigs of the tulip, plane, and hickory trees; in which they lay their eggs, and rear their young, free from depredators of all kinds.

"They are called fire-birds by the country people; and indeed, when in high plumage, their motions from branch to branch not inaptly resemble a flash of fire." Latham Gen-Syn.

This kind is about seven inches in length. The male bird has the head, neck, and upper parts black; rest of the body, bend

band of the wing, and lesser wing-coverts orange; greater coverts and quills black; the first tipped with white, which forms a white bar on the wing; two middle tail feathers black; four outer ones orange from the middle to the tips; and the two next orange at the tip; legs and claws black. The female, according to Buffon, has all the foreparts of a fine black, like the male; tail the same; wing-coverts and quills blackish; and those parts of a dull red, which are of a fine orange in the male.

BALTIMORE, *Bassard*. This is rather shorter than the true Baltimore. The bill is lead-colour; forehead and cheeks black and yellowish mixed; hind head and nape olive-grey, marked with a few spots of black; upper part of the back dull black; lower part of the back, the rump, forepart of the neck, breast, belly, sides, thighs, upper tail coverts, and under the wings orange-yellow, brightest on the breast and tail-coverts; lesser wing-coverts deep brown; the greater the same, tipped with dirty yellowish white; quills brown, bordered on both edges with whitish; the two middle tail feathers are olive and black confusedly mixed; and the four outer ones of a yellowish olive; legs and claws blueish.

This latter bird is described by Linnæus under the specific name of *spurius*. Dr. Latham, to whom we are indebted for the preceding minute description, observes, that there seems to be much confusion and uncertainty between the true and bastard Baltimores and their females; and that at last they may prove to be mere varieties of one single species; all perhaps referable to one or other sex of the true Baltimore, in different stages of life. See **SPURIUS ORIOULUS**.

BALTINGLASS, in *Geography*, a town of Ireland, in the county of Wicklow, twenty-five miles west from Wicklow.

BALTISTAN. See *Little THIBET*.

BALTRUM, an island in the German ocean, near the coast of East Friesland, about four miles long, and about 1½ broad. N. lat. 53° 47'. E. long. 6° 56'.

BALTSHIK, a town of European Turkey, in the province of Bulgaria, eighteen miles north-east from Varna.

BALTURTA, a salt lake of Asiatic Russia, in the government of Orenberg, 144 miles S.W. from Ufa.

BALTZAR, **THOMAS**, in *Biography*, the first great performer on the violin who visited this country from the continent, whose name appears in our musical annals; and the account, which Anthony Wood gives of this extraordinary musician, in his life written by himself, is so characteristically quaint, minute, and amusing, that we shall transcribe it in his own words; as it will at once convey an idea to the musical reader of the superiority of Baltzar's execution, and of the state of music at Oxford during the latter end of the interregnum.

"Thomas Baltzar," says Ant. Wood, "a Lubecker horn, and the most famous artist for the violin that the world had yet produced, was now (1658) in Oxon, and this day, July 24, A. W. was with him and Mr. Ed. Low, lately organist of Ch. Ch. at the house of Will. Ellis. A. W. did then and there, to his very great astonishment, hear him play on the violin. He then saw him run up his fingers to the end of the finger-board of the violin, and run them back insensibly, and all with alacrity and in very good tune, which he nor any in England saw the like before. A. W. entertained him and Mr. Low with what the house could then afford, and afterwards he invited them to the tavern; but they being engaged to go to other company, he could no more hear him play or see him play at that time. Afterwards he came to one of the weekly meetings at Mr. El-

lis's house, and he played to the wonder of all the auditory, and exercising his finger and instrument several ways to the utmost of his power. Wilson (Doctor) thereupon, the public professor, the greatest judge of music that ever was, did, after his humourfome way, stoop down to Baltzar's feet, to see whether he had a huff on, that is to say, to see whether he was a devil or not, because he acted beyond the parts of man.

"About this time it was that Dr. John Wilkins, afterwards bishop of Chester, and called the *flying bishop*, warden of Wadham, the greatest curiofo of his time, invited him and some of the musicians to his lodgings in that coll. purposely to have a concert, and to see and hear him play. The instruments and books were carried thither, but none could be persuaded there to play against him in concert on the violin. At length the company perceiving A. W. standing behind in a corner near the dore, they hailed him in among them, and play, forsooth, he must against him. Whereupon, he not being able to avoid it, he took up a violin, as poor Troilus did against Achilles. He abashed at it, yet honour he got by playing with and against such a grand master as Baltzar was. Mr. Davis Mell was accounted hitherto the best for the violin in England; but after Baltzar came into England, and shewed his most wonderful parts on that instrument, Mell was not so admired, yet he played sweeter, was a well-bred gentleman, and not given to excessive drinking as Baltzar was."

At the restoration of king Charles II. Baltzar was placed at the head of his majesty's new band of violins. His compositions have more force and variety in them, and consequently required more hand to execute them, than any music then known for his instrument; as appears by a MS. collection of his pieces, with which we were presented by the late Rev. Dr. Montagu North.

Ant. Wood tells us, that this celebrated violinist died in July 1663, and was buried in the cloister belonging to St. Peter's church, at Westminster; and adds, that "this person being much beloved by all lovers of musick, his company was therefore desired; and company, especially musical company, delighting in drinking, made him drink more than ordinary, which brought him to his grave." A. Wood's Life, p. 190.

BALU, or **BALOU**. See **BALI**.

BALUCLAVO, or **JAMBOL**, a sea-port town of Crimea, on the Black sea, with a fine harbour; the only one on this sea capable of accommodating a large fleet.

BALVE, in *Geography*, a town of Germany, in the circle of the Lower Rhine, a seat of a bailiwick in the duchy of Westphalia, seated on the Hohn, 10 miles S.W. from Arensberg, and 38 N.E. from Cologne.

BALMA POINT, lies on the west coast of Africa, to the south-east from cape Roxo. N. lat. 12°.

BALUS HEAD, the north-west point of the entrance into Ballinskellings bay, on the south-west coast of Ireland.

BALUZE, **STEPHEN**, in *Biography*, was born at Tullies in 1631, and as he advanced in years, directed his particular attention to manuscripts, and to new editions of books, upon which he bestowed much critical skill and erudition. His principal object, however, was ecclesiastical history; and in this department, such works as the lives and letters of popes, and other eminent ecclesiastics, histories of councils, and homilies. In 1656 he was taken under the patronage of the archbishop of Toulouse, and he was, after his death, librarian to the famous Colbert. The king created in his favour a chair of canon law in the royal college, appointed him inspector of the college, and granted him a pension. His "Genealogical History of the House of Auvergne" written

ten at the instigation of cardinal Bouillon, gave such offence to the court, that the work was suppressed by order of the parliament of Paris, and the author deprived of his places and pension, and sent to exile; nor was he recalled to Paris till after the peace of Utrecht. In old age, he amused himself in writing the history of his native place, under the title of "*Historia Tutellenfis*," printed in 1717, at Paris, in 4to. He died in 1718, much regretted by his friends on account of his amiable, obliging, and communicative disposition; and honoured amongst the learned for his extensive acquaintance with books and manuscripts. Gen. Dict.

BALZAC, JOHN LEWIS GUEZ DE, was the son of a gentleman, whose name was William Guez, of Languedoc, and born at Angouleme in 1595, or 1596. In his youth, he attached himself to cardinal de la Valette, who for two years employed him as his agent at Rome. On his return, he was introduced to court, and much admired. By the favour of cardinal Richelieu he obtained a pension, together with the brevets of counsellor of state, and royal historiographer. His "*Letters*," first published in 1624, established his reputation in early life, and were long regarded as perfect models of that kind of composition. "With much fine sentiment and beauty of language, they are, however, studied, pious, and inflated." With regard to style and manner, they form a contrast to the ease and sprightliness of Voiture, though Balzac excels in respect to weight of matter. Such was this epistolary writer's reputation, that those who were desirous of being thought "*belesprits*" in France, wished to engage Balzac in a correspondence, that they might be in possession of one of his letters. His style became the subject of criticism; and even the morality of his writings was abused, without sufficient reason. Disgusted by this treatment, he retired to his estate at Balzac, on the borders of the Charente, near Angouleme; and there employed his time in study and composition, and in correspondence with his friends, among whom were some of the most learned and eminent of his countrymen. He was deemed a good classical scholar; and he wrote Latin with ease and elegance; and his conversation was unaffected and agreeable. His general character was that of a good man, and a devout charitable christian. He set apart, even in his life-time, eight thousand crowns of his estate, to be distributed to pious uses. He built two chambers in the convent of capuchins at Angouleme, where he often resided; and at his death he bequeathed 12,000 livres to this hospital, and he left an estate of 100 francs per annum, to be appropriated every two years as a prize to him who, in the judgment of the French academy, of which he was a member, should write the best discourses upon a subject of religion. He died in 1654, and was buried, according to his own order, "at the feet of the poor interred" in the hospital at Angouleme. "The French language (says Voltaire, age of Louis XIV.) is under very great obligations to Balzac. He first gave number and harmony to its prose." In early life he seems to have been unduly admired, and afterwards he sunk into unmerited degradation and neglect. His principal works are his "*Letters*," printed at different times; "*Le Prince*;" "*Le Socrate Chretien*;" "*L'Aristippe*;" "*Entretiens*;" "*Latin verses*," in three books, of which his "*Amyntas*," and "*Christ victorious*," are most esteemed. All these have been collected in two volumes, folio, and were published at Paris in 1665. Gen. Dict. Nouv. Dict. Hist.

BAMBA, in *Geography*, the largest and richest province or duchy of the kingdom of Congo, in Africa, situate between the rivers Ambrisi and Loze; the last of which parts it from the marquisate of Pemba on the east, and the Ambrisi from the county of Songo on the north. Along

the sea-coasts it extends still farther northward to the river Lelunda, and on the south to that of Danda, which separates it from the kingdom of Angola. The governors of this province bear the title of dukes, and are always princes of the royal family, being as despotic and arbitrary as if they were really kings. The soil is fertile, and capable of producing all the necessaries of life in great abundance, if it were duly cultivated. The sea-coasts produce a large quantity of salt, which forms a considerable article of exportation. The fishery of the Zimbis, whose shell is the current coin in this and the two neighbouring kingdoms, furnishes also a valuable source of revenue. Several authors have added a third kind of treasure in this province, viz. the mines of gold, silver, quicksilver, copper, tin, and iron, which are found in the mountainous parts; but the richness, and even the reality of these mines, have been questioned; and it is certain that the iron mines are only allowed to be used, and that there are severe laws against meddling with any of the rest. The interior of the country furnishes elephants, stags, buffalos, tigers, civets, and parroquets; and here is a considerable traffic of slaves. The people are numerous, strong, and warlike. In this province is a town of the same name, which is large and populous, distant about seventy leagues from the sea, and in the possession of the Portuguese.

BAMBA, a collection of villages in the kingdom of Dembea, in Abyssinia, near the western bank of the lake Tzana, or Dembea. N. lat. 12° 11'. E. long. 37°.

BAMBALA, in *Ancient Geography*, a maritime town of India, on this side of the Ganges. Ptolemy.

BAMBAMARCA, in *Geography*, a town of South America, in Peru, and jurisdiction of Patas, or Caxamarquilla.

BAMBAN, a town of Upper Egypt, seated on the Nile, about forty-two miles S. S. E. of Esneh. N. lat. 24° 26'.

BAMBARA, an extensive kingdom of Western Africa, bounded by the Moorish kingdom of Beeroo to the north, and Masina, a Foulah state south of Beeroo, by the districts of Gotto, Baedoo, and Marciana, and Nigritia or Soudan, to the east, by Kong to the south, and by Ludamar and Kaarta to the west. The course of the river Jolibah, or Niger, lies through this country; and its capital is Sego, seated on this river, in N. lat. 14° 10' 30". and W. long. 2° 1'. The language of Bambara was found by Mr. Park, in his travels through this country, to be a sort of corrupted Mandingo; and from Mansong, the king, who resided in this city, he received tokens of favour, though from motives of prudence he was not admitted into the royal presence, and he was ordered to leave Sego. This benevolent prince, in spite of the jealous machinations of the Moorish inhabitants, thought a stranger in distress a proper object of compassion and relief; and probably dismissed him under an apprehension that he might not be able to afford him effectual protection against their blind and inveterate malice. This country is beautiful and highly cultivated; and at Kabba, which Mr. Park visited, and which is situated at a small distance from Sego, it bore, according to this traveller, a greater resemblance to the centre of England, than to what he should have supposed to have been the middle of Africa. The shea-trees (see SHEA), from which the inhabitants prepare their vegetable butter, constituting a main article of their inland commerce, abound in this part of Bambara. Whilst Mr. Park travelled through this country, he was much incommoded by the tropical rains; and he was chiefly indebted for his daily support to the dooty or chief man in the several towns through which he passed. This officer seems to possess the authority of mayor in the corporate towns.

towns of England; and it reflects great honour on the police of the African kingdoms, or on the benevolent manners of the natives, that it is considered as one part of the dooty's province to bestow food on the indigent traveller. "To suffer the king's stranger to depart hungry," as they express themselves, is an offence of a very heinous nature. See *AFRICA*, and *SEGO*.

BAMBELE (*glatte bambele*), in *Ichthyology*, the name of *cyprinus phoxinus*, Gmel. in Gesner's Thierb.

BAMBERG, in *Geography*, a principality and bishopric of Germany, in the circle of Franconia, is bounded on the north by the principality of Coburg and the Vogtland, on the east by Brandenburg-Baryeuth and the estates of Nuremberg, on the south by the estates of Nuremberg and the principality of Schwartzenberg, and on the west by the bishopric of Wurtzburg. It is about sixty miles long, and forty broad; the soil is good, and produces all sorts of grain, fruit, and wine; and in the vicinity of the capital are such numbers of laurel, fig, lemon, and orange trees, that this spot is generally called the garden of Italy. The inhabitants also rear a considerable number of cattle. The principal rivers are the Mayn, the Rotach, the Itz, and the Regnitz. It contains eighteen cities and fifteen market-towns. At the diet of the empire, the bishop, whose revenue is about 700,000 florins, takes the fourth place in the council of spiritual princes. The inhabitants are Roman Catholics. The military consists of one company of 100 men, and 50 hussars.

BAMBERG, the capital of the above bishopric, is said to have derived its name from Baba, sister to the emperor Henry I. and is pleasantly situated on the river Regnitz, in the midst of a fruitful country. It was formerly an imperial city, but is now subject to its bishop. The town is large and populous; and being situated in the centre of Germany, contiguous to seven or eight different states, it is a very great thoroughfare. The streets are wide, and the buildings neat and regular. It has no fortifications, but lies open, and has the appearance of a large village. The cathedral is one of the most magnificent in the empire. The chapter is composed of twenty capital canons, and fifteen domiciled. The bishopric was founded by the emperor Henry II. in 1106. Among other curiosities deposited in the treasury of the church, are the imperial crown of Henry II., consisting of six plates of gold adorned with precious stones, and another of his empress, composed of two circles of gold richly set with pearls and jewels; and also a folio MS. of the four gospels in Latin, upon fine vellum, and in a neat Roman character, with Gothic letters interspersed, and very beautiful miniatures; the binding is adorned with pearls and precious stones. There is another Latin MS. in folio, of the four gospels, with a commentary by St. Jerome, and fine miniatures; and a third in Gothic letters, with a binding of very great value; all of which were presented to this church by Henry II. In this city there are several convents of men and women, two palaces, and an university, founded in 1585. The bishop is absolute sovereign of this town and district, and has several castles and royalties in Carinthia and other parts of Germany. He holds immediately under the see of Rome; and he is joint director of the circle of Franconia with the marquis of Culembach. The benefices in this bishopric and that of Wurtzburg are reckoned the best in Germany. Within nine miles of Bamberg, at a place called Pommersfelden, there is a beautiful palace belonging to the house of Schonborn, which may be considered as one of the best in Germany. N. lat. 49° 51'. E. long. 10° 50'.

BAMBERG, *New*, a town of Germany, in the circle of

the Lower Rhine, twenty miles south-west of Mentz, and eight south of Bingen.

BAMBINI, in *Biography*, a spirited Italian composer, who arrived at Paris during infancy, with the company of burletta fingers who first performed in that capital the *Serva Padrona* of Pergolisi, which gave birth to Rousseau's admirable "Lettre sur la Musique Françoise," and raised a party for Italian music, which has increased ever since. Bambini was the child, whose judicious accompaniment of the burletta fingers on the harpicoord, Rousseau in his letter has so well described, and recommended to clumsy thorough-bass players, who let nothing else be heard but the clattering of their chords. This letter, for which Rousseau was burnt in effigy at the opera-house door at Paris, has never yet been forgiven, even by those who pretended to admire no vocal music but Italian, or German on that model. See *ACCOMPANIMENT*.

BAMBLA, in *Ornithology*, a species of *TURDUS*, that inhabits Cayenne, and is about the size of the common or domestic sparrow. It is spotted; above rufous brown; beneath cinereous; wings black, with a transverse white band. This is the *black-winged thrush* of Latham, and *bambla* of Buffon.

BAMBO, in *Commerce*, an East India measure, containing five English pints.

BAMBOCCIO, in *Biography*, an eminent painter of conversations, landscapes, cattle, &c. was born at Laeren, near Narden, in 1613; and for his real name of Peter Van Laer, they substituted in Italy that of Bamboccio, from his uncommon figure, the lower part of his body being one-third part larger than the upper, and his neck so short that it was buried between his shoulders. His genius, however, was very great; and his taste extended to every part of painting. He resided at Rome for 16 years, and availed himself of the opportunities for improvement which that city afforded him. His style of painting is sweet and true, and his touch delicate, with great transparency of colouring. His figures are well proportioned and correctly designed; and though his subjects are deduced from the lower kind of nature, such as plunderings, playing at bowls, inns, farriers' shops, cattle, or conversations, his designs and execution were so excellent, that his manner was adopted by many of the Italian painters of his time; and he has been justly ranked in the first class of eminent masters. His hand was as quick as his imagination, so that he seldom made sketches or designs; but having marked the subject with a crayon on the canvas, he immediately finished it. He possessed an astonishing memory, and the idea of any objects which he saw was so strongly impressed on his mind, that he could represent them with as much truth as if they were placed before his eyes. The close of his life was embittered by an asthmatic complaint; and it is said, that in order to terminate his misery, he threw himself into a canal, and was drowned, A. D. 1673. Pilkington.

BAMBOO, in *Botany*. See *ARUNDO*, and *NASTUS*.

BAMBOO Habit, a Chinese invention, by which a person, who cannot swim, may easily keep himself above water. Four bamboos, two before, and two behind their bodies, are placed horizontally, and project about twenty-eight inches. They are crossed on each side by two others, and the whole properly secured, leaving a space for their body; it is put over their heads, and tied secure in two minutes.

BAMBOROUGH, in *Geography*, a village of England, in the county of Northumberland, near the coast of the German ocean, with a castle said to be built by Ina, king of the Northumbrians, in the year 548. This castle with the estate was purchased by Crew, bishop of Durham, and left

left to charitable uses. One of the trustees, Dr. Sharp, prebendary of Durham, resided in this castle, and appropriated a part of it to the accommodation of shipwrecked mariners, and to the purposes of a granary, which served for the supply of the poor with corn, in dear seasons, at a low price. A patrol was kept every stormy night through the whole extent of the manor, which was eight miles, for the succour of the distressed; and by the mode of firing a canon from the castle, the place where any disastrous accident occurred was pointed out, and directions given for the neighbouring people to afford assistance. This village is four miles east from Belford, and 324 north of London.

BAMBOTHUM, in *Ancient Geography*, a river of Africa, in Lower Libya, from which extended a chain of mountains as far as mount Theon Ochama. Pliny.

BAMBOUK, in *Geography*, a kingdom of western Africa, situate between the rivers Bafing and Faleme, which, by their junction with the Kokoro and other streams, form the river Senegal; and bounded on the north by Kajaaga and Kaffoon, on the east by the rivers Bafing and Brooko, on the south by Konkodoo or Concondou, and Satadoo, and on the west by the river Faleme and Bondou. The town of Bambouk is seated on a stream which joins the river Faleme, and lies, according to Rennell's map, in about. N. lat. $13^{\circ} 24'$. W. long. $9^{\circ} 10'$. This country according to the account of the proceedings of the African association, is inhabited by a nation whose woolly hair and sable complexion denote them to be of the negro race; but their character seems to vary in proportion as the country rises from the plains of its western division to the highlands of the east. The inhabitants are distinguished into sects or parties like the people of Woolli and Bondou, by the different tenets of Mahometans and Deists; they are equally at peace with one another, and mutually tolerate the opinions they respectively condemn. Their chief occupations are agriculture and pasturage; but they have made such progress in the arts and manufactures, that they are able to smelt iron, and to furnish themselves with the several instruments of husbandry and war. Their process for weaving cotton cloth, the habit of this part of Africa, is difficult and laborious. Their common vegetable food appears to consist of rice, and their animal diet of beef or mutton; a liquor prepared from fermented honey supplies the want of wine, and furnishes the means of those festive entertainments that constitute the luxury of the court of Bambouk. The king of Bambouk gave to major Houghton a friendly reception at Ferbanne, where he resided; but the major did not long survive this visit. The mountains or Konkodoo, characteristically so called because it is the "country of mountains," extend through Bambouk and Kaffon, and are productive in gold. Proceedings of the African Association, by major Rennell, 1798.

BAMBRIDGE, or **BAINERIDGE**, *Christopher*, in *Bio-graphy*, an English divine, was a native of Hilton near Appleby, in Westmoreland, and a student in Queen's college, Oxford. By a rapid progress he was advanced, in 1507, to the see of Durham; and in the next year, to the archbishopric of York. Under Henry VII. he regained that royal favour, which had been interrupted in the reign of Richard III.; was made almoner to that prince, and employed by him in several foreign embassies. In the reign of Henry VIII., he was engaged in a negotiation with pope Julius II. under a pretence of restoring peace to Europe, but in reality to excite the pope's enmity against the king of France. Bambridge, attentive to his own interest, contrived so to ingratiate himself with the pope, as to obtain a cardinal's hat and an informal precedence in the conclave. He was also appointed legate of the ecclesi-

astical army, which was then besieging Bastia. Upon his return home, he manifested his gratitude to the pope by inducing his royal master to enter into an unnecessary war in his defence. Ambition seems to have been the ruling principle of Bambridge; of his learning no evidence remains; and as to his temper, no favourable opinion can be entertained of it, if we advert to the tragical incident that closed his life. Inflamed with resentment against Renaud of Modena, his major-domo, he fell upon him with fury and beat him; and the enraged domestic revenged himself for the insult and abuse, by administering to his master a dose of poison. This happened at Rome, on the 14th of July 1514. Biog. Brit.

BAMBUKALAIISI, in *Geography*, a town of Asiatic Turkey, in the province of Natolia, twelve miles north of Degnizlu.

BAMBUSA, in *Botany*, Lin. gen. Schreb. 667. Class, *hexandria monogynia*. Gen. Char. *Cal.* none, except glume-like bracts scattered, often three under each spikelet, oblong, pointed, concave, keeled, unequal, shorter than the floscules, two opposite, the third leaning on the flat side of the spikelet; spikelets lanccolate, distichous, compressed, sharp, nearly five-flowered. *Cor.* glume two-valved; valve inferior, oblong, ventricose, acuminate, towards the tip keeled and streaked; interior lanccolate, flat, with complicated margins, ciliate, a little longer than the inferior, and projecting from it: nectary two-leaved, flat at the anterior side of the germ; leaflets ovate, acuminate, bearded at the tip, membranous. *Stam.* filaments six, capillary, almost the length of the corolla; anthers parallel piped, two cleft at the base. *Pist.* germ oblong; style capillary, two cleft; stigmas feathery. *Per.* none; corolla cherishes the seed, gapes? lets it fall? seed single, oblong. *Obs.* The superior floscules in several spikelets examined by Schreber were merely male; he therefore says, "ought not this genus to be transferred to *polygamia*?" For the rest, see **ARUNDO BAMBOS**, and **NASTUS**. Gmelin has made two genera of this, under *Bambus*, and *Nastus*.

BAMBYCE, in *Ancient Geography, a town of Asia, in Assyria, beyond the Euphrates; called also, according to Strabo, Edessa, and Hircapolis.*

BAMFF, or **BANFF**, in *Geography*, the capital of Banffshire, in Scotland, stands on a gentle declivity at the mouth of the Deveron, a considerable stream which has its source among the mountains of Aberdeenshire, and after winding through narrow valleys and well cultivated plains, falls into the Meray frith, a little below this ancient burgh. The earliest authentic document we meet with relating to this town, states, that Robert II. by virtue of charter, dated October 7, 1372, conferred on it all the immunities and privileges of a royal burgh; which were afterwards confirmed by James VI. and further by his grandson Charles II. Soon after the union of South and North Britain, this burgh, in common with many others, lost much of its political importance; as by that event it was united with Inverary, Cullen, Elgin, and Kintore, which return but one representative to parliament. Agreeable to the *Sett*, or municipal government of Banff, two thirds of its magistrates are re-elected annually. Duff-house, the family residence of the earl of Fife, together with the pleasure grounds and plantations around that truly magnificent mansion; the harbour which is defended by a battery, and the shipping; the plain substantial bridge of seven arches over the smooth winding Deveron; the castle of Banff belonging to the earl of Finlater; the town-house and prison, including its handsome spire; the parish-church, an elegant and newly built structure; are striking and interesting objects, with respect

to the general appearance and commercial consequence of this flourishing sea-port town. The industry of its inhabitants is sufficiently manifest in their various employments; and those of condition set a laudable example in the improvements carried on in the immediate vicinity; so that in all likelihood Bamff bids fair to accumulate wealth under circumstances favourable to the spirited exertions of those engaged in commerce and trade. The salmon-fishery extends about four miles on the Deveron. It belongs to the earl of Fife; and it yields him a yearly rent of 1250 l. The right of this property, together with some land, was, in A.D. 1470, by reason of the poverty of the burghers of Bamff, alienated to perpetuity for a small annual fee-duty or fine for the purpose of keeping the parish church and prison in proper repair. Before the reformation, there was a convent dedicated to the Virgin Mary, which belonged to the order of Carmelites, or white friars; its house and lands were annexed to the old college of Aberdeen, in A.D. 1617; and in the year 1752, these were purchased by the present earl of Fife. The ecclesiasties, both episcopal and presbyterian, are on the best terms with each other. The former are under the jurisdiction of the bishop of Aberdeen; and the latter is under the presbytery of Fordyce. The unfortunate James Sharp, archbishop of St. Andrews, the arch-episcopal see of Scotland, was born in the castle of Bamff, in May 1613.

The parish of Bamff is about six miles in length and two in breadth; its surface is beautifully diversified, and the soil is generally good, though of different qualities. The greater part is kept in pasturage, on which a number of black cattle are annually reared. Population of the town in 1800, 3571. Bamff is about 165 miles north of Edinburgh. In the vicinity of this town is Duff-house, the magnificent mansion of the earl of Fife. This was built after the designs of the late Mr. Adam. It is enriched with fluted columns, sculptured cornices, and statues, vases, &c. which give peculiar elegance to its external appearance. The internal is splendidly furnished, contains a large, well-selected library, and many valuable paintings, &c. Cordiner's Antiquities and Scenery of Scotland.

BAMFFSHIRE gives name to one of the counties in Scotland; it is bounded on the north by the Moray frith, on the west by the counties of Moray and Inverness, and on the south and east by Aberdeenshire. It extends about 36 miles in its longest diameter north and south; and its average breadth is about 16 miles. Within its boundaries are included twenty-four parishes, and two royal boroughs. The surface of the country is agreeably diversified with hill and dale, well-watered with rivers, and ornamented with several seats and their annexed plantations. The principal of these belong to the duke of Gordon, earl of Findlater, earl of Fife, and lord Bamff. Part of the county is mountainous; but the lower lands, and those in the vicinity of towns, are in high cultivation. Its principal rivers are the Spey, which partly divides this county from Morayshire; the Deveron, which separates it from Aberdeenshire; the Isla, Conglas, Avon, and Fiddich. Some valuable minerals are found in this county; and great quantities of bones and whetstones are obtained from a hill in the district of Balvenie. Several mountains are noted for their elevated summits. Of these Cairngorm, about 4050 feet in height, is the chief, and is reckoned among the highest of the Grampian hills. That of Belrinnes runs to the height of 2690 feet above the level of the sea, and Knock-hill is estimated at 2500 feet. At Portfoy, near the north coast, is a stratum of serpentine, called Portfoy marble, also a species of granite, which when polished exhibits various figures and characters, some of them resembling those of the Arabic

and Hebrew alphabet. A great number of tumuli are scattered over the hills near the coast; and some druidical antiquities are in the district. The population of this county according to the parliamentary report in 1800, was 35,807.

BAMIAN, or BAMİYAN, a city which some have referred to Khorasan, in Persia; and others, with greater propriety, to that part of Independent Tartary, called great Bucharia, near its southern limit, at the foot of mount Caucasus, or near that part of the range of mountains called Paropamisus, and Hindoo Khoo, and not far from the ancient Alexandria. Bamian belongs to the same portion of Bucharia which includes Gaur, and lies between this province and Cabul. It is eighty-eight geographical miles from Ghizni. N. lat. 34° 30'. E. long. 67°. It gives name to a district that extends from Balk towards the east, or the kingdom of Cabul. This famous city, denominated the Thebes of the east, is situated on the road between Bahlac, or Balk, and Cabul; and they reckon eight manzils, or days' journey, from Cabul to Bamian. Like Thebes in Egypt, it is entirely cut out of an insulated mountain, and the valley round it is called, in the language of the country, the Tágávi of Bamiyan; Tágávi-being synonymous with Purganah or district. Nearly to the south are the ruins of several buildings of masonry round a small conical hill; on the summit of which are the remains of the palace of its ancient kings. A rivulet, rising in the adjacent hills, goes through the ruins of Ghulguleh and the Tágávi of Bamiyan, and falls into a small lake, from which issue four rivers, the Hindend, the Landhi-Sindh, the rivers of Bahlac, and of Condouz. The city of Bamiyan consists of a great number of apartments and recesses, cut out of the rock; some of which, on account of their extraordinary dimensions, are supposed to have been temples. Some of them are adorned with niches and carved work; and there are some remains of figures, in relievo, which have been destroyed or disfigured by the Mussulmans. Some remains of paintings on the walls are still to be seen; but the smoke has almost obliterated them. In the Ayeen-Akbery it is said, that there are about 12000 of these recesses in the Tagavi of Bamian; and this account is confirmed by the general report of travellers. The country of the Afghans, as far as Bahlac and Badakshan, abounds with these recesses, called Samach'hes in the language of the country, or Samajes in Persian. The most perfect are at a place called Mohi, on the road between Bamian and Balk; but as they are situated among precipices, the Mussulmans have no thought of using them as habitations; the paintings with which they are adorned appear quite fresh. The attention of travellers is particularly attracted by two colossal statues, which are seen at a great distance. They are erect, and adhere to the mountain from which they were cut out. They are in a sort of niches, the depth of which is equal to their thickness; and in the Ayeen-Akbery, the largest is said to be eighty ells high, and the other only fifty. But these dimensions are exaggerated; and the truth seems to be, that they are only fifty cubits high. At some distance from these, there is another about fifteen cubits high. Authors are disagreed both as to their sex and their names. A late traveller says that the drapery is covered with embroidery and figured work, which was formerly painted of different colours; one seeming to have been red, and the other retaining the original colour of the stone, or having been painted grey. According to Dr. Hyde, one of these statues is called Surkh-But, or the red idol, and the other Khink-But, or the grey idol. Between the legs of the male figure is a door leading into a spacious temple, at the entrance of which are stationed a few wretched Banyans, who sell provisions to travellers. According to Persian authors, Bamian must have existed before

before the flood: but the followers of Buddha insist, that it was built by a religious man called Shama, supposed to be the same with the patriarch Shem, and that his posterity lived there for several generations. Hence Balk-Bamian is said to have been originally the place of abode of Abraham, who, according to scripture, and the Hindu sacred books, removed with his father to distant countries to the westward. According to Diodorus Siculus, Bamian existed before Ninus; for this historian, as well as the Persian authors, has mistaken Bahlac for Bamian; which he describes as situated among steep hills; whilst Bahlac is situated in a low, flat country, and at a great distance from the mountains. The natives look upon Bamian, and the adjacent countries, as the place of abode of the progenitors of mankind, both before and after the flood; meaning by Bamian and the adjacent countries all the country from Sistan to Samarcand, reaching towards the east as far as the Ganges. This tradition is very ancient, and is countenanced equally by Persian authors and the sacred books of the Hindus.

Bamian, as well as Cabul and Balk, were at an early period in the hands of the Mussulmans. There were even kings of Bamian; but this dynasty lasted but a few years, and ended in 1215. The kings and governors resided at Ghulguleh, called at that time the fort or palace of Bamian. It was destroyed by Genghiz Khan, in the year 1210; and because the inhabitants had presumed to resist him, he ordered them to be butchered, without distinction either of age or sex; and in his brutal rage, he spared neither animals nor even trees. He ordered it to be called in his own language Mau-balig, or the city of grief and sorrow; but the inhabitants of the country called it, in their own dialect, Ghulguleh, which word used also in Persian, signifies "the cries of woe." To have rebuilt it would have been ominous; and, therefore, they erected a fort on a hill to the north of Bamian, which is called to this day the imperial fort. This fort was also destroyed by Zingis the Usbeck, in 1628, and has not been rebuilt since. The city of Bamian is represented in the ancient legends of the country as the fountain of purity and holiness; and was called Para-Bamiyan, or Bamiyan the pure and holy, and the district of Bamiyan might also be called Para-desa, the pure and holy country. It is now barren, and without a single tree; but, according to the sacred books of the Hindus and of the Buddhists, it was otherwise formerly. Tradition also informs us, that the number of inhabitants was at one period so prodigious, that the trees, underwood, grass, and plants were destroyed. The vegetable soil being no longer protected, was in the course of ages washed away by the rains: and it is certain, that the soil in the vallies is very fertile, and the whole district, in its present state, is a most enchanting and delightful spot. The country to the eastward of Bamiyan, as far as the Indus, is the native country of the vine, and of almost all the fruit-trees we have in Europe: there they grow spontaneously, and to a great degree of perfection. When the natives find a vine, an apple-tree, &c. in the forests, they clear all the wood about it, dig the ground, and thus the fruit comes to perfect maturity. "When we are told in scripture of Noah cultivating the vine, we may be sure (says captain Wilford, *ubi infra*), that it was in its native country, or at least very near it." Bamiyan, though not mentioned by name in Nonnus's *Dionysiaca*, is well described by him as the abode of the benevolent Brongus, who lived in Samach'hes, or recesses artfully excavated in the mountains. Brongus was the Bhranga of the Puranas; and had several children, who ascended the throne of Calinga, after their father had forsaken the world. Bamiyan appears also to be the town called Drahtoca by Ptolemy; which is derived from the Sanscrit Drahtatca, and implies the stone-city;

towns before being merely an assemblage of huts. Its distance and bearing, says captain Wilford, from Cabura, or Orthospiana, the present city of Cabul, puts it beyond doubt. See captain Francis Wilford's "Observations on Mount Caucasus," in *Asiatic Researches*, vol. vi. p. 495.

BAMMAGURA, in *Ancient Geography*, a town of India, on this side of the Ganges. Ptolemy.

BAMMAKOO, in *Geography*, a town of the Mandingo country, in Western Africa, seated on the river Niger, where it ceases to be navigable, about 150 miles below its source. Here the river descends from the high land of Manding into Bambara, on the eastward, with a rapid and furious course; after which it glides smoothly along, and affords an uninterrupted navigation to Houssa, and probably by Kaffina to Wangarah. It lies about fifty miles short of Kamalieh; and it is reckoned by the natives ten journeys only from Sego. By Mr. Parke's bearings corrected, it lies from Sego W. 25° S. distant 178 geographical miles. N. lat. 12° 54'. W. long. 5° 20'.

BAMMONITIS, in *Ancient Geography*, a country of Asia Minor, which Strabo places in the vicinity of the river Halis.

BAMOTH-BAAL, a city of Palestine, beyond Jordan, belonging to the tribe of Reuben, seated in the plain through which lay the course of the Arnon. Josh. xiii. 17. In this city was a high place consecrated to Baal, the idol of the Moabites.

BAMPTON, in *Geography*, is an ancient market town in the county of Devon, in England. Polwhele asserts that it was a Roman station; but this is not proved by his description of the parish, nor by any discoveries that have been made relating to that people. It is seated on a branch of the river Exe, and is also watered by the river Batham, over which is a strong stone bridge. The town is nearly encompassed with hills which consist chiefly of lime-stone rocks. These are burnt on the spot, and the lime used by the neighbouring farmers in meliorating the soil of their lands. Bampton is governed by two portreeves, two constables, and other inferior officers, who are annually elected at the lord's court. The principal manufactory of the place is ferges. This was formerly a borough, and sent two members to parliament, whose expences were defrayed by the inhabitants; but this privilege has long been lost. It gives name to the hundred, and includes within the parish two small villages, whose chapels have only monthly service. The town is irregularly built, and extends about half a mile in length; containing 302 houses, with 1364 inhabitants. Here is a large church with a lofty tower, and the church-yard, which is extensive, contains two yew trees, distinguished for their age and magnitide. The market is held every Saturday, and here are two annual fairs. Bampton is 167 miles west of London, and about twenty-two N.W. from Exeter. Polwhele's *History of Devonshire*, vol. ii.

BAN, a sort of smooth fine muslin, which the English import from the East Indies. The piece is a yard broad, and runs about twenty yards and a half.

BAN and Bans. See BANN and BANNS.

BAN Island, in *Geography*, is the most southerly of the Ladrões, north of New Guinea, in N. lat. 11°, and E. long. of the east end 142°. Between this and Bato island, on the north, is a rocky island.

BAN, *Arriere*. See ARRIERE.

BANA, in *Ancient Geography*, a town of Arabia Felix. Ptolemy.

BANAAUSI, a town of India, on this side of the Ganges. Ptolemy.

BANABA, a town of Asia, in Mesopotamia. Ptolemy.

BANAGHER, in *Geography*, a market and post town of

of the King's county, in the province of Leinster, in Ireland, which, before the union, returned two members to the house of commons. Here are an excellent endowment for a school, and an ancient bridge over the Shannon, on which river it is situated, but it is a very inconsiderable town. Its distance west from Dublin is $65\frac{1}{2}$ Irish miles.

BANAMATAPA, a town of Africa, in the country of Monomotapa.

BANANA, in *Botany*. See *MUSA*.

BANANA BIRD of Jamaica, in *Ornithology*, the name under which the *oriolus iderus* of Scopoli and Gmelin, is figured in Brown's Nat. Hist. Jamaica; and Albin's Birds.—The *banana warbler* of Latham, is the *motacilla bananivora* of Gmelin, and *banianse* of Buffon.

BANARA, in *Botany*, a small tree in Cayenne. Lin. g. Schreb. 809. Aubl. 217. Juss. 293. Class, *dodecandria monogynia*. Nat. Ord. *Columniferæ*.—*Tiliaceæ*, Juss. Gen. Char. *Cal.* perianth one-leaved, six-parted, permanent; parts ovate. *Cor.* petals six, roundish, concave, spreading, three times larger than the calyx, inserted into the receptacle. *Stam.* filaments fifteen, and more, capillary, length of the corolla, inserted into a glandule furrounding the germ; anthers roundish. *Pist.* germ somewhat globose, seated in a glandule; style filiform of the height of the stamens; stigma headed. *Per.* berry globose, but little succulent, one-celled, crowned by the permanent style. *Seeds* numerous, very small, cornered, striated.

Eff. Gen. Char. *Cal.* six-parted, permanent. *Cor.* six-petalled; germ seated on a small gland; stigma headed; berry globose, one-celled, many-seeded.

Species, 1. *B. guianensis*. Aubl. Guian. 548. t. 217. A tree growing about ten or more feet high, and about seven inches in diameter. Its bark is greyish, and its wood whitish and light. Leaves alternate, ovate-oblong, toothletted, sharp, green and smooth on the upper surface, pale, and slightly tomentose on the lower; petioles short, with two small deciduous stipules at the base of each. The largest leaves are five inches long and two broad; flowers yellow, in axillary and terminal racemes, with a single bracte to each pedicel; berry black. A native of the island of Cayenne, flowering in May.

BANASA, or **BANASSA**, in *Ancient Geography*, a Roman colony, established in Africa, in Mauritania Tingitana. It was seated on the river of Subur, at a considerable distance northerly from Gontiana.

BANAUrides, islands of the Tyrrhenian sea, so called from Banaurus, son of Æas. Steph. Byz.

BANAW, in *Geography*, a river of Prussia, which runs into the Frisch Haffe, two miles W. N. W. of Heiligenbeil.

BANAZ, a town of Asiatic Turkey, thirty miles N. W. of Karahisar.

BANBURY, a town of Oxfordshire, in England, lies on the river Charwell, at the distance of 17 miles north of Oxford, and about 74 miles west from London. This town is supposed to occupy the site of the Roman station named *Brananvir*, as many coins, and a Roman altar, have been found here. The latter was placed in a niche under the sign of an inn, which was called from thence the Altar-stone-inn; but this has been converted into a private house, and the altar is probably demolished. A castle was built in this town by Alexander, bishop of Lincoln, soon after his consecration, which occurred in 1123. This building was preserved as one of the diocesan palaces from the above date till the first of Edward VI. when bishop Holbech conveyed it, with about thirty other manors, to the king and his courtiers. The estate was afterwards given by queen Elizabeth to the bishopric of Oxford in exchange for other lands. In the time of Henry VIII. 1534, it was valued at 14l. 13s. 10d. but at the time of the above exchange it was

estimated at 49l. 18s. 9d. a year. This place was made a borough by queen Mary, who being pleased with the inhabitants for their support of her against lady Jane Grey, granted them a charter, and invested the town with several privileges. This charter was altered by James I., who appointed the government of the town to consist of a mayor, twelve aldermen, and six capital burghesses. A new charter was granted by George I. A. D. 1718, and the town is now governed by a mayor, high steward, recorder, six capital burghesses, and thirty assistants, a town-clerk, and two sergeants at mace. The church, which is a large handsome structure, was built by the above bishop Alexander, who is supposed to have been buried in the chancel under a tomb, on which is a recumbent mutilated figure. The outer walls of the church are ornamented with a number of carved heads of men and animals. Banbury has been particularly noted for the number of Puritanic inhabitants, who have been signified by Ben Johnson, and other dramatic writers. Camden speaks of it as famous for *cakes and ale*; and when Holland translated his Britannia, he changed the latter word and printed it *cakes and zeal*. Here are a free-school, two charity schools, and a workhouse.

Many military transactions and battles have taken place in this town and neighbourhood; and the castle of Banbury is often mentioned by historians as the scene of repeated sieges and retreats. In the time of Edward IV. the earl of Pembroke and lord Stafford entered this town with their army, when a battle was fought between them and an army under the command of the earl of Warwick. After the battle of Edge-hill, the parliament had a garrison of 800 foot, and a troop of horse in the castle, which was surrendered to the king in a few days, who gave it up with other garrisons to the Scots general.

The navigable canal from Coventry to Oxford passes by this town, and at the distance of about five miles it is conveyed through a hill by a tunnel three quarters of a mile in length. In the grounds adjoining the Ram inn is a well of sulphurated water; and at a short distance from the town is another spring of chalybeate water. The Pyrites-aureus, or golden fire stone, is often found here in digging wells. A number of the inhabitants are employed in the manufactory of plush and shag cloth; great quantities of which are annually made here, and sent to London and Portugal. Banbury has a weekly market on Thursday, and seven annual fairs: one of which is appropriated for the hiring of servants, and is provincially called a mop. The principal seats in the neighbourhood are, Wroxton-house or priory, belonging to the earl of Guildford; and Broughton castle, the property of lord Say and Sele. The first was a priory of Augustine canons, founded by Michael Belet, an ecclesiastic, in the reign of king John. Banbury sends one member to parliament, contains 525 houses, and 2755 inhabitants. Bray's Sketch of a Tour into Derbyshire, &c.

BANC, **BANCUS**, or **BANK**, in *Law*, denotes a seat or bench of judgment. See *COURT*. *Jus Banci*, or the privilege of having a bench, was anciently only allowed to the king's judges, *qui summam administrant justitiam*. Inferior courts, as courts baron, hundred courts, &c. were not allowed that prerogative; and even at this day the hundred court at Freibridge in Norfolk, is held under an oak at Geywood; and that of Woolfrey, in Herefordshire, under an oak, near Ashton in that county, called Hundred-oak.

BANCA, in *Geography*, an island of the East Indies, extending from S. lat. $3^{\circ} 15'$, to S. lat. $1^{\circ} 50'$, and from E. long. $107^{\circ} 5'$, to E. long. $105^{\circ} 25'$. The latitude of Capt. Marchand's anchorage at three leagues distance from the northern coast, deduced by the dead reckoning, was $1^{\circ} 23'$, S. and long. $103^{\circ} 27'$, E. from Paris. It lies on the east side of the island of Sumatra, opposite to the river Palambang

bang in that island; on which the sovereign of Banca, who is possessor also of the territory of Palambang, keeps his constant residence. He maintains his authority over his own subjects, and his independence of the neighbouring princes, in great measure, by the assistance of the Dutch, who have a settlement and troops at Palambang, and who enjoy the benefit of a contract with the king of Banca for the tin which his subjects procure from thence; and which, like the king of Bantam, with regard to pepper, he compels the miners to deliver to him at a low price, and he sells it to the Dutch at a small advance, agreeably to his contract. This island is celebrated throughout Asia for its tin-mines, which were first discovered in 1710 or 1711, and which since that time have yielded immense quantities of ore, and appear to be inexhaustible. It is dug chiefly in seven places, which are under the direction of Chinese managers, that provide and pay the labourers, who are also, in general, of that nation. These miners reduce the ore into metal by employing wood as fuel in their furnaces, and not fossil-coal or coak, which is seldom so free from sulphur as not to affect the malleability of the metal. It is therefore sometimes preferred to European tin at the Canton market; and the profit upon it to the Dutch company is supposed to be not less any year than 150,000 pounds. The tin is delivered by the managers of the mines to the king at Palambang for five rix-dollars per 125 pounds, and by him to the Dutch for 15 rix-dollars, equal to about 58s. sterling per cwt. English. Raynal and others, state the quantity of tin received by the Dutch company at 2,000,000 lb, but it appears that they take at least 3,000,000 lb. Very little, however, comes to Europe; in 1778, 700,000 lb were sold in Holland at f. 42 per 100 lb, but the greatest part goes to the China market. Stavorinus's Voyage to the East Indies, by Wilcocke, vol. i. p. 357. Staunton's Embassy to China, vol. i. p. 305.

BANCA, *Straits of*, lie between this island and Sumatra; which, on its eastern side, forms the western side of these straits, and its southern extremity forms the northern side of the straits of Sunda. Through these straits there is a safe navigation from the China sea, except near the northern entrance, where a shoal lies off, and another within it, so that it is necessary for a ship to found in that situation. Captain Marchand, in endeavouring to gain the entrance of these straits, experienced strong currents, some setting to the E.N.E. others to the E. and others to the E.S.E. He therefore renounced the idea of going out of the China sea by the straits of Banca, and determined to sail by another strait situated more to the eastward, between the island of Banca and that of Billiton. This strait is known under the names of *Gaspar's*, *Billiton's*, or *Clement's* strait; and has been much frequented in passing to and from the China sea. See Marchand's Voyage, vol. i. p. 98.

BANCALA, a kingdom in the island of Celebes.

BANCALIS, a town of the island of Sumatra, in the kingdom of Achin.—Also, a bay on the north-east coast of this island, in N. lat. $1^{\circ} 15'$. E. long. $100^{\circ} 7'$. 43 leagues west of Malacca; it is in Brower strait, which is a branch of that of Malacca; is large, and affords good anchorage, and its navigation, as far as Bancalis, at the south extremity, is safe.

BANCAPOUR, a district of Hindoostan, in the country of the Mahrattas.—Also, a town of this district. N. lat. $14^{\circ} 55'$. E. long. $75^{\circ} 15'$.

BANCAPOUR, *Sanore*. See SANORE.

BANCK, LAURENCE, in *Biography*, a Swedish lawyer, was born at Norcopin, and after returning from his travels in France, Italy, Spain, &c. acquired great reputation as professor of the civil law in the university of Franeker, which post he occupied for 15 years. He died on the 13th of October in the year 1662. In 1649, he published a Latin work "On the Tyranny of the Pope over Christian Kings

and Princes;" and in 1656, "Rome Triumphant, or the Inauguration of Innocent X." But his principal work was his edition of the famous book of "The Tax of the Roman Chancery," in which are fixed the prices of absolution for the most heinous and infamous crimes. This edition, formed by a collation of the most ancient copies, both printed and manuscript, was printed at Franeker, in 8vo. in 1651; and several other editions have been, before and since, printed at different places. Jurieu, in his "Prejuges leg. t. contre le Papisme," t. i. p. 295, &c. published the particulars of these taxes. Banck's edition of these taxes, and some others, have been referred to the class of prohibited books, in the "Index" of the Inquisition, as corrupted by heretics; but enough remains in uncontroverted editions to induce worthy Catholics to lament that such taxes should ever have disgraced the church. Gen. Dict.

BANCK, *Peter Vander*, an eminent engraver, was a native of Paris, and received instruction in the art of engraving from the celebrated Francois de Poilly. About the year 1674, he came over to England, and married; but not receiving recompence answerable to his labour as an artist, he was reduced to penury, and to dependence on the brother of his wife. He died at Bradfield in 1697, and left his plates to his widow, who sold them to great advantage, and left an easy fortune.

His chief employment was engraving of portraits; and he was the first in England who engraved them on so large a scale. Like many of Poilly's disciples, his great merit consists in the laboured neatness and management of the mechanical part of the art. In England his productions will be always esteemed, as they preserve the best resemblance of many eminent persons who were living at that time. Strutt.

BANCOK, BANGKOK, or FOU, in *Geography*, a maritime and fortified town of Asia, in the kingdom of Siam, seated on an island formed by the river Menan. N. lat. $13^{\circ} 25'$. E. long. $101^{\circ} 5'$.

BANCOTE, now fort *Victoria*, lies on the Malabar coast of India, contiguous to Rajapore. It has a good harbour, and a great trade for salt, &c. from Bombay, whither it makes returns in cattle.

BANCROFT, RICHARD, in *Biography*, archbishop of Canterbury in the reign of James I. sprung from a good family at Farnworth in Lancashire, and was born in September 1544. Having finished his education in the university of Cambridge, he rose by quick gradations to very distinguished stations in the church. The Puritans were the objects of his bitter invectives. Accordingly, in a sermon delivered at St. Paul's cross, on the 9th of February 1589, he accused them, in very intemperate language, of ambition and covetousness; alleging that the principal cause of non-conformity and schism was the prospect of plundering bishoprics, seizing the endowments of cathedrals, and scrambling for the remainder of the church revenues; and accusing the laity among the non-conformists of an intention to dissolve the bonds of property, and to introduce a community of goods. He strongly represented the danger of permitting private men to contest the authority, and violate the constitutions of the church, exposed the absurdity of extemporary prayers, and maintained the divine right of bishops, in terms which, in the judgment of sir Francis Knollys, one of the queen's counsellors, were injurious to the supremacy of the crown. This sermon, preached, as Strype supposes, at the instigation of archbishop Whitgift, furnished ample evidence of Bancroft's inveterate hostility against the Puritans. As one of the commissioners for ecclesiastical causes, he adopted rigorous measures for the suppression of heresy and schism; and he was an avowed enemy to sects and innovations of every kind. Writings against episcopacy, or recommending any other mode of church discipline, were treated

treated by Bancroft as seditious, and he pursued their authors as enemies to the state. His zeal recommended him to ecclesiastical preferment; and in 1597, he was advanced to the see of London, and the management of the ecclesiastical affairs of the kingdom devolved upon him. In the celebrated conference between the bishops and the Presbyterian ministers, held at Hampton court in 1603, Bancroft took an active part; and when the king required satisfaction in the three points of confirmation, absolution, and private baptism, he undertook to explain and vindicate these branches of ecclesiastical discipline, as they were exercised in the church of England. In the prosecution of this conference, and with a view to its speedy termination by an act of authority, he moved the king, that an ancient canon, that "Schismatics are not to be heard against Bishops," should be revived; and that, according to a decree of an ancient council, which prohibited any man to plead against his own subscription, those of the opponents, who had subscribed the communion-book, should be set aside. These absurd and unjust proposals were rejected by the king. When Dr. Reynolds, on the part of the non-conformists, moved for several alterations in doctrine and discipline the bishop fell upon his knees before the king, praying that care might be taken to provide a praying clergy, as the services of the desk were too much neglected, and the duty of a parish priest wholly restricted to the pulpit; that till men of learning could be procured for every congregation, homilies should be read, and their number increased; and that pulpits might not be turned into batteries, from which every malecontent might be allowed to vent his spleen against his superiors. These requests, whether well or ill-founded, were evidently pointed against the non-conformists. Upon the lord chancellor's taking occasion to argue against pluralities, and expressing a wish that some clergymen might have single coats before others had doublets, adding also, that he had bestowed benefices in the king's gift upon this principle, the bishop of London replied, "I commend your honourable care that way; but a doublet is necessary in cold weather." The good bishop, it is said, spoke feelingly, for he had himself experienced the comfort of warm cloathing. In 1604, bishop Bancroft was elected and consecrated to succeed archbishop Whitgift in the see of Canterbury; and in this high station he retained his intolerant principles, and pursued the same measures against the non-conformists. To this purpose lord Clarendon (Hist. vol. i. p. 88.), in his eulogy, testifies, that "if he had lived, he would quickly have extinguished all that fire in England, which had been kindled at Geneva, and would easily have kept out that infection which could not afterwards be so easily expelled." For the rights of the church, the archbishop manifested a jealousy, which involved him in a contest with the judges; against whom he exhibited to the lords of the council, complaints of their encroachments on the ecclesiastical courts in granting prohibitions; but these complaints were over-ruled by the unanimous opinion of the judges, which Coke justly calls the highest authority of the law. In the interior discipline of the church, the archbishop was rigorously exact, urging a strict conformity to the rubric and canons, and making no allowance for diversity of opinion. He enforced subscription to the articles in the most unevasive terms; and it appears, that, not long before his death, forty-nine clergymen were deprived of their benefices for not complying with his rigid requisitions. In 1610, he proposed to parliament a plan for increasing the revenues of the church, by improving the tithes, redeeming lay impropriations, and restoring the practice of mortuaries by repealing the statute of mortmain. Parliament wisely resisted this project, which seems to have been the last public act of the archbishop's life;

for he died of the stone, at his palace at Lambeth, in November 1610, aged 67. His library was bequeathed to his successors in the metropolitan see of Canterbury. Besides his sermon against the Puritans, we have only two tracts, written by him before his advancement to the episcopal dignity, in defence of the church against the non-conformists, intitled "Dangerous Positions," and "Survey of the pretended holy Discipline." The prominent features in the character of this prelate were intemperate zeal and intolerant severity; and if he rendered any services to episcopacy, the general cause of Protestantism owed him little obligation; for nothing could be more inconsistent with the fundamental principle of the reformation, than the restraint and prohibition of that freedom of judgment and choice in the province of religion, which had been asserted and maintained by the predominant party on their separation from the church of Rome. Bancroft, however, though his principles were narrow and temper rugged, possessed a degree of understanding and of activity of spirit, which fitted him for public business, and which enabled him to occupy important stations in the church with a considerable degree of reputation. A letter written by this prelate to king James I., in vindication of pluralities, is preserved in the advocate's library at Edinburgh, and may be read in the first volume of sir David Dalrymple's Memorials. Biog. Brit. Gen. Biog.

BAND, in a general sense, some small, narrow ligament, wherewith a thing is tied or fastened.

We say, a *slay-band*, a *brow-band*, a *bat-band*, &c.

BAND, in *Architecture*, denotes any flat, low member, or moulding. This amounts to the same with what is otherwise called *face*, from the Latin *fascia*, which Vitruvius uses for the same thing, and sometimes *fillet*, *plinth*, &c.

BANDS of Columns, properly denote a kind of embossments surrounding shafts of rustic columns, at certain distances, by way of decoration.

These are sometimes plain, sometimes picked or vermiculated, and sometimes carved with decorations of low relieve, which are different in every different band.

Columns enriched with these bands, are sometimes called *banded columns*.

BAND, in matters of *Artillery*, denotes a hoop of iron used about the carriage of a gun.

Such are the nave bands, which are iron hoops binding the nave at both ends.

BAND, in *Geography*, a town of Persia, in the province of Mekran, 400 miles S.S.W. of Candahar.

BAND, *Bandum*, is used in *Middle age Writers*, for a flag or banner.

BAND of Soldiers, in *Military Language*, so many as fight under the same flag or ensign. Thus Romulus called those who fought under the same manipule (a handful of hay being then used for a flag) *manipulus militum*.

Formerly bands especially denoted bodies of foot; and the French formerly called their infantry *bandes Francoises*.

BAND of Pensioners, is still retained, to denote a company of gentlemen, who receive a yearly allowance of 100*l*. for attending the king on solemn occasions. See **PENSIONERS**.

BANDS, Trained. See **TRAINED BANDS**.

BAND, gives the denomination to a military order in Spain, instituted by Alphonfus XI. king of Castile, in the year 1332. It takes its name from *banda*, *band*, or red ribband, which comes across over the right shoulder, and under the left arm of the knight. This order is for none but the younger sons of nobles; the eldest sons of grandees are excluded; and, before admittance, it is requisite to have served at least ten years, either in the army or at court. They are bound to take up arms for the Catholic faith against the infidels.

The king himself is grand-master of the order.

BANDS of a Saddle, denote two flat narrow pieces of iron, nailed on each side of the bows of the saddle, to retain those bows in the situation which makes the form of a saddle.

BAND, to *put a bow in the*, is to nail down the two ends of each band to each side of the bow.

Besides the two great bands, the fore-bow has a small one called the wither-band, and the hinder-bow another to strengthen it.

BAND, in *Surgery*, is a long slip of linen, or some other convenient material, intended for the purpose of binding and surrounding any part of the body. When a band has been rolled up for use, into a cylindrical form, it is generally denominated a *BANDAGE* or *ROLLER*.

BANDA, in *Geography*, the chief island of a group, which comprises five others, lying close to one another, and situated in the Eastern Pacific ocean, east of Celebes or Macassar, south of Ceram, and south-east of Amboyna, in about S. lat. $5^{\circ} 45'$ E. long. $130^{\circ} 30'$. These islands are called the Spice or Nutmeg islands, and also Banda isles from the name of the principal of the group. Banda formed the second government of the Dutch to the eastward. The first of these islands is Neira or Nera, where stands the chief settlement of the province; it has a spacious and commodious harbour, but difficult of access: ships anchor under the cannon of two forts, called Belgica and Nassau, the first standing on an eminence, and commanding the whole extent of the island and of the harbour, as well as fort Nassau; the defence of it would require a garrison of 400 men, and yet the whole number of military in all the islands scarcely ever exceeds 300. The next island is that of Banda, Lantor, or Lonthoir; it does not exceed eight British miles in length from west to east, and the greatest breadth at its eastern extremity may be five; it has a fort and two or three redoubts. The third and fourth in importance are Pulo-way or Way, and Pulo-run or Rohn: upon the first of which is a small fort, and upon the other a redoubt. The other two are Rozingen or Rossigen, in which there is a redoubt, and to this island the Dutch company often banish their state prisoners; and Gunung-api, Gonong, or Ganapcz, which has a volcano constantly emitting smoke, and often flames. The nutmeg-tree is chiefly cultivated in Neira, Gonong, Ay or Way, and Lantor or Banda; and it flourishes not only in the rich black mould, but even amidst the lavas of Gonong, which is the highest isle, the summit being 1940 feet above the sea. When the English admiral Raimier took possession of the islands of Amboyna and Banda, which he seized without resistance, in February and March 1796, the annual produce was about 163,000 pounds of nutmegs, and 46,000 pounds of mace. The hurricane and earthquake, in 1778, almost annihilated the nutmeg-trees in Banda, so that the Dutch have become the dupes of their own avarice. From 1796 to 1798, the English East India company imported 817,312 lb of cloves, 93,732 lb of nutmegs, and 46,730 lb of mace, besides considerable quantities of each in private trade and privilege goods, amounting to about a third part of the above. The ground being chiefly occupied with these precious plantations, cattle and grain, &c. are imported from Batavia, at the distance of three or four weeks' sail. The inhabitants of the Banda isles were found to be 5763. The English were expelled from Lantor and Rohn, at a period prior to the massacre of Amboyna; but seized the whole Spice islands in 1796, and restored them to their Batavian masters by the treaty with France in 1801.

To the government of Banda belong likewise several other islands in the neighbourhood, known by the appellations of the South-eastern and the South-western isles. Their inhabitants are in alliance with the company, and furnish a

considerable quantity of provisions, consisting of wild-boars, fags, sea-cows, and other articles of food, which they barter at Neira for piece-goods and other necessaries. This trade, however trifling, is very beneficial to the inhabitants of Banda; and it is supposed, that the province would derive greater advantages from it, if the company would allow Neira to become a more commercial place; but this is prevented by the suspicious policy of the government. Stavorinus's *Voyages*, by Wilcocke, vol. i. p. 331. vol. ii. p. 418.

BANDA, *Ican Banda* Ruysch. *Theat. bandasche cacatocha* and *ikan bandan* Jang. Swangi, Valent amb. *banda* Ican Potou, *banda* Kenard Pisc. in *Ichthyology*, synonymous names of the species of *CORYPHÆNA*, called by Gmelin *pentadactyla*.

BANDAGE, in *Surgery*, is a *STRAP*, a *FILLET*, *SWATHE*, or *BAND*, applied to its peculiar use upon any member, &c. of the body. The nature and application of bandages are a study of considerable importance in *Surgery*; for it often happens that the cure of a local disease depends principally or entirely upon the proper management of them. Their substance and form are various, according to the nature of the case, and the intention to be fulfilled in their application. They may be made of linen, flannel, leather, or cloth composed of different materials. Each of these substances, on particular occasions, has its respective advantages or disadvantages.

The common properties and uses of bandages are—

1. To retain parts in their situation.
2. To separate or keep them asunder.
3. To expel morbid fluids, or prevent their accumulation.
4. To confine dressings or external remedies.
5. To compress and obliterate certain vessels.

The bandages most in use are made of linen or cotton. The linen used for this purpose must have been already worn, but still sufficiently strong, cut according to the direction of the threads, and without seam. In order to prevent its unravelling, the edges may be slightly stitched round, but it ought to have no seams whatever.

As it is often impossible to procure long bandages of a single piece, and we are consequently obliged to form them of several different pieces, they should be sewed together with back-stitches, leaving ends several lines in breadth, which must be doubled round and beat perfectly smooth and even. But in order to avoid all the inconveniences that attend the use of bandages made of linen, it will be best to use fillets of linen expressly manufactured for the purpose, which may be wove of different breadths and lengths.

Bandages are distinguished into *simple bandages*, which consist of a single piece, and *compound bandages*, which are composed of several different pieces, and whose application requires greater trouble and skill. They are also divided into *general bandages*, or such as may be applied to several different parts of the body, and *particular bandages*, which are adapted only for one particular part.

Every simple bandage consists of a beginning, middle, and end. The beginning and termination are named its *ends*; and when the bandage is rolled up, they are called *heads*. The middle part of the bandage is called its *body*. When we roll up one end of the bandage to the other, we have a *single-headed* bandage; but when we roll up each end separately only towards the middle, it is then termed a *double-headed* bandage. In order to apply any bandage properly, it is necessary that it should first be rolled up tight and perfectly even. The operator, when he applies it, holds its head between the thumb and fore-finger of one hand, in such a manner that it lies directed upwards in the hand, and the end that has been rolled off is held down with the other hand upon the part till it is sufficiently secured by several turns. In rolling out the bandage, the head must run as close

close as possible to the diseased part, and constantly be turned towards the surgeon; the bandage should never be rolled out too far, and the head should be held neither too tight nor too loose. When we wish to remove the bandage again, we should not pull it forcibly off from any part to which it may adhere, but previously soften it with warm water. It is then cautiously drawn off from the diseased part, and in winding it off, that part of the bandage which has been rolled off is alternately shifted out of the right hand into the left, and *vice versa*.

To the simple bandages belong the circular bandage, the spiral bandage, the retaining, the expellent, the creeping, and the uniting bandages. To the compound bandages are referred the eighteen-headed bandage, the many-headed bandage, the T bandage, and in some measure also the *TOURNIQUET*. Some bandages receive their appellations from the names of the parts to which they are applied: as, bandages for the head, eyes, ears, nose, neck, breast, back, belly, &c.

The *eighteen-headed bandage* may be formed of several (suppose three) pieces of linen, about a foot in length, and ten or twelve inches in breadth, more or less according to the length and thickness of the limb, and all three are laid at the middle over each other. At the middle they are sewed together longitudinally, after which each of them is cut through on each side, till about two fingers breadth from the middle, into three equal parts, which form nine heads on each side. But as in this mode one head covers the other, there always remains a slit between the heads, by which means the limb is unequally pressed upon and secured. This defect may be remedied by arranging the cuts in such a manner that the heads of the middle piece of linen are always covered by a slit and the half of two heads of the two other pieces of linen. This will be the case if, as *Loeffer* advises us, we give the first piece of linen four, the second three, and the third again four heads. See the *Many-headed Bandage*.

In cases of compound fractures, in which the bandages are frequently soiled, it will be more convenient, as *Desault* advises, to use a bandage consisting of eleven separate fillets of linen, each a foot and a half in length, and four fingers broad. Four of these are to be laid at the bottom, three in the middle, and again four at the top, at the side of each other: and thus we obtain a twenty-two headed bandage of a more convenient construction. This bandage may still be improved by cutting the middle fillets shorter than the lowest, and the upper shorter than the middle; by which means the bandage will apply far better to the part. Should now any of the fillets be soiled, we have the advantage of being able easily to substitute another in its place; for we need only to sew the new fillet to the old one, and draw it by means of the latter through between the rest, without deranging any of the other parts of the bandage.

The *Circular Bandage*. This bandage may be of various lengths and breadths; it is rolled upon one head, and is used for securing small dressings, such as lint and compresses. It is applied in such a manner that one turn entirely covers the other, so that only the last turn is visible.

The *Retentive Bandage*. This is a common simple bandage, which is used for retaining dressings in their proper situation; and it is applied sometimes with circular, sometimes with spiral, and sometimes with creeping turns.

The *Neck Bandage*. A fillet, two feet or two feet and a half in length, is laid across over the head in such a manner that the ends reach down on both sides to the shoulders; and over this another fillet, five or six feet in length and two or three fingers broad, is rolled round the neck with circular turns. The two ends of the first fillet are then doubled back to the head, and secured to the circular turns with

pins; by which means the circular turns are prevented from slipping off, an accident that is particularly to be apprehended when the neck is long.

The *Divisive Bandage*, to support the head, is formed with a small fillet, which is laid over the head in the direction of the sagittal suture, so that one end hangs over the nose down to the breast, and the other over the back of the neck till between the shoulders; and another larger fillet, sixteen or eighteen feet long and three fingers broad, which is rolled upon two heads. The middle part of the latter is laid upon the forehead, over the first fillet; it is then carried over the ears, round the head, to the back of the neck; its heads are then shifted to opposite sides, brought forwards under both axillæ, then carried backwards over the shoulders, crossed again, carried under the axillæ over the breast, the heads shifted again, and the rest of the bandage rolled round with circular turns. The surgeon then takes hold of the two hanging ends of the small fillet, carries them back over the head, and there pins them together, or to the other turns, after having drawn the patient's head straight.

The *Expulsive, or Expellent Bandage*. This is a common simple bandage, the length and breadth of which are to be regulated according to the purpose for which it is to be used. It is used in cases of fistulas, and wounds made with pointed instruments, in order both to force the pus and blood towards the orifices, and thus expel them from the body, and also by bringing their inner surfaces into contact, to promote their healing up. Before the bandage is applied, all the fluids must be expelled out of the wound, ulcer, or fistula, by rubbing, pressing, or throwing injections into it. When this has been done, compresses of various dimensions are applied along the course of the sore, and particularly at the region of its bottom; and generally it is necessary to have compresses that are graduated at one end, the thickest part of which is applied over the bottom of the sore, and the thinnest over its orifice. An assistant holds the compresses fast in their proper situation, whilst the surgeon applies a single or a two-headed bandage, according to the situation of the ulcer. He commences the application over the bottom of the compress, so as to secure and press it down by two or three turns of the bandage, which he then carries towards the orifice with spiral turns; after which he carries it back again, and finishes with spiral turns. This mode of bandaging may also be used with great advantage in cases in which a flap of flesh has been partly cut or torn off from the body, whilst it still remains attached by one part, in order to make it heal up again in its proper situation; and in this case the bandage becomes an *uniting* one. But when we apply it in this manner, we ought always to be careful to make a sufficient and equal pressure at every point; for otherwise our intention, if not entirely frustrated, will at least be impeded, and the cure protracted.

The *Galen's Bandage*. The four-headed or sling bandage for the head. This bandage is formed of a piece of linen three or four feet in length, and from four to eight fingers broad; both ends of which are slit open so far as to leave the middle part about eight fingers long. It is generally applied with the middle part straight upon the head, so that the anterior ends hang down over the cheeks, and the two others over the ears; and in order that it may lie more firmly upon the head, the edge of the middle part that lies over the forehead, as well as that on the back of the head, is doubled round, so as to form a kind of seam. The two anterior ends of the bandage are then carried over the ears, and fastened at the back of the neck; after which the two posterior ends are carried in the same manner over the ears, and fastened under the chin. The bandage may be applied in a similar manner upon various parts of the head, only it is to be

be observed, that the central portion must always be placed over the diseased part, and the ends carried in opposite directions, either crossed or stretched out.

The Uniting Neck Bandage. This bandage is formed in the following manner. The surgeon takes a napkin four double, lays it under the patient's axillæ, and pins it together in the front of the breast. He then takes two pieces of linen, fastens one end of them to the patient's night-cap, and the other to the napkin, in such a manner, that if the wound be situated in the trachea, or at the fore-part of the neck, the ends, after the patient's head has been inclined forwards a little, can be fastened to the fore-part of the cloth, in order to keep the head in that position. But should the wound be situated in the back of the neck, the head may be inclined a little backwards, and retained by the same bandage in that position, by drawing the ends of the two small fillets more backwards, and fastening them there to the napkin.

The application of the T bandage, according to Mr. Evers's method, is however more advantageous, especially for uniting wounds across the throat. For this purpose, we are to take a fillet, three fingers broad and ten feet long, and sew to the middle of it another of equal breadth and six feet long, so as to represent the figure of the letter T. The smaller fillet is now to be slit open all but one foot. In applying it, the part at which the two fillets are sewed together, is placed upon the back of the neck in such a manner that the smaller fillet lies over the back of the head upon the vertex. The two heads are next brought forwards over the shoulders, then carried under the axillæ, which are guarded with compresses, to the back; the bandage is then crossed, brought forward again upon the breast, and fastened. The slit ends of the smaller fillet are next crossed over the vertex; after which they are carried over the face under the axillæ; the patient's chin, if necessary, being drawn downwards towards the breast, and this fillet is finally fastened like the former. Mr. Kochler has proposed for this purpose a leathern cap with straps, by means of which the patient's head may be drawn into any position that may be necessary. See the T Bandage.

The Inguinal Bandage. The bandage for luxations of the os femoris. This is a bandage eight or nine yards in length, and three or four fingers broad, rolled up into one head.

The Six-headed Bandage of Galen. This bandage consists of a piece of linen from three to four feet in length, and 8—12 fingers broad; its breadth and length being determined according to the size of the patient's head. The cloth is folded in such a manner that its breadth can be divided into three equal parts, and these parts are slit open from both sides, so far as to leave entire in the middle a space of the breadth of a man's hand, by which means six heads are formed. It is applied nearly in the same manner as the four-headed bandage for the head.

The many-headed Bandage. This bandage is formed of a piece of linen or flannel, the dimensions being regulated according to those of the diseased part, into which a number of slits are made at both sides, so as to leave only one part entire in the middle for the purpose of connecting the rest. In applying it, the whole piece is laid under the diseased part; the lowest of the ends, which lies on the outer side, is then brought obliquely upwards on the inner side, and that which lies within is brought obliquely upwards on the outer side, and so on; so that the lower ends are always half covered and secured by the upper. A many-headed bandage may also be formed in another way, by cutting a piece of linen or flannel into several strips, of which the one is always longer than the other, but each of the same breadth with the rest. The shortest is generally made a foot, and the longest two

feet in length. All these strips are now laid over each other in such a manner that always half the breadth of the one is covered by the other. To secure the whole, a narrow slip of linen or tape is sewed to them behind and also in the middle. In applying it, the narrowest part of the bandage must always come to lie over the smallest part of the limb. A bandage of this kind will perform the functions of the best applied circular or spiral bandage, and it applies to the parts far better than the eighteen-headed bandage; on which account it may be used instead of the latter.

The T Bandage, the bandage for the fistula in ano. This is a common compound bandage, which is chiefly used in lesions of the neck, the breast, the abdomen, the back, but particularly the genital organs, the anus, the groin, and the perinæum. It is either single or double. The simple T bandage is formed in the following manner: take a fillet from four to eight feet in length, and fold it together in such a manner as to get the exact middle point. At this middle point sew to it another fillet in a perpendicular direction, and of such length as may be most convenient for the purpose for which it is intended. To form the double T bandage, either two fillets are sewed in the middle obliquely beside each other, or a whole piece is sewed on and afterwards slit open. According to the dimensions of the place to which it is to be applied, it is made more or less broad.

The Creeping Bandage. This is a common simple bandage rolled upon one head, which is applied in a spiral manner round the limb, so that the one turn does not cover the other, but only lies close to it, in such a manner that no part of the limb remains visible. It may sometimes be used for securing compresses and other dressings.

The Scapulary and Napkin. This bandage consists of a napkin, and a scapulary as it is termed. The napkin is folded together, and rolled upon two unequal heads; the middle part is then applied under the arm in such a manner that the largest head is carried over the back, and the smaller over the breast; but both heads are laid over each other, and then fastened. But in order to prevent the napkin from slipping out of its situation, the scapulary is required. This is formed of a piece of linen 2—4 feet long, and half a foot broad. In the middle of the piece a slit is cut, large enough for the head to pass conveniently through it; and in this manner one end hangs down before over the breast, and the other over the back. These two ends are then fastened to the napkin before applied. We may also slit open the ends, and thus attach them more extended to the napkin, by which means they will support it better. This bandage may be used in almost all lesions of the breast, as also in simple wounds of the abdomen.

The Spiral Bandage. This is a common simple bandage, the length and breadth of which must be adapted to the dimensions of the part: the second turn of the bandage always covers the first, and the third and following turns always cover each the preceding turn, either half or a little more so as to represent a spiral figure. The turns may be made either from the upper towards the lower part of the limb, or from the lower towards the upper; in the first case it is termed the descending, and in the second, the ascending spiral bandage. It is generally applied in the last-mentioned manner, and may be used for swathing whole limbs, by which means alone very obstinate diseases may sometimes be cured.

Mr. Theden (Neue Bemerkungen u. Erfahrungen, &c. Th. I. Berl. 1781, p. 1.) was the first who called the attention of the public to the more frequent and rational use of swathing with this bandage; and experience has proved that this practice may certainly be attended with very great advantages. In applying it, every thing depends upon the whole limb being entirely encircled with it from the

the very points of the fingers or toes, so as to leave no part whatever bare, as a tumor would be produced in such a part. The method of applying it to the superior extremities is as follows:—For each finger we are to take a fillet a foot in length, and of the breadth of a finger, and wind it round each finger as well as the thumb in the following manner. The first turn is made circularly round the point of the finger, the second, in order to afford a good hold for the rest, immediately over the first; the third turn covers half or a little more of the second, and the fourth and following turns the same. The ends of these fillets are laid upon the back of the hand, and secured with a fillet from 20 to 40 feet long, and 2 or 2½ fingers broad. With this long fillet, the first turn is made immediately over the fingers round the hand, and for the sake of security, the second straight over the first; but the following turns always cover each one half of the preceding turn, and they ascend as high as the elbow, being applied neither too loose nor too tight; for we must always have it in our power to introduce a finger between the turns in case of necessity. If we intend to wet this bandage with any liquid, we must apply it somewhat looser, as it contracts and becomes tighter when it is moist; but afterwards it must be kept constantly moist, as otherwise, when it dries, it becomes too loose, and is consequently rendered useless. Should the person who applies the bandage, not know how to hit the proper measure of tightness in this case, he may wet the bandage before he applies it.

These turns are carried up as high as the elbow, where, if it be a case of injury from blood-letting, a piece of rag spread with a proper ointment is laid upon the inflamed or ulcerated part, and the bandage is carried two or three times up to the humerus, and back again, so as to form turns like ∞ ∞, as in the operation of blood-letting. If we cannot cover every part by means of these turns, we may lay an oblong piece of linen, 3—4 fingers broad, and a foot long, under the elbow, draw it tight, and secure it above and below with the bandage. The end of the piece of linen that projects under the bandage is doubled back, and another turn made round it, in order to prevent its giving way. The turns are then continued as high as the deltoid muscle, or to the shoulder, and the end of the bandage is fastened to the neck. When the tumor grows smaller, so as to render the bandage too loose, it may be renewed.

In swathing the lower extremities, it is not necessary to bandage each toe separately, and this would also be very difficult on account of the shortness of these members. We may therefore apply the middle part of a piece of linen, about twice the breadth of a man's hand in breadth and length, close to the points of the toes, and turn one part over the back of the foot, and the other under the sole; the two folds of the linen are then to be drawn tight towards the foot, and doubled downwards, both at the great and little toe, towards the sole, where they are to be held fast with the left hand. The surgeon then takes into his other hand the bandage, which may be from 30 to 40 feet long, and 2—3 fingers broad, and secures the piece of linen that incloses the toes, with the circular turns, after which he proceeds to carry the bandage with spiral turns towards the leg. In order to obviate the difficulty that attends the bandage of the heel, we may apply under the sole another piece of linen, somewhat more than the breadth of a man's hand, so as to reach above the heel, surround it with the bandage and draw it tight, then double down the ends, and secure them with the bandage in order to prevent their giving way. For the greater security of the bandage, and in order to prevent the pain which it might occasion by its pressure upon the TENDO ACHILLIS,

we may fill up the depressions on both sides of the tendon, as high as the termination of the calf, with lint, whilst we are bandaging the limb. As often as it is necessary, namely when any turn is not drawn so as to cover half of the preceding, we must turn the bandage, and this must be done particularly under the calf. When the limb has been swathed, a stocking that fits well should be drawn over it.

Stellated Bandage with Two Heads. This bandage is used after blood-letting at the temporal artery. It is from 16 to 20 feet long, two fingers broad, and rolled upon two heads. Instead of this bandage Mr. B. Bell recommends the use of a well-hardened steel spring, three quarters of an inch broad, and twelve or fourteen inches long, which is covered with soft leather, and of equal strength with the spring of a rupture bandage.

The single Star Bandage. This is a one-headed bandage, from sixteen to twenty-four feet long, and four fingers broad, which is used in some affections of the scapulæ.

The double Star Bandage. This bandage is 3—4 fingers broad, 24—32 feet long, and rolled upon two heads: it is likewise used in lesions of the scapulæ.

The Bandage for an Umbilical Hernia. These bandages may either be elastic or non-elastic. With infants an elastic bandage is both troublesome and superfluous. Mr. Richter therefore recommends to apply half a nutmeg, wrapped in a piece of linen to the umbilicus, and to secure this with a single adhesive plaister and a circular roller. But lest the bandage should slip, and the plaister together with the nutmeg fall off, he directs the front part of the bandage to be made almost as broad as the hand, and that which lies upon the lips two thirds narrower, in order that if it should slip a little upwards or downwards, it may still in some degree help to retain the piece of nutmeg in its place. In order to prevent the bandage from wrinkling, it is made of double linen, and at the front part which covers the navel, a piece of leather is inserted between the two pieces of linen; by which means this part of the bandage constantly preserves its proper breadth. When we wish to change the bandage, we should introduce a finger under the bandage, and press down the nutmeg upon the navel till the new bandage has been applied, lest the navel should again be protruded. Instead of the nutmeg, we may employ for the same purpose a set of graduated compresses, or any other proper hard substance. See the article RUPTURE.

An unelastic bandage for the umbilical hernia in adults is made in the following manner. We take a piece of parchment four or five feet long and four fingers broad, and cut into the middle of it a slit a foot long, which passes over the patient's head when it is applied. To the one end, at both corners, two straps are sewed, which run on in a straight line with the whole. Two other straps are sewed immediately over the former to the margin of the bandage, so that when the whole is laid upon a horizontal surface, they form a right angle with the slip of parchment, on each side. Finally, to the inner side of the bandage a cushion is attached, which is stuffed with horse-hair, cork, or cotton, and in order that it may lie properly, it ought to have a degree of swell round the margin. In applying it, the patient introduces his head through the slit above mentioned, so that the longer portion of the slip of parchment hangs down perpendicularly over his breast, and the shorter down his back. After the hernia has been reduced, the two upper straps attached to the margin of the bandage are carried round the body and tied upon the back; or, if they be long enough, over the cushion in front. The other two are brought through between the thighs, and fastened at the back to the first, or to the upper piece of parchment or linen.

But

But as the hernia is not always of equal size, being smaller in the morning, and larger after meals, and as it alternately rises and sinks in inspiration and expiration, it is evident that these unelastic bandages cannot adapt themselves to those diversities, as they either render necessary a stronger, inconvenient, and often hurtful pressure, or do not press sufficiently, so that the hernia is constantly in danger of slipping through.

With adults therefore we can expect no security, except in the use of elastic bandages for the umbilical hernia; and of these there are simple, compound, and double bandages. The simple bandage consists of a somewhat broad, round, or oval cushion, and an elastic femicircle. With patients whose umbilical region is more debilitated, an oval cushion is requisite, having in the middle a bulb of the size of a walnut, which comes to lie upon the navel. Mr. Richter also recommends the use of a common bandage for the inguinal hernia, provided in its front with a shield, to the inner side of which a cushion is attached. However, this and the above-mentioned rupture bandages are not sufficiently secure against slipping out of their situation, on account of their being provided only with a single lateral spring.

Mr. Theden has proposed the use of elastic gum for bandages for the umbilical hernia: and Mr. Juville thinks that it may be sufficient with patients that are not corpulent, and when the hernia is small. But as elastic gum loses its elasticity when it grows warm, it has been proposed to supersede its use by the application of spiral steel springs to both sides of the cushion. However, both these methods are liable to the objection, that they produce the same pressure upon the whole surrounding part of the abdomen, as they do upon the navel itself; and consequently the cushion either does not compress the navel sufficiently, or it presses it more than is necessary.

A better bandage than these, for the umbilical hernia, is that of Squire, which consists of a plate, with a cushion screwed to it, and two lateral springs proceeding from the plate, which, when it is applied, firmly embrace the body. An elastic bandage of another kind is that of Suretsche, which Mr. Richter (*Abhandlung von den Bruechen*. Gottingen, 1785, p. 641. tab. vii.) has described, delineated, and in a high degree improved. Two bandages of Mr. Juville for umbilical hernia, of which the one is described and delineated by Mr. Bell, and the other by Mr. Hofcr. (*Lehrfacke des Chirurg. Verbandes*. Th. II. Erlangen, 1791, p. 278. tab. 21. fig. 77.) Dr. Alex. Monro, senior, has also described a bandage, consisting of a steel spring, which, after the hernia has been reduced, is placed upon the navel, and retained in this situation by a bandage. It is drawn as tight as may be necessary by means of straps and buckles.

When, as sometimes occurs, the hernia has formed adhesions, either spontaneously, or in consequence of improper bandaging, in which case its reduction is altogether impracticable, we must use a concave cushion, instead of a convex one, that may receive the hernia into its hollow, and prevent the farther protrusion of the intestines. If the bandage be skillfully constructed, the adhesions may gradually be diminished, and the hernia at length reduced.

The uniting Bandage. This is a common double-headed bandage, and one of the most useful and indispensable which is used in case of fresh wounds, in order to promote their speedy re-union. Properly it is only adapted for such wounds as run in the direction of the body and limb, and that are situated in parts which admit of the application of a bandage; however, it may also be used in cases of transverse wounds; but then it rather belongs to the compound bandages. It may be formed in different ways: *viz.*

1. According to one method of forming it, its length

must be regulated by the circumference of the wounded part, and its breadth must be equal to the length of the wound. In general, however, it is rather used narrow than broad, and it must always be so long that the wounded limb can be thrice encircled with it. In the middle part it must have a large slit, through which the head of the bandage rolled up may easily be passed. In applying it, the surgeon takes one of its heads into each of his hands, applies that portion of the middle part that is not slit to the side of the limb opposite to the wound, brings both the heads round the limb towards the wound, passes one of the heads through the slit, over the wound, drawing both heads in such a manner as to bring the lips of the wound together; after which the one head is rolled round the limb above the wound, and the other below it. When the wound is deep, a longuette is applied under the bandage to each of the lips of the wound, at some distance from its edges; the thickness of these longuettes must be proportionate to the depth of the wound, and by means of them the bottom of the wound is pressed together when the bandage is drawn tight.

When the wound is very long, we must either apply several bandages, one at the side of the other, or make several slits in a single bandage, and pass the head through the second slit over the first turn, and there draw the lips of the wound together, and so also the second and the third time. In this case it will be best to make the slits whilst we are applying the bandages, namely, at the place where the two heads meet each other, as otherwise they do not fit accurately to the wound. The application of this bandage, however, requires great accuracy. If it be applied too tight, it excites pain, swelling, inflammation, and frustrates the purpose of re-union; but if it be applied too loose, the lips of the wound do not come into contact with each other, and the re-union is not properly effected.

2. Another more convenient bandage which is equally applicable to longitudinal and to transverse wounds, is that which has already been recommended by Mr. Henkel. (*Anweisung zum verbes. Verbands*, Berlin, 1767, 8. p. 237. Tab. XV. fig. 104.—Also Richter's *Anfangsgruende des Wundarzneykuntst*. B. I. Tab. I. fig. 2.) It consists of four stripes of linen, each of which is from one to two feet in length, and two or three inches in breadth. The dimensions, however, must always be regulated according to those of the diseased part. These four pieces are united by means of six narrow straps in such a manner, that all the six straps cross each other like the fingers of the hand when folded. In this manner we obtain a four-headed crucial bandage, in which the six narrow straps form the centre of the whole.

When it is applied, the narrow straps, or the middle of the bandage, must be placed directly over the wound, and two of the heads must lie on each side of it, in such a manner that the one entirely covers the other. First, the two lowest heads on each side are fastened quite loose round the limb with circular turns. The two heads above are then also first drawn tight with both hands, and then fastened in the same manner as the former. When this bandage is used, we have constantly a view of the wound, as the narrow straps lie immediately over it.

3. Mr. Boettcher (*Aufwahl des chirurgischen Verbandes*, Berlin, 1795. p. 62. § 71.) has also recommended a very simple bandage for promoting the re-union of longitudinal wounds. He takes a common two-headed bandage, two or three fingers in breadth; and first applies to each side of the wound, at the distance of from half an inch to three inches from the edge, a longuette, which in the mean time is held by an assistant; he then takes one of the heads into each hand, and makes the beginning with the middle of the bandage, on the side of the limb opposite to the wound.

The two heads are now brought over the languettes, and in the same manner also over the wound; but this must be done in a very loose manner. The heads are then shifted into different hands, and drawn tight, by which means the languettes are brought together, and the wound united. The two heads are then flung round each other, over the middle of the wound, then shifted again into different hands, and carried back in the same manner as they were brought forwards to the wound. This turn may be repeated three, four, or more times, according to the size of the wound. The ends are then either entirely wound off in circular turns, or should they not be long enough for that purpose, pinned to the other turns.

Should no unfavourable symptoms supervene, the uniting bandage may be suffered to remain in its situation, five, six, and, if the wound be deep, still more days. Great accuracy, however, must always be used in applying it, as the wound is to be united from its bottom; and the dimensions of the languettes, or compresses, must also be regulated accordingly; for with deep wounds they must be thicker, and with superficial wounds thinner. When the wound is entirely superficial, none are required. When the bandage is removed, the part must be retained precisely in the same position that has been given to it, and the new bandage applied in the same manner as the former. Even after the wound has completely healed, it will still be proper, by way of precaution, to leave the bandage in its situation for some days longer.

The Bandage of the Patella fractured longitudinally. For this purpose is required a bandage from sixteen to twenty-four feet long, three fingers broad, and rolled upon two heads. When it is applied, the hollow of the knee must be bolstered with compresses, and a small languette, about half an inch thick, laid on each side of the knee-pan. The middle part of the bandage is then laid upon the hollow of the knee, and both heads brought forwards; a slit is then cut into the one part, through which the head of the other is passed, in such a manner that the slit fits to the middle of the knee-pan, after which the bandage is drawn tight transversely. The heads are then carried backwards, but obliquely, so that one comes to be situated higher than the other; and the bandage is completed with circular turns. In order to keep the leg constantly extended, a well-bolstered ferula or splint is laid into the hollow of the knee, which may be fastened there by the last turns of the bandage. For greater security, the leg may also be inclosed in a box properly lined, which reaches as high as the thigh.

We do not here profess to give an entire treatise on *Bandages*, but only an account of those which are most commonly used. Several authors, both ancient and modern, have discoursed on this subject very amply. In particular, we recommend the perusal of Vidus Vidius, for the opinions and practice of the oldest surgeons, which he has translated from the original Greek, and elucidated by various figures: edit. Lutetiae Parisiorum, fol. 1544. Among the moderns, the best writers on bandages are M. Sue, Thillaye, Heister, Lombard, and Bernstein; but all of them are too prolix and tedious, especially the French authors.

Mr. John Bell of Edinburgh has endeavoured to simplify this study in his first volume of "Principles of Surgery;" there is, however, a very singular declaration in that part of Mr. Bell's book, viz. "Those innumerable forms in which the ancients turned the roller round the head, neck, and body," says he, "are to be found in the treatises of Soranus, Glaucus, Diocles, and Galen. In their treatises I find nothing but what has fallen into deserved neglect, nothing that I could mention either for your amusement or instruction." See page 129. Now it happens in this instance, if

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not in some others, that Mr. Bell has never perused the authors whom he quotes; for no treatises of the kind alluded to, by Soranus, Glaucus, and Diocles, have ever descended to their posterity. Galen, indeed, wrote on bandages, and his observations are translated by Vidus Vidius, in the collection we have already referred to; but certainly Mr. Bell has had no access to copies of any similar works by the three former physicians.

BANDAL, or **BANDLE**, in *Commerce*, the name of a measure used in the south of Ireland, which is somewhat more than half a yard, by which coarse narrow linen is sold in the markets; whence it is called *bandol-cloth*.

BANDALEER, **BANDELEER**, or *Bandileer*, a large leathern belt, thrown over the right shoulder, and hanging down under the left arm; worn by the musqueteers in the time of James and Charles I. both for the sustaining of their fire-arms, and for the carriage of their musquet-charges; which being put up in little wooden, tin, or leathern cylindrical boxes, were hung, to the number of twelve, to each bandaleer. Each of these boxes contained a single charge of powder.

The word is originally French *bandouiller*, formed apparently from *bandoulier*, a kind of banditti particularly infesting the Pyreneans, who were formerly distinguished by this piece of furniture; and were themselves so denominated, *quasi ban de volieres*, a knot of robbers.

The French soldiery still retain the bandaleer; their horse, their musqueteers, and common guards, wearing it indifferently; excepting for some difference in its garniture. Grose (*Treatise on Ancient Armour*. p. 293.) says, this contrivance seems to have been borrowed from the Dutch or Walloons.

BANDARMALANKA, in *Geography*, a town of Hindoostan, in the Circars, situated at the mouth of the river Godavery. N. lat. 16° 25'. E. long. 82° 26'.

BANDE', or in *Bend*, in *Heraldry*, expresses the position of a lion, when he is placed diagonally in the shield.

BANDED, a term applied to a garb, or wheat-sheaf, &c. when the band is of a colour different from that of the garb itself.

BANDEL CAUS, in *Geography*, a town of Africa, on the coast of the kingdom of Adal.

BANDEL, a town in the kingdom of Bengal, situate on the western arm of the Ganges, or Houghly river. N. lat. 22° 53'. E. long. 88° 32'.

BANDELET, or **BANDLET**, in *Architecture*, any little band or flat moulding, encompassing a column, like a ring; as that which crowns the Doric architrave. It is also called *tenia*, which Vitruvius uses for the same thing; sometimes *fillet*, *diadema*, &c. It is sometimes used for the three parts which compose the architrave, called by Vitruvius, *fascia*; and which are sometimes also denominated *bands* or *plat-bands*.

BANDELLO, **MATTHEW**, in *Biography*, bishop of Agen, was born towards the close of the fifteenth century, at Castelnovo of Scrivia, in the Milanese. He entered into the society of the Dominicans; and after many changes of situation he settled in France; and in 1550 was nominated by Henry II. to the bishopric of Agen; but he paid little attention to the duties of his office. The time of his death is not exactly known; but he was living in 1561. He was principally distinguished as a writer of novels. His collection was first printed at Lucca in 1554, in three volumes 4to. under the title of "Novelle del Bandello," to which was added another volume, printed at Lyons in 1573. The edition of London in 1740 comprises four volumes 4to. In his narrations the author is said to imitate the manner of Boccaccio, and to write in a lively, pleasing style; but he has also copied his model in those licentious freedoms, which

were no less unsuitable to his office, than offensive to the church. He was also author of a Latin version of Boccaccio's story of "Tito et Gisippo," of eleven cantos, in ottava rima, in honour of Lucretia Gonzaga; and of some other works. *Nouv. Dict. Histor.*

BANDELVELLO, or **OLD PORT**, in *Geography*, the name of a good harbour at the mouth of the river Doara, on the east coast of Africa, in the Indian ocean; about twenty-seven leagues north of Magadoria or Magadoxo, on the same coast.

BANDER ABASSI. See **GOMBROON**.

BANDERIS, a large bay of the Pacific ocean, on the west coast of Mexico, in North America; running inland between two points of land, the north point called Tintoque, and the south cape Corientes, with an open entrance, and sufficiently spacious for the accommodation and anchorage of a fleet of ships.

BANDER CONGO, a port town of Asia, on the east side of the Persian gulf, and thirty-three leagues west from Bander Abassi. N. lat. $27^{\circ} 5'$. E. long. $55^{\circ} 8'$.

BANDERE, a town of Hindostan, in the circar of Gohud, one hundred miles south of Agra, and forty-four S.E. of Gohud.

BANDERET, the name appropriated to the commanders of the militia of the canton of Bern.

BANDEROLE, in *Heraldry*, is a streamer affixed by small lines or strings immediately under the crook on the top of the staff of a crossier, and folding over the staff.

BANDEROLES, in *Military Language*, the ornaments which were given to pikes near the point, in order to render their appearance handsome. These sometimes had the name of pencells. (See *Grofe on Ancient Armour*, ii. 277.)

BANDEROLL, in *Naval Language*, a little flag, in form of a guidon, extended more in length than breadth, used to be hung out on the masts of vessels, &c.

BANDEROLLS, in *Military Language*, an ancient name for camp-colours.

BANDI, in *Geography*, a river of Africa, in the country of Calabar, in Lower Guinea, which runs into the sea by two channels. There is a town of the same name on an island at the mouth of the river.

BANDINELLI, **BACCIO**, in *Biography*, a painter of history, was born at Florence in 1497, and became a disciple of Giovanni Francesco Rustico, a good sculptor. He had the ambition to become a rival of Michael Angelo, in painting as well as in sculpture; but hearing that this great master treated his works contemptuously, he laid aside the pencil, and would never afterwards resume it. As a statuary, he possessed skill and merit, and in that art he deemed himself equal to Buonaroti; however, when he found that the world did not concur with him in opinion, he was much mortified. He died at Florence in 1559, at the age of 62 years. Several of his pupils became eminent artists. The principal of his works are the bas-reliefs of the tombs of Leo X. and Clement VII. at Rome, a St. Peter, a Bacchus, the Laocoon, and some figures of some princes of the Medici family at Florence. His drawing is generally correct, and evinces an extensive knowledge of anatomy; but his muscles are too strongly marked, and he is deficient in grace. *Argenville, Vie de Sculpteurs*. *Pilkington*.

BANDITTI, from the Italian *bandito*, persons proscribed, or, as we call it, outlawed; sometimes denominated *bannitti*, or *foris banniti*.

BANDITTI, or **BANDITI**, is also a denomination given to highwaymen and robbers, who infest the roads in troops, especially in Italy, France, and Sicily. Mr. Brydone, in his Tour through Sicily, informs us, that in the eastern part called Val Demoni, from the devils that are supposed to in-

habit mount Ætna, it has ever been found altogether impracticable to extirpate the banditti; there being numberless caverns and subterraneous passages round that mountain, where no troops could possibly pursue them; besides, they are known to be perfectly determined and resolute, never failing to take a dreadful revenge on all who have offended them. Hence the prince of Villa Franca has embraced it, not only as the safest, but likewise as the wisest and most political scheme, to become their declared patron and protector; and such of them as think proper to leave their mountains and forests, though perhaps only for a time, are sure to meet with good encouragement and a certain protection in his service, where they enjoy the most unbounded confidence, which, in no instance, they have ever yet been found to make an improper or dishonest use of. They are clothed in the prince's livery, yellow and green, with silver lace; and wear likewise a badge of their honourable order, which intitles them to universal fear and respect from the people.

In some circumstances, these banditti are the most respectable people of the island, and have by much the highest and most romantic notions of what they call their point of honour. However criminal they may be with regard to society in general; yet, with respect to one another, and to every person to whom they have once professed it, they have ever maintained the most unshaken fidelity. The magistrates have often been obliged to protect them, and pay them court, as they are known to be perfectly determined and desperate, and so extremely vindictive, that they will certainly put any person to death that has ever given them just cause of provocation. On the other hand, it never was known that any person who had put himself under their protection, and shewed that he had confidence in them, had cause to repent of it, or was injured by them in the most minute trifle; but, on the contrary, they will protect him from impositions of every kind, and scorn to go halves with the landlord, like most other conductors and travelling servants, and will defend him with their lives, if there be occasion. Those of their number who have thus enlisted themselves in the service of society, are known and respected by the other banditti all over the island; and the persons of those they accompany are ever held sacred. For these reasons, most travellers choose to hire a couple of them from town to town; and may thus travel over the whole island in safety.

The term is also applied to a sort of free-booters, who pillage in the islands of the Archipelago.

BANDOBENA, in *Ancient Geography*, a town of India, on this side of the Ganges, seated, according to Strabo, on the river Choaspes.

BAN-DOG, in *Zoology*, a variety of the mastiff or *CANIS MOLOSSUS* of Linnæus. It is lighter, smaller, more active and vigilant than the mastiff, but not so powerful; its nose is smaller, and possesses, in some degree, the scent of the hound; its hair is rougher, and generally of a yellowish grey, streaked with shades of a black or brown colour. It frequently seizes cattle by the flank, attacks with eagerness, and its bite is keen and dangerous. It is not often to be seen at present. *Bewick's Hist. Quadrupeds*, p. 338.

BANDOL, in *Geography*, a harbour of the Mediterranean, nearly west, and about five leagues from Toulon. It has a fort, and there is anchorage near the east part of a small island, which lies on the west point of the bay that is here formed by the coast.

BANDOLEERS, from the French *bandouliers*, in the *Military Art*. See **BANDALEER**.

BANDON, in *Geography*, the name of a fine river in the county

county of Cork, province of Munster, Ireland, which rises in the mountains of Carbery, and after watering the large and thriving town of Bandon-Bridge, and the village of Inishonan, falls into the harbour of Kinsale. It is navigable for large sloops as far as Collier's quay, near Inishonan, from which place Bandon is supplied with English coal. At the confluence of the Bandon and Brinny rivers, a little above Inishonan, the East India company of England formed a settlement about the year 1612, for carrying on iron works, and building large ships; for which purpose they purchased the adjoining woods and lands. They garrisoned a castle, and built three villages; but the opposition given to this undertaking by the natives, soon obliged them to relinquish it. The great woods in the neighbourhood were from that time much demolished; though the river has not yet forfeited the character given of it by Spenser in his *Fairy Queen*:

"The pleasant Bandon, crown'd with many a wood."
Campbell's Political Survey of Great Britain, &c. Smith's Cork. Beaufort's Memoir.

BANDON-BRIDGE, or, as it is more commonly called, **BANDON**, a considerable market and port town of the county of Cork, province of Munster, Ireland, situated on both sides of the river Bandon, over which it has a bridge. It was one of the towns which owed their origin to the laudable exertions of Richard Boyle, the first, and frequently called the *great earl of Cork*. He built it in the year 1610, in the midst of a waste bog and wood, which had been impassable, and inclosed it with walls, which were of great strength for that period. In 1613, he procured for it a charter of incorporation, in consequence of which it sent two members to the house of commons; and was one of the boroughs which occasioned so violent a debate at the meeting of parliament in that year. It was part of the policy of lord Cork, as appears from his letter to secretary Cook (quoted in Smith's Cork, vol. i. p. 236.), to admit none but Protestants to live in the town; which seems to have been considered a necessary support to the infant colony. The consequence of this was, that the inhabitants, being united among themselves, and all trained to arms, were very powerful, and took an active part in the civil wars which distracted Ireland, in the middle of the seventeenth century. After the restoration of Charles II. the exclusion was not very strictly observed, though it had been confirmed by a bye-law of the corporation; but the adherents of James II. under the earl of Clancathry, having destroyed the walls in 1689, and treated the Protestant inhabitants with severity, it was revived, and has been since, with few exceptions, strictly attended to. The wisdom and advantage of this exclusion have been often called in question, but the strongest objection to it certainly is, that it tends to keep alive that animosity which has been the bane of Ireland, and which all who study the true interests of the country will endeavour to appease. The inhabitants of Bandon have been generally industrious. For many years they carried on the manufactures of stuffs, camblets, and shags, very extensively, but these have of late declined. Ticken of superior quality, and coarse green linens 27 inches wide, called *wittery*, are made in the town and neighbourhood; the latter of which is sent from Cork to London and Bristol. There are also some cotton manufacturers, who employ a great number of people. The town is chiefly the property of the duke of Devonshire, representative of the eldest branch of the Boyle family, and on account of the shortness of the leases, and the want of proper encouragement, it is in general ill built, the houses not at all corresponding to the wealth of the inhabitants. During the late war, Bandon became a great military station, being conveniently situated for sending

assistance to any part of the south-western coast at which it might be wanted, and a strong garrison is still continued there. The population is estimated at 12,000, and it sends a member to the imperial parliament. Its distance S.W. from Dublin is 136 Irish miles, and S.W. from Cork 13. N. lat. 51° 44'. W. long. about 8° 44'. Smith's Cork, &c.

BANDORA, the capital of Saffet Island, and separated from Bombay island, on the Malabar coast of India, by a narrow channel, in N. lat. 19° 5'. E. long. 72° 30'.

BANDORA, in *Musical*, an inferior kind of lute, for which the notes were written in the same kind of tablature as for the theorbo or great lute. See **LUTE**.

BANDT, in *Geography*, a small island in the German ocean, near the coast of East Friesland. N. lat. 53° 36'. E. long. 6° 33'.

BANDURI, **ANSELME**, in *Biography*, an antiquary of the eighteenth century, was a native of the republic of Ragusa, in Dalmatia, and a Benedictine monk. He studied at Florence, and having made rapid progress in the learned languages, he became a preceptor. Montfaucon employed him in 1700 to examine MSS. for his projected edition of Chrysostom's works; and for extending his acquaintance with ecclesiastical antiquities. Banduri, under the patronage of the grand duke of Tuscany, spent some years in the abbey of St. Germain in Paris. Here he was enabled to compose his valuable work, intitled, "*Imperium Orientale, five, Antiquitates Constantinopolitanæ*," and published at Paris, in 1711, in two volumes folio. He also published at Paris, in 1718, fol. a collection of Roman medals, under the title of "*Numismata Imperatorum Romanorum à Trajano Decio ad Palæologos Augustos*;" which was enriched and enlarged, and reprinted 4to. at Hamburgh, in 1719, by J. A. Fabricius. In 1724, Banduri was appointed librarian to the duke of Orleans, and he died at Paris in 1743. *Nouv. Dict. Histor.*

BANDUSIAN FOUNTAIN, in *Ancient Geography*, a famous spring of Sicily, celebrated by Horace in the thirteenth ode of his third book, placed by some at his Sabine farm; but incontestibly proved by the abbé Chaupy, to be near Palazzo, in the principality of St. Gervasio. No shady groves now hang over its banks to shut out the burning mid-day sun; its gelid waters no longer tumble down the rocks in beautiful cascades; but choked with dirt and lost in bogs, are forced to seek their way under ground to a vent at the foot of the hill. *Swinb. Travels*, vol. ii. p. 33.

BANDY-LEGS, in *Surgery*, are the distortion of the lower extremities in any direction. This disease is usually occasioned by a defective ossification of the **TIBIA** or leg-bone, which therefore is unable to sustain the weight of the body without yielding. See **DISTORTIONS**, and **MOLLITIES Ossium**.

BANE-BERRY, in *Botany*. See **ACTEA**.

BANEE, in *Geography*, a small island of France, near the English Channel, about a league S. W. of Ushant.

BANER, **JOHN**, in *Biography*, a famous general of Sweden, descended of an illustrious family, was born in 1601, and was so much distinguished by his proficiency in literature, that Gustavus Adolphus used to call him his learned general. In very early youth, he attracted, by his magnanimity, the notice of that monarch, who pronounced him formed for great events, and placed him in the army; and he soon signalized himself so much, that, under twenty years of age, he was employed in many critical enterprises, which required no less dexterity than bravery. After the death of Gustavus, he supported, as commander in chief, the lustre of the Swedish arms, by a series of victories, which raised his military character as high as that of any general of the age. He sustained this reputation undiminished till his death, at Halberstadt, on the 10th of May 1641, in the 40th year of his age. Baner, though not insensible of the glory he

had acquired by his actions, usually spoke of them with great modesty. He was accustomed to say, that he never formed an expedition, nor hazarded an action, without the most reasonable hopes of success. He was equally feared and beloved by the soldiers, and always inspired them with unbounded confidence. At the head of his troops, he acted solely from himself, and without dependence, and would rather have resigned the command, than have been directed in his military operations by the orders of the cabinet. He had the absolute disposal of all commissions, and established a regular order of promotion; he was humane to the vanquished enemy, cautious in not wantonly exposing his troops to action, and he blamed those generals who in sieges sacrifice the lives of their men to raise their own military character. *Coxe's Travels in Poland, &c. vol. iv. p. 51.*

BANFF, in *Geography*. See BAMFF.

BANGA, a town of Africa, in the country of Whidah, on the Slave coast.

BANGALORE, a town of Hindoostan, in the Myfore country, situate in the centre of the peninsula, and having routes passing through it in every direction. It is, in itself, a place of great political importance, being a fortress of strength, and from situation, the bulwark of the Myfore country, towards Arcot. It is placed, by major Rennell, in N. lat. 13°. E. long. 77° 37' 10". This is the common point of union, in the centre of the peninsula, as Com-bettore is in the south-west, and Trichinopoly in the south-east.

BANGER, one of the principal places in the island of Belleisle, on the coast of France; and Palais is the other.

BANGIUS, PETER, in *Biography*, a Swedish divine, was born at Helfingberg, in 1633, and having studied at Upsal, travelled with a pupil through Sweden, Denmark, and the Netherlands. On his return, he was appointed professor of theology in the university of Abo in Finland, and filled the chair with credit 32 years. In 1682, he was appointed bishop of Wyburg, by Charles IX. of Sweden; and died in 1696. He took great pains to serve his country, by establishing schools and promoting knowledge. He wrote in Latin an ecclesiastical Swedish history; a treatise on Sacred Chronology; a Commentary on the Hebrews, and other works.

BANGIUS, THOMAS, a learned Danish divine, of the university of Copenhagen, was born in 1600. He discharged, with great credit, the duties of the professorships of Hebrew, philosophy, and divinity; and was the author of several learned works. He died in 1661. Among his writings in Latin are various dissertations to elucidate the scriptures; "Philological Observations," printed in 8vo. at Copenhagen, in 1640; "An exercitation on the origin of Diversity of Languages, and on the excellence of the Hebrew;" 8vo. 1634; and a "Hebrew Lexicon," 4to. 1641. Gen. Dict.

BANGLE-EARS, in the *Manege*, an imperfection in a horse's ears, remedied in the following manner; place his ears in such a situation as they are wanted to stand; bind them with two small boards, so fast as not to stir; and then clip away the empty wrinkled skin close by the head.

BANGO, in *Geography*, a long shoal on the east coast of Africa, of variable breadth, but in some places about two leagues. See *Cape ORIENTES*.

BANGOR, a township of America, in Hancock county in the district of Maine, on the west side of Penobscot river, 25 miles from its mouth at Belfast bay; 65 N.W. by W. from Machias; 63 N.E. from Hallowell; and 280 N.E. from Boston.

BANGOR, a small city of Carnarvonshire, North Wales,

consists principally of one straggling street which is situated in a narrow valley between two low ridges of slate rock, opening southward towards Snowdon, and terminating northwards about half a mile from the cathedral, in the beautiful bay of Beaumaris. This town is watered by the "Deva's wizard stream," whose opposite banks are connected now by a well-built bridge of five arches. Bangor is represented as the oldest episcopal see in Wales, but the present cathedral was not founded till the beginning of the fifteenth century. The choir was built by bishop Denn, in 1406, and the tower and nave by bishop Skivington, in 1532, as appears recorded over the western door. The former measures 141 feet by 60, and the length of the whole from east to west is 214 feet. This edifice contains many monuments of its bishops and other personages; but it possesses no extraordinary attractions either in its architecture or ornaments. The officers belonging to the cathedral, are a bishop, a dean, three archdeacons, a treasurer, two endowed prebends, a precentor, chancellor, and three canons; besides other inferior officers. The cathedral service is alternately in English and Welsh. Within the diocese are included the whole county of Anglesea, all Carnarvonshire, except Llysfaen, Eglwys Rose, and Llangwstertin, the greater half of Merionethshire, and the Deaneries of Dyffrynclwydd and Arwffley. This bishopric, though not large, nor rich, has suffered many defalcations. Among others it is said, that Owen Glendower destroyed the cathedral by fire, and bishop Bulkley wasted and sold all the revenues, and reduced the see to great poverty. It is now valued in the king's books at 131l. 16s. 3d. The late and present bishops have made considerable alterations and improvements in the palace, its appendages, and in the town. Among the praiseworthy acts of the former, was the re-erection of a large free school under his superintendence. This city is governed by the bishop's steward, who holds his court here. Besides a weekly market on Friday, here are four fairs annually. Its number of houses is 304, and these contain 1770 inhabitants. Bangor is about fifteen miles west of Conway, and 253 from London. Half a mile from Bangor, on the shore of the bay, is Abercrugin, or port Penrhyn, the grand depository of the slates that are procured from lord Penrhyn's quarries, at Dôlwan. Great quantities of these slates are shipped for London, Liverpool, Bristol, and other large towns.

About two miles S. E. of Bangor, is Penrhyn-hall, the elegant mansion of lord Penrhyn. The improvements made by this nobleman in the commercial character of this part of the country, and by plantations, buildings, &c. are highly honourable to his liberality and judgment. There is a ferry into Anglesea, about two miles from this town, which is much more commodious than that of Conway.

BANGOR, *Bangor-Iscoed*, or *Bangor Monachorum*, is a small village in Flintshire, North Wales, remarkable for a handsome bridge over the river Dee, and the site of an extensive and rich monastery. Bede, and several of our historians, describe this place as very flourishing at the coming of St. Augustine; and most of them relate, that Ethelfrith king of the Angles, advanced to Chester with a large army, and observing the monks praying for the success of their countrymen, he rushed upon them, and consigned 1200 to death. This abbey, according to Leland, stood in a fair valley close on the Dee; but when he visited the place, every vestige of the buildings was destroyed, and the site ploughed over. Some writers have confounded this with the Bangor in Carnarvonshire. It is probable that the latter derived its name and consequence from and after the destruction of the former.

BANGOR, a post town, and sea-port of the county of Down

Down, in the province of Ulster, in Ireland, situated on the south side of the bay of Carrickfergus; but though parliamentary aid was granted to improve its port, it has very little trade. An abbey was founded here in the sixth century, part of the ruins of which yet subsists. Near this town duke Schomberg landed with the English army, 13th August 1689. Distance N. from Dublin, 90 Irish miles. N. lat. $54^{\circ} 38'$. W. long. $5^{\circ} 33'$.

BANGUE, in the *Materia Medica*, a species of opiate, in great use throughout the East for drowning cares, and inspiring joy.

This, by the Persians, is called *beng*; by the Arabs, *esfar*, corruptly *assiral* and *assarth*; by the Turks, *bengitic*, and vulgarly *maslack*; by the European naturalists, *bangue* or *bange*. The Indians, says Acofta, eat the seed and leaves to increase their vigour, and to excite an appetite to their food. The nobles, and chief military officers, when they are disposed to forget their toil, and to sleep in perfect ease and security, take of the powder of the seed and leaves, as much as they think sufficient; and add to it an *areca*, or green Indian hazel-nut; with as much opium as they think fit, and eat them all together with sugar. If they desire to be entertained with variety of scenes, and images of things in their sleep, they add some of the choicest camphor, clove, nutmegs, and mace. If they have a mind to be merry, witty, and to indulge their amours, they add ambergris and musk, and make them all into an electuary with sugar. It is by many affirmed that the seed and leaves promote lust; whence says J. Bauhine, it appears that this herb has no affinity with hemp, though it be very much like it; since hemp, according to Dioscorides, is of a hot and dry nature, and extinguishes amorous desires.

Ray, from whom this account is taken, says, he learned from sir Hans Sloane, that it is a different plant from hemp. It grows in Hindoostan, and other parts of the East Indies, where it is principally in use. Among the Indians, the seed is prepared among other meliorating and aromatic substances into an electuary, which excites pleasing visions, and as some say, emboldens them to perform the most daring and atrocious deeds. See *Datura*.

Bangue, in reality, is a *succedaneum* to wine, and obtains in those countries where Mahometanism is established: which prohibiting the use of that liquor absolutely, the poor muslulmen are forced to have recourse to *succedanea*, to rouse their spirits. The principal are *opium*, and this *bangue*, which, says Sale (Prel. Disc. p. 124.), consists of the leaves of hemp in pills or conserve, and by the rigid Mahometans is esteemed unlawful, though not mentioned in the Koran, because it intoxicates and disturbs the understanding as wine does, and in a more extraordinary manner. It is, however, commonly used in the East, but they who addict themselves to the use of it, are generally looked upon as debauchees. According to the account given of this substance by Alexander Maurocordato, counsellor and physician to the Ottoman Porte, in a letter to Wedelius, bangue is prepared of the leaves of wild hemp, dried in the shade, then ground to powder, put into a pot, in which butter has been kept; set in an oven till it begin to torrefy; then taken out, and pulverized again; and thus to be used in the quantity of as much, at a time, as will lie on the point of a knife. As to the opinion among the Europeans, that the Turks prepare themselves for battle by a dose of bangue, which rouses their courage, and impels them with ardour to certain death, Dr. Maurocordato assures us, that it is a popular error. The Turks think they are then going to receive the crown of martyrdom; and would not, for any consideration, forfeit the merit of it, which they would do by eating the bangue, which is held to be un-

lawful by their apostle, among other things which intoxicate.

BANGUEY, in *Geography*, an island of the Indian ocean, at the northern extremity of Borneo, not far from Balabac, the most south-western of the Philippines. N. lat. $7^{\circ} 12'$. E. long. $117^{\circ} 25'$.

BANGUEY Peak lies in the peninsula of Malacca. N. lat. $7^{\circ} 18'$. E. long. $117^{\circ} 17' 30''$.

BANHAS, PADRO DOS, a small island and sand bank, north of Madagascar, and near the south-west from the islands del Almirante, in about S. lat. $5^{\circ} 39'$, and E. long. $50^{\circ} 40'$.

BANHOS, PADRO DOS, a small island surrounded by a sand bank, east of the last island, as far as S. lat. $6^{\circ} 50'$. E. long. $70^{\circ} 20'$.

BANI, a small district of Africa, in the country of Calabar, containing nine or ten villages.

BANI, a town of Italy, in the kingdom of Naples, and province of Capitanata, ten miles south of Troia.

BANIA, a river of Croatia, which runs into the Lenia.

BANIAC, a small island on the west coast of Sumatra, in about N. lat. $1^{\circ} 40'$. E. long. $96^{\circ} 50'$.

BANJALUKA, or BANGALUKA, a considerable town of European Turkey, in Bosnia, the residence of a pacha, seated near the river Setina, on the frontiers of Dalmatia, 144 miles W. of Belgrade. It is supposed to contain 18,000 persons. N. lat. $44^{\circ} 20'$. E. long. $18^{\circ} 20'$.

BANIAN-DAYS, in *Marine Language*, a cant term among sailors, to signify those days in which they have no flesh meat. It seems to be derived from the practice of the people mentioned in the article BANIANs.

BANIAN Tree, in *Botany*. See *Ficus*.

BANIANA, in *Ancient Geography*, a town of Hispania Betica, in the country of the Turduli. Ptolemy.

BANIANs, a religious sect in the country of the Mogul who believe a *metempsychosis*, and will therefore eat no living creature, nor even kill noxious animals, but endeavour to release them, if they see them in the hands of others.

The *Banians* are said to be so fearful of having communication with other nations, that they break their cups, if one of a different religion has drank out of them, or even touched them; and empty the water out of a pond where he has washed himself. It is added, that if they happen to touch one another, they must wash and purify themselves before they eat, or enter their own houses. They carry hanging at their necks, a stone called *tamberan*, as big as an egg and perforated in the middle, through which run three strings: the stone, they say, represents their great god, and upon this account, they have great respect shewn them by all the Indians.

In a more general sense, the appellation of *Banians* comprehends all the idolaters of India, as contradistinguished from the Mahometans; but in a more restricted and peculiar sense, it is appropriated to one of the four principal casts, into which the Indians are commonly divided; the other three being the Bramins or priests, the Rajaputs or men of the sword, and the artificers and labourers. See *HINDOOS*.

The proper *Banians* are called, in the *SHASTER*, or book of their law, by the name of *shuddery*, under which are comprehended all who live after the manner of merchants, or that deal and transact for others, as brokers; exclusive of the mechanics, or artificers, who make another cast, called *wyffe*. Their name in the Bramin language, in which their law is written, signifies "an innocent and harmless" people; and such they really are; for they cannot bear to see a fly, worm, or any other living creature hurt; and if they receive a blow, they take it meekly and patiently. These *Banians* have no peculiar sect or religion, unless it be,

be, that two of the eight general precepts given by the legislator, *Bremaw*, to the Indian nation, are, on account of the profession of the Banians, supposed more immediately to relate to them, viz. those which enjoin veracity in their words and dealings, and avoiding all practices of circumvention in buying and selling.

The Banians and the Chinese are the greatest traders in the Indies, to whom must also be added the Jews and Armenians who are greatly dispersed over those parts. But the most considerable trade is carried on by the Banians, in the whole peninsula on this side the Ganges. They are extremely skilful and cunning in commerce. Most of them follow brokerage, and most of the brokers of the English, Dutch, and French companies are of that nation. They are deemed, in general, very honest, and have almost constantly in their hands the stock and cash of those companies.

They are likewise bankers; and there are few places in the East Indies for which they cannot furnish bills of exchange. They have also a sort of standing cash or bank where persons may deposit their money, and take it out again whenever they please.

Their form of contract, in buying and selling, is remarkable; being done in the profoundest silence, only by touching each others fingers: the buyer loosening his *pamerin*, or girdle, spreads it on his knee; and both he and the seller having their hands underneath, by the intercourse of the fingers, mark the price of pounds, shillings, &c demanded, offered, and at length agreed on. When the seller takes the buyer's whole hand, it denotes a thousand, and, as many times as he squeezes it as many thousand pagods, or roupies, according to the species in question are demanded: when he only takes the five fingers, it denotes five hundred, and when only one, one hundred; taking only half a finger, to the second joint, denotes fifty; the small end of the finger, to the first joint, stands for ten. See *CEURAWATH*.

Their children are betimes accustomed to trade, and to imitate the gentleness of manners, which distinguishes this class of persons. Those of the Banians, who have slaves, treat them with great humanity. Their manner of living is very frugal, and they never depart from it, except when they settle their children; on which occasion, they spend a sum amounting to no less than 12,500*l*. Their women are also distinguished by their simplicity of manners. They hold the nuptial tie in great veneration; and never allow themselves the least intercourse with strangers. Their husbands will not be satisfied without this reserve; alleging against every kind of familiarity between the sexes this proverb; "if you bring butter too near the fire, you can hardly keep it from melting."

BANIAS, in *Geography*, a town of Syria, fifty miles S.W. of Damascus.

BANIER, ANTHONY, in *Biography*, a French abbé, was a native of Clermont, in Auvergne, who completed his education at Paris. Having been employed in classical instruction, he directed his particular attention to the subject of ancient mythology, and published in two volumes, 12mo., "An Historical Explanation of the Fables of Antiquity." This work gained him the reputation of being a writer of taste and erudition; and 1714, he was admitted into the Academy of Inscriptions and Belles Lettres. In 1715, his treatise, designed to trace the fables of the ancients to historical facts as their true origin, was much enlarged and published in the form of dialogue. The same subject was pursued by the author in several dissertations communicated to the academy of which he was a member, and published in its Memoirs. With a view to the same subject, he presented the public with the result of his researches during the

last ten years of his life, first in his "Translation of the Metamorphoses of Ovid," with historical remarks and illustrations, and the plates of Picart, published at Amsterdam, in folio, in 1732, and reprinted in 1738 at Paris, in two volumes, 4to: and afterwards in a work, intitled, "Mythology, or the Fables explained by History," printed in 4to. and also in 12mo. at Paris, in 1740, translated into English, and printed at London in 1741, in 4 vols. 8vo. Banier died in November 1741, aged 69 years. He published an improved edition of Marville's "Melanges d'Histoire et de la Littérature," and had a great share in the new edition of Picart's "General History of Religious Ceremonies," published in 1741. *Nouv. Dict. Histor.*

BANJERMASSING, or **BENDER MASSIN** of M. d'Anville, in *Geography*, a town and district on the south side of the island of Borneo; the chief product and trade of which are pepper. The factory of the Dutch lies in S. lat. 3°. They have here a small fort, where a junior merchant, as resident, with about 25 or 30 soldiers, are stationed. The object of this establishment is chiefly the collection or purchase of the pepper and rough diamonds produced in the country. The resident is allowed five per cent. on the pepper. The contract with the king obliges him to deliver 600,000 pounds at three stivers per pound; and this is the only article which induces the company to retain this possession; for the profits on the rough diamonds, gold, wax, canes, and sago, would not be sufficient to make good the charges. Banjermassing is of no importance to the company as a source of revenue, for they do not possess a foot of land without their fort, and are obliged to be constantly on their guard against the insidious attacks of the natives. The charges of this establishment in 1779 were about 1100*l*. sterling, which, together with those of conveying the pepper to Batavia, are scarcely covered by the profits accruing from this scanty trade. The river Banjar, called Biajos by d'Anville, flows from the centre of the country almost due south, and forms the harbour of the town; and on this river is experienced a difference of twelve feet in the rise and fall of the tide. The Biajos, as they are denominated, come down this river to the port in rude boats, with gold dust, and other articles, among which are diamonds; the Moors called Banjareens being the factors. These Biajos are tattooed blue, with a small wrapper about the loins. The chiefs extract one or two of the fore-teeth, substituting others of gold; and strings of the teeth of tigers, which abound in the island, a real badge of knighthood or of courage, are worn round the neck.

BANILLIA, in the *Materia Medica*, a name used by some for the *vanillia*, or vanilloes, used in making the scented chocolate.

BANISHMENT, EXILE, in *Law*, among us, is of two kinds: the one voluntary, and upon oath; the other by compulsion, for some offence or crime.

The former, properly called *abjuration*, was abolished by stat. 21. Jac. I. c. 28.; and has now ceased, 2 Inst. 629: the latter is enjoined by judgment of parliament. Yet outlawing and transportation may be also considered as a species of exile.

However, no power on earth, except the authority of parliament, can send any subject of England out of the land against his will; no, not even a criminal. For exile and transportation are punishments at present unknown to the common law; and whenever the latter is now inflicted; it is either by the choice of the criminal himself to escape a capital punishment, or else by the express direction of some modern act of parliament. To this purpose Magna Charta declares (c. 29.) that no freeman shall be banished, unless by the judgment of his peers, or by the law of the land. And

by the *habeas corpus* act (31 Car. II. c. 2.), it is enacted, that no subject of this realm, who is an inhabitant of England, Wales, or Berwick, shall be sent prisoner into Scotland, Ireland, Jersey, or Guernsey, or places beyond the seas, where they cannot have the full benefit and protection of the common law; but that all such imprisonments shall be illegal; that the person who shall dare to commit another contrary to this law, shall be disabled from bearing any office, shall incur the penalty of a præmunire, and be incapable of receiving the king's pardon; and the party suffering shall also have his private action against the person committing, and all his aiders, advisers, and abettors, and shall recover treble costs besides his damages, which no jury shall assess at less than 500*l*. Blackst. Com. vol. i. p. 137.

BANISTER, JOHN, in *Biography*, was educated at Oxford. In 1573, having taken a bachelor's degree, he obtained a licence to practise physic. He then went to Nottingham, and professing both medicine and surgery, "was wonderfully followed (Wood says) by all sorts of people, for his happy practice in those arts." Banister published several works, of which the following are the titles; "A needful, new, and necessary Treatise of Chirurgery, briefly comprehending the general and particular Curation of Ulcers, with certain Experiments of his own Invention," London, 1575, 8vo. It is dedicated to Tho. Stanhope, esq. high sheriff of Nottinghamshire. "The History of Man, sucked from the Sap of the most approved Anatomists," nine books, fol. Lond. 1578; decorated, Douglas says, with anatomical engravings, copied from Vesalius, but miserably executed. "Compendious Chirurgery, gathered and translated, especially out of Wecker," Lond. 1585, 12mo. This is not a mere translation, the work being corrected and much improved by Banister. "Antidotary Chirurgical," containing variety of all sorts of medicines, Lond. 1589, 8vo. In 1633, several years after his death, his chirurgical works were published together in six books, in 4to. The Antidotary was dedicated to the earl of Warwick, by whom he appears to have been patronized. Wood's Athenæ Oxon. Aikin's Biograph. Mem.

BANISTER, RICHARD, was in great credit in the end of the sixteenth and beginning of the seventeenth century, for his skill in surgery, which he practised at Stamford in Lincolnshire. His knowledge in the art he learned of his near kinsman, John Banister, by whom he had been educated. "Sitting at the feet," he says, "of a Gamaliel in that art, let his name (he adds) be as a precious ointment poured out; for he was one to whom malice itself could do no mischief, nor hatred hurt." He continued in the general practice of surgery several years. "At length," he says, "I left the greatest mafs of that unmeasurable mystery, and confined myself to the cure of the eyes, of the hare lip, the wry neck, and to assist the hearing by an instrument." But his principal object was relieving the blind; to perfect himself in this art, he appears to have associated with Henry Blackbourne, Robert Hall of Worcester, master Velder, Surfleet, and Barnabie, of Fenny Stanton, Lynn, and Peterborough, all famed for their skill in couching and performing their operations on the eyes. Following their example, he visited many of the principal cities in the kingdom, particularly London, which place he visited spring and autumn for several years. It appears to have been his custom to procure certificates of the cures he performed at each place. "I can shew," he says, "that in the year 1609, I made, with the help of God, twenty-four blind people see in the city of Norwich; and I came thither again in 1611, and all of them had their sight; for confirmation of which, I had a certificate from the mayor

and alderman, with the city seal annexed." A similar certificate he obtained from sir Wm. Cockaine, lord mayor of London in the year 1621, which appears to have been the last time of his coming hither. "But now," he says; "I know it is not long to the period of my days, so I mean to rest at home the small remnant that God hath allotted to me." He promises, however, to continue to assist those who visit him at his house. The time of his death is not known.

In 1622, he published "A Treatise of one hundred and thirteen diseases of the eyes and eye-lids; the second time published with some profitable additions of certain principles and experiments by Richard Banister, master in chyrurgery, oculist, and practitioner in physick," 12mo. The book is not paged. The part added by Banister seems to be a small treatise at the beginning of the volume, which he calls "Banister's Breviary of the eyes." He here complains of the number of ignorant persons, and among them many women, who interfered in the art, to the hurt of the people. This part is interspersed with poetical effusions, in which he laughs at some pretended cures performed by drinking and washing the eyes with the waters of the Malvern and other springs.

"So many folks unto the town did run

For water, that alewives were half undone.

At first, when this news unto me was told,

I daunted was, it touched my freehold.

I dwelt from thence, at least some twenty miles,

Yet there my patients went o'er fields and styles."

He had the satisfaction, however, to see them come back,

"Their bodies wearied, and their griefs made worse,

And eas'd and purged only in the purse."

The treatise which gives the general title to the volume, and of which Banister has with most people the credit of being the author, was written originally in French by Jacques Guillemeau, translated into English by an anonymous writer, and dedicated to John Banister. Wood's Athenæ Oxon. Aikin's Biog. Mem.

BANISTERIA, in *Botany*, so named by Dr. Houstoun in memory of the Rev. John Banister, a curious botanist, who lost his life in the search after plants in Virginia. Linnæus. n. 573. Reich. 622. Schreb. 780. Cavanilles, t. 243, 258. Gært t. 116. Class, *decandria trigynia*; *monadelphica* Cav. Nat. Order, *tribolata*; *malpighia*, Juss. Gen. Char. *Cal.* perianth, five-parted (four, seldom five, Cavan.) very small, stiff underneath with tubercles, permanent; two melliferous glands under each division of the calyx, except one; and they are therefore eight in number. *Cor.* petals five, orbiculate, very large, spreading, crenate (simbriate C.); claws oblong, linear. *Stam.* filaments ten, very small, coalescing at bottom; anthers simple. *Pist.* germs three, winged, coalescent; styles three, simple; stigmas obtuse (enlarged into a leaflet, Cav.) *Per.* capsules three, running out into a long wing, one-celled, marked at the sides with small appendices, not gaping. *Seeds* solitary, covered, toothed on the lateral edge. *Obs.* The flower, especially the glands of the calyx, shew the affinity between this and malpighia. It differs however in the leafy stigmas and winged fruit. *B. leona* has ten, the rest have eight glands. Cav.

Ess. Char. *Cal.* five-parted, with melliferous pores at the base on the outside. *Pet.* roundish with claws; stigmas leaf-shaped; seeds three, winged with membranes.

Species, 1. *B. angulosa*. Reich. 2. 371. Cavan. diff. 426. t. 252. Lamarck. Dict. n. 1. Aublet. Guian. 2. 466. *Acer scandens*, fol. anguloso. Plum. Spec. 18. *Clematis anguloso folio*, *aceris fructu*. Plum. Amer. 77. t. 92. "Leaves sinuate-angular." Stem twining, with opposite branches, thickened at the base; leaves cordate, angular, terminating

at top in a short dagger point, green above, whitish beneath, nearly equal to the petioles, on which and near the leaf are two opposite glands; without stipules; flowers in opposite axillary umbels; common peduncle elongated; rays five to seven, an inch long, jointed, with two short, opposite bractes; at the insertion of the rays are two small suborbiculate leaves; corolla sulphur-coloured. A native of Dominique, Hispaniola, &c. 2. *B. purpurea*. Lam. Dict. n. 2. Plum. Spec. 18. ic. 15. Mf. t. 2. Acer. Burn. Amer. t. 15. "Leaves ovate; spikes lateral; seeds erect." Stems strong and woody, dividing into many opposite and twining branches; leaves ovate, on short petioles; there are five or six pairs of branches, nearly of the same size with those of the common acacia, but whitish on their under side; flowers axillary, in a kind of spike; petals purplish, short; third germ often abortive, whence Plummer says that the fruit is bicapular and two-winged; and Miller, that the greater number of species have only two styles. A native of the Caribbee islands, sent to Miller from Campeachy, and cultivated by him in 1759. 3. *B. laurifolia*. Lamarek. Dict. n. 3. Acer scand. fol. laurinis. Sloan. Jam. 2. 26. Plum. Spec. 18. ic. 14. "Leaves ovate-oblong, rigid; racemes terminal." Stem shrubby, climbing, with loose, reflex, diverging, roundish, rugged branches; leaves petioled, ovate-lanceolate, acute, entire, nerved, smooth: racemes panicle; peduncles commonly one-flowered, short, yellow; leaflets at the base of the peduncles two, minute, tomentose; calyx five-leaved; petals spatulate; anthers elliptic; germ three-cornered, trifid at the tip; styles subulate, short; stigmas dilated, one of the three capsules usually abortive; wings three or four times longer than the capsules. A native of Jamaica and Hispaniola. 4. *B. longifolia*. "Leaves oblong, acuminate, rigid, shining, panicle terminating; branches spreading very much." A native of the West Indies. 5. *B. benghalensis*. "Leaves ovate-oblong, acuminate; racemes lateral; seeds spreading." This species recedes from the genus, it has only one style, and the capsule has four wings. It has strong woody stalks, twining about trees which grow near it, and rises twenty feet high. A native of the East and West Indies. 6. *B. dichotoma*. *B. convolvulifolia*. Cavan. diff. 428. t. 236. Lamarek. Dict. n. 6. "Leaves ovate; branches dichotomous." Plummer first observed it in the island of Martinico. 7. *B. fulgens*. "Leaves subovate, tomentose underneath; racemes brachiate; peduncles umbelled." Its slender winding stalks rise five or six feet high; the flowers grow in a round bunch at the extremity of the branches, of a brownish yellow colour; the seeds are smaller, and have narrower wings than in the third species. A native of Jamaica and Barbadoes. 8. *B. brachiata*. "Leaves subovate; branches brachiate; seeds narrower within." Very like the foregoing; but the leaves more blunt; sending out many branches, dividing into others, and yielding tendrils which fasten to neighbouring trees, and mounting to a great height; the flowers, in loose clusters at the ends of the branches, are first of a gold colour, and fade to a scarlet, succeeded by slender thin seeds. A native of Carthage. 9. *B. aculeata*. "Leaves pinnate; leaflets oblong, obtuse; flowers spiked; stem branching, prickly." Climbing stalks, dividing into many branches with long winged leaves, composed of about twenty pair of small blunt pinnæ, each having a deep furrow on the under side; the flowers grow on loose spikes at the end of the branches, and are succeeded by single seeds, as large as those of the greater maple. A native of Tolu. 10. *B. cerulea*. Acer. Plum. Mf. 2. t. 109. Spec. 18. "Branches tubercled; leaves ovate-acute, coriaceous; racemes axillary." A native of Jamaica and Dominique. 11. *B. nitida*. "Leaves ovate-oblong, quite entire, shining beneath; panicle termi-

nating leafy." A native of Brasil, where it was found by Commerfon. 12. *B. chrysophylla*. "Branches tubercled; leaves ovate-acute, with a golden nap on the lower surface; wings very long." Found by Commerfon near Rio-Janeiro in Brasil. 13. *B. muricata*. "Leaves ovate-acute, tomentose beneath; racemes axillary; capsules muricate." A native of Peru, where it was found by Joseph de Jusfieu. 13. *B. Leona*. "Branches tubercled; leaves ovate-acuminate, coriaceous; flowers panicle." It varies with more elongated leaves. A native of America, and found by Smeathman at Sierra Leona in Africa, whither perhaps it has been transported. 15. *B. ferruginea*. "Leaves ovate-acuminate, ferruginous beneath; flowers panicle; bractes imbricate." A native of Rio-Janeiro, near St. Sebastian, in Brasil, found there by Commerfon. 16. *B. marginata*. "Leaves ovate, subcordate, emarginate, cuspidate at the end, tomentose on the lower surface, flowers raceme-corymbed." A native of America. 17. *B. Quapara*. "Leaves ovate, tomentose beneath, flowers in corymbs, seeds erect." A shrub, six feet high, putting out many tomentose twining branches, by which it climbs up trees. A native of Guiana, on the borders of meadows, flowering in August, observed there by Aublet. 18. *B. finemariensis*. "Leaves ovate, acuminate, flowers in corymbs, yellow, wings gradually widening." A shrub with a trunk five feet high, putting forth many climbing, twining branches. A native of Guiana, on trees, by the sides of meadows and fields, flowering and fruiting in August, observed there by Aublet. 19. *B. orbiculata*. "Stem twining; leaves orbiculate, beneath tomentose and silky; petioles biglandular." A native of Jamaica, Guadeloupe, and St. Domingo. Cavanilles attributes to this the same synonyms of Sloane and Browne, which Linnæus has given to *B. fulgens*. 20. *B. ciliata*. "Leaves cordate-roundish, eared, smooth, ciliate." A native of Brasil, where it was found by Dombey. 21. *B. auriculata*. "Stem twining, leaves subfagittate, smooth, with rounded lobes, flowers in umbels." A native of Rio-Janeiro, found there by Commerfon. 22. *B. ovata*. "Stem twining, leaves ovate, acute, quite entire, flowers in umbels, involucres pulled." A native of the island of Dominique, where it was found by Desportes and Surian. 23. *B. palmata*. "Stem twining, leaves palmate, tomentose beneath, petioles biglandular." A native of St. Domingo, found there by Desportes. 24. *B. fagittata*. "Stem twining, leaves sagittate, large, tomentose, petioles biglandular." A native of St. Domingo, found there by Desportes.

The species of this genus are all inhabitants of very hot climates, chiefly of America, from Brasil to Louisiana, particularly the islands. They are shrubs, mostly with twining stems, adorning the woods with the beauty of their flowers, and the variety of their opposite leaves. Plummer discovered four sorts; and for the rest, we are obliged to Aublet, Commerfon, and other modern travellers.

Propagation and Culture. These plants, being natives of hot countries, cannot be preserved in England, unless they are kept in a bark-stove. They are propagated by seeds, procured from the countries where they grow, naturally gathered when fully ripe, and brought to England in sand or earth. When they arrive, they should be sown immediately in pots, and if it be autumn, or winter, the pots should be plunged into a hot-bed of tanner's bark, and secured from frost and wet, till spring, when they must be removed to a fresh hot-bed, which will bring up the plants; when the plants come up, let them be put into separate pots, filled with light earth, and plunged into the bark-bed, after which they must be treated like other tender plants from the same countries. Martyn's Miller.

BANISTERIA. See GOUANIA.

BANK, in *Commerce*, is a denomination given to certain societies or communities, who take on them the charge of the money of private persons to improve it, or keep it secure; or it is a common repository, where many persons agree to keep their cash, to be always ready at their call, or direction. The word *bank* in this sense comes from the Italian *banca*, formed of the Spanish *banco*, a bench, whereon the ancient money-changers sat in the public markets; or, as others think, a table whereon they told their money; for the Spanish *banco* signifies a table, as well as a bench; as among the Greeks the word *τραπεζα* signified a bench, as well as a table, whence the word *τραπεζίτης* for a *bencher*. Accordingly the institution of banks commenced in Italy, where the Lombard Jews kept benches in the market-places for the exchange of money and bills. Mr. John Law, indeed, in his treatise, entitled, "Money and Trade considered," ascribes the invention of banks to Sweden; alleging that the bulk of their money being copper, rendered it inconvenient; and in order to remedy this, a bank was set up, where the money might be pledged, and paper credit given to the value, which passed in payments and facilitated trade. But this opinion, says Anderson, (Hist. Comm. vol. i. p. 476.), is so far from being barely probable, that it is in a manner past all doubt, that the free cities of Italy were, in very early times, the inventors of banks (lumber-houses or lombard-houses) and bills of exchange, long before the countries on the north extremity of Europe knew any thing of commerce, which Sweden knew least and latest of all the rest.

It cannot be doubted but that the beginning of traffic was by exchanging one commodity for another, as men could best suit each others occasions. But the necessities of men being so various and different, in respect to the quantity and quality of requisites, money was instituted as the most convenient medium for commerce, whereby people might procure whatsoever they stood in need of, in quantities according to their exigencies.

This changed the term of bartering into that of buying and selling; yet all trading at length results into a general barter. For he who sells any thing to receive money for it, purchases what he requires with the same money. Money then becoming the principal engine for circulating the bulk of commerce, its application to trade is proper to be considered.

Money is used in the minuter kinds of dealings, as retailing, &c. when it is commuted for all kinds of labour, and to furnish the necessary provisions for daily use. This requires its being divided into the smallest denominations of the pieces, as into shillings and pence; so that this way of dealing is not capable of being transacted by bills and assignments.

Money is also employed in the more extensive and wholesale way of trade, wherein large sums are negotiated; and this occasions frequent payments from one tradesman to another. In which payments, although strictly speaking ready cash be required as often as contracts are made, yet as commerce in general consists in the mutual dealings and transactions of many traders, it may often so fall out, by means of interchangeable debts and credits, that divers traders may satisfy each others occasions, without making any payments in specie, by transferring their debts to each other.

But when such mutual conveniences do not occur, traders usually receive their money in specie, and so pay it from one to the other. Yet this way of payment is attended with many inconveniences, as trouble in counting the money, hazard in securing it from the attempts of robbers,

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and loss from trusting it with unfaithful servants: for the prevention of which, cities of large commerce have very naturally introduced the use of banks.

Of these banks some are *public*, consisting of a company of moneyed men, who, being duly established and incorporated by the laws of their country, agree to deposit a considerable fund or joint stock, to be employed in various ways for the use of the society: or *private*, being such as are set up by private persons or partnerships, who traffic in the same way upon their own single stock or credit. Of the former sort of banks, several have been established in the principal trading cities of Europe, as in Venice, Genoa, London, Edinburgh, Amsterdam, Hamburgh, Paris, &c. The most ancient of these is the bank of Venice.

BANK, or **BANCO**, of *Venice*, commonly called *banco del guira*, was established in the middle of the twelfth century, or as Anderson suggests, (Hist. Com. vol. i. p. 84.), A.D. 1157, though some have dated its establishment in 1176, or somewhat later. It is probably a board of public credit and interest, or a general and perpetual purse for all merchants and traders, established by a solemn edict of the commonwealth, which enacts, that all payments of wholesale merchandise, and letters of exchange, shall be in banco, or bank notes; and that all debtors and creditors shall be obliged, the one to carry their money to the bank, the other to receive their payments at banco; so that payments are performed by a simple transfer from the one to the other; he who was before creditor on the bank books, becoming debtor as soon as he has resigned his right to another, who is entered down as creditor in his place: so that the parties only change name, without any effective payment being made. Indeed there are sometimes actual payments made, especially in matters of retail, and when foreigners are disposed to have ready money to carry off in specie; or when particular traders choose to have a stock by them to negotiate in bills of exchange, &c. The necessity of these effective payments has given occasion to the opening a fund of ready money; which is found so far from diminishing the stock, that this liberty of withdrawing money at pleasure rather augments it. By means of this bank, the republic, without encroaching on the freedom of commerce, or without paying any interest, is mistress of 5,000,000 ducats, to which the capital of the bank is limited, to be in readiness on any pressing occasion; the republic being security for the capital. The original fund of this bank was two millions of ducats. In one of its wars with the Turks, the state became security to pay the money lodged in it, which they had been under a necessity of using in that exigency. Its agio, in process of time, arose so high as to be 30 per cent. better than current money, although the state by several edicts endeavoured to keep it lower. Its capital was afterwards made double the original sum; and the state, in another exigency, made free with that increased capital. In after times, the state enacted, that bank money, or the agio of the bank, should never exceed 20 per cent. advance, as it still remains to this day.

The constitution of this bank was originally founded on such just principles, that it has served as a model in the establishment of banks in other countries, and the administration of its affairs has been conducted with so much integrity that its credit has never been shaken; and it has been of infinite benefit to the state. For adjusting and balancing all their accounts in banking, they shut their books four times in every year, for three weeks at each period. Accordingly, Venice may boast of having given the first example to Europe of an establishment altogether unknown

to the ancients, and which is the pride of the modern commercial system.

BANK of England, was first established in the year 1694, partly for the convenience of commerce, and partly also for the emolument of the proprietors; and it is the greatest bank of circulation in Europe. The scheme was projected by Mr. W. Paterfon, a merchant, and debated for a long while in the privy council, till at length, by an act of 5 & 6 William & Mary, cap. 20. it was enacted, that their majesties might grant a commission to take particular subscriptions for 1,200,000*l.* of any persons, natives or foreigners, whom their majesties were hereby empowered to incorporate with a yearly allowance of 100,000*l.* viz. 96,000*l.* or 8 per cent. for interest till redeemed, and 4000*l.* to be allowed the intended bank for charges of management. The corporation was to have the name of "The governor and company of the bank of England;" their said fund to be redeemable upon a year's notice, after the 1st of August 1705, and payment of the principal, and then the corporation to cease. The company was enabled by this act to purchase lands, &c. unlimitedly, and to enjoy the other usual powers of corporations; their stock was to be transferable. They were restricted from borrowing more than 1,200,000*l.* except on parliament funds, and from trading in any merchandise, except in bills of exchange, and in bullion, and in the sale of such goods as were the produce of lands purchased by the corporation: and all bills obligatory under the seal of the said corporation, were made assignable by indorsement. The charter of corporation was executed July 27, 1694; which directs, that there be a governor, deputy-governor, and twenty-four directors; and specifies the qualifications of voters and of directors together with other regulations, which have been farther amended and enlarged by subsequent statutes.

In 1697, the bank was allowed to enlarge its capital stock, by an engraftment of 1,001,171*l.* 10*s.* Its whole capital stock, therefore, amounted at this time to 2,201,171*l.* 10*s.* This engraftment is said to have been for the support of public credit. In 1696, tallies had been at 40, and 50, and 60 per cent. discount, and bank notes at 20 per cent. During the great recoinage of silver, which was going on at this time, the bank had thought proper to discontinue the payment of its notes, which necessarily occasioned their discredit. By this engrafting act, as it was called, the capital stock of the bank was to be exempted from any tax; no act of the corporation, nor of its court of directors, nor sub-committees, should subject the particular share of any member to forfeiture; but these shares were subject to the payment of all just debts contracted by the corporation; and it was made felony to counterfeit the common seal of the bank, affixed to their sealed bills, or to alter or erase any sum in, or any indorsement on their sealed notes, signed by order of the said governor and company, or to forge or counterfeit the said bills or notes. This act was judiciously framed for the restoration of public credit; and it served to effect two points; viz. the rescue of the exchequer tallies and orders from the stock-jobbing harpies by engrafting them into this company, and also by cancelling the bank notes, also engrafted, which had been at 20 per cent. discount; because the government had been greatly deficient in their payments to the bank; and a good interest was secured to the proprietors of the increased capital. By stat. 6 Anne, c. 22. it was enacted, for securing the credit of the bank of England, that no other banking company in England shall consist of more than six persons, empowered to issue bills or notes payable on demand, or for any time less than six months, which is the only exclusive privilege belonging to the bank. In pur-

suance of the 7th Anne, c. 7. the bank advanced and paid into the exchequer the sum of 400,000*l.*; making in all the sum of 1,600,000*l.* which it had advanced upon its original annuity of 96,000*l.* interest, and 4000*l.* for expences of management. In pursuance of the same act, the bank cancelled exchequer bills to the amount of 1,775,027*l.* 17*s.* 10½*d.* at 6 per cent. interest; it likewise undertook the circulation of 2,500,000*l.* of exchequer bills issued for the supply of the year; and it was at the same time allowed to take in subscriptions for doubling its capital. In 1709, therefore, the capital of the bank amounted to 4,402,343*l.*; and it had advanced to government the sum of 3,375,027*l.* 17*s.* 10½*d.* By a call of 15 per cent. towards the 400,000*l.* advanced to government, there was paid in and made stock 656,204*l.* 1*s.* 9*d.*; and by another call of 10 per cent. in 1710, 501,448*l.* 12*s.* 11*d.* In consequence of these two calls, the bank capital amounted to 5,559,995*l.* 14*s.* 8*d.* In consideration of the sum of 400,000*l.* advanced to government without interest, the exclusive privileges of the bank were prolonged to one year's notice, after the 1st of August 1732.

The convenience which government found in issuing exchequer bills by means of the bank, produced an agreement in 1713, when the company undertook to circulate new bills for raising 1,200,000*l.* towards the supplies, on having an allowance of 3 per cent. per annum, payable weekly, and a farther allowance of 8000*l.* per annum, payable quarterly. On this occasion, by 12 Anne, c. 11. the company obtained an additional term of 10 years to the period of their continuance as a corporation; so that they were not to be dissolved but upon twelve months notice after 1st of August 1742; and to enable them to fulfil their engagements, they were empowered to make a call for money upon the proprietors. In the following year, they first received the subscriptions to a loan for the public service, which had been hitherto usually taken at the exchequer; but the bank, being found more convenient for monied persons, has usually received them ever since.

In pursuance of stat. 3 Geo. I. c. 7, 8, 9. in 1717, the bank delivered up two millions of exchequer bills to be cancelled; and it had, therefore, at this time, advanced to government 5,375,027*l.* 17*s.* 10½*d.* It was now agreed to reduce the interest from 6 to 5 per cent. In pursuance of the stat. 8 Geo. I. c. 21. in 1722, the bank purchased of the South Sea company stock to the amount of 4,000,000*l.*; and in this year, in consequence of the subscriptions which it had taken in for enabling it to make this purchase, its capital stock was increased by 3,400,000*l.* At this time, therefore, the bank had advanced to the public 9,375,027*l.* 17*s.* 10½*d.*; of which the sum of 1,600,000*l.* was entitled to 6 per cent. interest, till the 1st of August 1743; but the rest was to be reduced to 4 per cent. from and after Midsummer 1727; and the capital stock of the bank amounted only to 8,959,995*l.* 14*s.* 8*d.* It was upon this occasion, that the sum which the bank had advanced to the public, and for which it received interest, began first to exceed its capital stock, or the sum for which it paid a dividend to the proprietors of bank stock; or, in other words, that the bank began to have an undivided capital, over and above its divided one; and it has continued to have an undivided capital of the same kind ever since.

In 1728, the company of the bank advanced to government 1,750,000*l.* at 4 per cent. interest, without any power of enlarging their capital. In the following year, they advanced the farther sum of 1,250,000*l.* at 4 per cent. The capital due from government, after sundry redemptions, was 10,100,000*l.*; of which the sum of 1,000,000*l.* was redeemed

deemed in 1738, being part of the principal for exchequer bills cancelled in 1717.

In 1742, the company advanced a farther sum of 1,600,000*l.* towards the supply for that year, without receiving any additional allowance for interest or management; but they were empowered to enlarge their capital stock to the same amount; and by the act 15 Geo. II. c. 13. establishing this contract, by which the privileges of the bank were continued till one year's notice after the 1st of August 1764, it was declared, that the acts of 7 and 12 Anne, and all other acts for determining the corporation, should be void; and that the governor and company of the bank should remain a body corporate and politic for ever, subject to such restrictions and regulations as were contained in the acts and charters then in force. The whole sum, advanced on the original fund of 100,000*l.* per annum, thus became 3,200,000*l.* and the interest upon it from 1st of August 1743, 3 per cent. per annum.

By this act, persons forging, counterfeiting, or altering any bank note, bill of exchange, dividend warrant, or any bond or obligation under that company's seal, or any indorsement upon it, or knowingly uttering the same, shall suffer death without benefit of clergy. Moreover, the company's servants breaking their trust to the company, shall suffer death as a felon without benefit of clergy. It was also enacted, that when, at a court of directors of the bank, neither the governor nor deputy governor shall attend in two hours after the time appointed for business, then any 13 or more of the directors may chuse a chairman for the time, for the dispatch of business; and that such court shall be as valid as if either the governor or deputy governor had duly attended.

In consequence of the stat. 19 Geo. II. c. 6. in 1746, the bank agreed to deliver up to the treasury 986,800*l.* in exchequer bills; in lieu of which it was to have an annuity of 4 per cent. for that sum, out of the fund for licensing spirituous liquors; and the bank was empowered to add the said 986,800*l.* to its capital stock, by taking in subscriptions for that purpose. Accordingly, at Michaelmas 1746, the whole debt due to the bank from the public was 11,686,800*l.* and its divided capital had been raised by different calls and subscriptions to 10,780,000*l.* The state of these sums has continued to be the same ever since.

In 1764, the company of the bank agreed to advance 1,000,000*l.* towards the supplies, in exchequer bills, to be repaid in 1766; and to pay into the exchequer 110,000*l.* without any re-payment of the principal or allowance of interest for the same; in consideration of which, the term of their charter was extended to 1st of August 1786; and the dividend on the company's stock was raised at Michaelmas from $4\frac{1}{2}$ to 5 per cent. At Michaelmas 1767 it was raised to $5\frac{1}{2}$ per cent.

From a very early period after the establishment of the bank, it had been the practice of the company to assist government with money in anticipation of the land and malt taxes, and by making temporary advances on exchequer bills and other securities. In the year 1781, the sums thus lent to government amounted to upwards of eight millions, in addition to the permanent debt of 11,686,800*l.* An agreement was now entered into for the renewal of their charter, the term of which was extended to August 1812, on the company's engaging to advance 2,000,000*l.* on exchequer bills, at 3 per cent. interest, to be paid off within three years out of the sinking fund. In order to enable them to make this advance, a call of 8 per cent. on their capital was thought necessary, by which their former capital stock of 10,780,000*l.* was increased to 11,642,400*l.* the sum on

which they now divide. The dividend was also increased one half per cent. so that it now became 6 per cent. In consequence of this agreement, the total of their advances to government on the land and malt taxes, exchequer bills, and treasury bills, was increased, on the 25th February 1782, to 9,991,678*l.* The amount of the bank-notes in circulation must of course be augmented by the increase of advances to government.

In consequence of large advances to government, the great exportation of coin and bullion to Germany and Ireland, and several concurring circumstances, which, at the commencement of the year 1797, produced an unusual demand of specie from different parts of the country on the metropolis, an order of the privy council was issued on the 26th of February, prohibiting the directors of the bank from issuing any cash in payment till the sense of parliament on the subject was obtained. This restriction was sanctioned by parliament; and a committee was appointed to examine the state of the bank, from whose report it appeared, that, on the 25th of February, after examining the outstanding claims against it with the corresponding assets, the amount of demands on the bank was 13,770,390; and that of the assets, not including the sum of 11,686,800*l.* of permanent debt due by government, was 17,597,298*l.*; so that there was a surplus of 3,826,903*l.*

Soon after the meeting of parliament, in November following, the committee of secrecy, appointed to inquire into the expediency of continuing the restriction on the bank, reported, that the total amount of outstanding demands on the bank, on the 11th of November, was 17,578,910*l.* and of the funds for discharging the same, exclusively of the permanent debt, 21,418,640*l.* leaving a balance in favour of the bank at that time of 3,839,550*l.* The report stated that the advances to government had been reduced to 4,258,140*l.* and that the cash and bullion in the bank had increased to more than five times the value at which they stood on the 25th of February 1797, when it was about 1,272,000*l.*

By this statement, the solvency and solidity of the bank were satisfactorily evinced; and, indeed, its stability must be coeval with that of the British government. All that it has advanced to the public must be lost before its creditors can sustain any loss. No other banking company in England can be established by act of parliament, or can consist of more than six members. It acts, not only as an ordinary bank, but as a great engine of state. It receives and pays the greater part of the annuities which are due to the creditors of the public (See *NATIONAL DEBT, and FUND*); it circulates exchequer bills; and it advances to government the annual amount of the land and malt taxes, which are frequently not paid up for some years. It likewise discounts the bills of merchants, and has, upon several different occasions, supported the credit of the principal houses, not only of England, but of Hamburg and Holland. The business of the bank is under the direction of a governor, sub-governor, and 24 directors, who are elected annually by a general court; and it is transacted by a great number of subordinate clerks in different offices. The qualification of a director is 2000*l.* of a deputy governor 3000*l.* and of a governor 4000*l.*; 500*l.* bank stock intitles the proprietor to vote at the general courts, provided he has been in possession of it six months.

The company may not improperly be denominated a trading company, and that which is peculiarly distinguished by the appellation of bank stock is a trading stock, the dividend of which, amounting to 11,642,400*l.* paid half-yearly, and now (in 1807) 10 annuallly per cent. accrues from the annual income of the com-

pany; and this arises from the interest received for the money advanced by the proprietors to the public, or the permanent debt of 11,686,800l.; from interest on the annual temporary advances; from the profits of their dealings in bullion, and of their discounts; from the interest of stock held by the company; from the sums allowed by government for the management of the annuities paid at the offices of the bank, such as, an allowance of 450l. per million for management of the public funds, and the allowance of 805l. 15s. 10d. per million for receiving the contribution to loans, and from some other smaller articles.

The bank of England may be considered as the main spring of that complicated mechanism, by which the commercial payments of this country are transacted; and by which the comparatively small sum of money with which they are performed is kept in perpetual and regular circulation. The subordinate parts of this machine consist of about 70 private banking-houses in London, and about 386 banks dispersed over the country. By the joint operation of these various money-dealers, almost all bank payments, founded on commercial bargains, are ultimately settled in London, with the money which issues from the bank of England. This money consists, in ordinary times, partly of coin, and partly of bank notes. From its large capital and extensive issue of paper, that bank indirectly supplies the whole kingdom with as much gold as is required for circulation. Its notes are issued in loans, granted either for the accommodation of the public treasury, or for that of merchants by discount of their bills; and in consequence of a common agreement among the bankers, no notes of any private house are current in London. All the large payments of that metropolis are in this manner effected by the paper of the bank of England; and they are chiefly transacted by the private bankers, who, according to a conjectural estimate, make daily payments to the amount of four or five millions, and have probably in their hands a very large proportion of the whole of the notes circulating in the metropolis.

The following table will exhibit, at one view, the state of the cash and bullion, the average of bank notes in circulation, and also the discounts and advances to government during the several periods which it comprehends.

Date.	Cash and Bullion.	Average of Bank Notes circulated.	Bills Discounted.	Average Advan. to Government.
1793. March	3,508,000	11,963,820	4,817,000	8,735,200
June	4,412,000	12,100,650	5,128,000	9,434,000
September	6,836,000	10,938,620	2,065,000	6,455,700
December	7,220,000	10,967,310	1,976,000	8,887,500
1794. March	3,608,000	11,159,720	2,908,000	8,494,100
June	8,208,000	10,366,450	3,263,000	7,735,800
September	3,096,000	10,343,940	2,000,000	6,779,800
December	7,768,000	10,927,970	1,887,000	7,545,100
1795. March	7,940,000	12,432,240	2,287,000	9,773,700
June	7,356,000	10,912,680	3,485,000	10,379,700
September	5,792,000	11,034,790	1,887,000	10,197,600
December	4,000,000	11,608,670	3,109,000	10,863,100
1796. March	2,972,000	10,824,150	2,820,000	11,351,000
June	2,582,000	10,770,200	1,730,000	11,269,700
September	2,532,000	9,720,440	3,352,000	9,901,100
December	2,508,000	9,645,710	3,796,000	9,511,400
1797. Feb. 26.	1,272,000	8,640,250	2,005,000	10,672,490

In the beginning of 1798, the bank advanced to government 3,000,000 on exchequer bills, and in the progress of the year a farther advance of 500,000l.; so that the total sum, advanced by the bank for the public service, and out-

standing on the 7th of December, was 6,777,739l. At a general court, held 14th of March 1799, it was agreed to advance to Government 1,500,000l. on exchequer bills, and it was proposed to divide among the proprietors the 5 per cent. stock held by the company for the million subscribed to the loyalty-loan; and with this view to purchase 39,240l. of the same stock, to make up the sum held by them 1,164,240l. in order to make a dividend of 10l. 5 per cent. stock for every 100l. bank capital. Accordingly the transfer was made on the 1st of June.

In November following, a negotiation was entered into for renewing the term of the company's charter, although about 13 years of it remained. The proposition was agreed to at a general court held January the 9th, 1800. The conditions were, that the bank should advance to government 3,000,000l. for the service of the year 1800, on exchequer bills, payable, without interest, out of the supplies to be granted for the year 1806, in consideration of which the term of their charter was continued till the end of twelve months notice after the 1st of August 1833.

The amount of bank notes, in circulation had gradually increased since the beginning of 1797; and, during the year 1800, amounted to about 15,000,000l. The amount, on an average of a month, to 25th of January 1801, was 16,365,200l.; consisting of 13,845,800l. in notes of 5l. and upwards, and 2,519,400l. in 1l. and 2l. notes.

At a general court, held 19th of March 1801, another occasional dividend of stock was proposed. This dividend was to be made of 582,120l. of 5 per cent. navy annuities, at the rate of 5 per cent. for every 100l. bank capital; and the transfer was made on the 1st of May.

The commerce of London itself is immense; not only as a seat of populous and luxurious consumption, but as a station of manufactures, and an emporium of maritime trade. The number of payments occasioned by such various transactions, is farther increased by the dividends which the national creditors receive on the great sum of our public debt. But in addition to all these payments, originating within the capital itself, bills are drawn upon London, and remittances are sent thither to provide for them, from all parts of the kingdom. Even foreign drafts, on account of merchants in the country, are, with scarcely any exceptions, made payable in London. And thus a great proportion of the pecuniary engagements, to which the whole commerce of the kingdom gives birth, are ultimately settled there. This transfer of the country payments to London, has, in some degree, subsisted for a long time; the practice, once begun, was likely, from its great advantages, to be gradually extended; and, of late years, it seems to have been reduced to a regular and very commodious system. It was much facilitated by the multiplication of country banks, during that period of high prosperity and confidence which immediately preceded the late war. The formation of these throughout the whole country was actively encouraged by the private bankers of London; and, indeed, the existence of a great national bank, which, like that of England, must provide a constant reservoir of gold, naturally suggests the creation of smaller establishments. Upon the formation of such banks in the country, many traders of all descriptions, who had formerly maintained a direct correspondence with merchants in London, fell into the practice of transacting their business with the metropolis through the banker in their own neighbourhood with whom they kept their cash. On their account, he drew largely upon a banker in London; who agreed to execute the extensive country business he had thus acquired, at a much lower commission than what had formerly been paid by the several country traders to their

their separate correspondents. The rate of commission was reduced, in consequence of the diminished trouble as well as risk; the labour of keeping accounts, writing letters, receiving and paying bills, was now transferred to one house, which had been before divided among many; and a new security was afforded to the transactions between the metropolis and the country, by the interposed credit of wealthy and respectable country banks.

The establishment of such a system of banks, and the transference of ultimate payments to one particular place, are in the natural course of that progressive subdivision of labour, which extends itself over an opulent and industrious country. The receipt and payment of money, instead of being conducted at home, are transferred, by every trader, to his banker; who devises means both of abridging his own labour, and of economising the use of money, especially of that costly part of it which consists of specie. By this skill and success in attaining these objects, he manages an important part of trade, at an expence far inferior to what the merchants themselves must have incurred, had they continued to conduct it separately by their own clerks. In proportion, likewise, as the amount and number of payments and receipts is augmented in one particular place, the business of paying and receiving is more easily and cheaply transacted; the guineas or bank notes required, though more upon the whole, are fewer in proportion to the sums paid and received. So complete, accordingly, and so systematic is that economy in the use of notes, which long experience has introduced among the London bankers, that the present payments of that metropolis could scarcely be transacted, with due regularity, if the quantity of notes were to suffer any considerable diminution. In this they are assisted by the fitness of bills of exchange and government securities to supply the place of bank notes; for the interest that grows on such negotiable paper while it is detained, saves all the loss which the banker would undergo from the detention of coin or notes; and there is a certain sort and quantity of bills, on the conversion of which into money he may rely almost as confidently as on the changing of a note into guineas, or of a guinea into silver. The ingenuity of these money-dealers, in sparing the circulating medium, is aptly illustrated by a custom which prevails among the city bankers. Each of them sends a clerk, at an appointed hour in the afternoon, to a room provided for their use. Each clerk there exchanges the drafts on other bankers received at his own house for the drafts on his own house received at the houses of other bankers. The balances of the several bankers are transferred from one to another, in a manner which it is unnecessary to explain in detail, and the several balances are finally wound up by each clerk into one balance. The difference between the whole sum which each banker has to pay to all other city bankers, is, therefore, all that is discharged in bank notes or money; a difference evidently much less in its amount than that to which the several differences would be equal.

But the economised use of circulating medium is by no means the only collateral advantage that arises from this system of banks, connected in subordination to each other, with the great national bank at their head. Although a very few of the country establishments have occasionally subjected themselves to the charge of encouraging rash speculation, the system, in its complex operation, has a real tendency to strengthen as well as to enlarge the basis of credit. Bankers possess, from their situation, very superior means of distinguishing the careful trader from the improvident. The bill transactions of the neighbourhood pass under their inspection; and by this information they are

enabled to measure out confidence very nearly in just proportion. In fact, it is considered as a regular branch of their professional experience, that they should appreciate the credit of the various traders within their district of circulation; and this sort of practical sagacity they are understood to cultivate with great assiduity. It is said to be the general practice of banks, to communicate such intelligence for their mutual advantage. Each of them endeavours to limit, not only the sum which any one trader shall obtain from themselves, but the total amount also, so far as they are able, of the sum which the same person shall borrow in different places. They endeavour, above all, to discourage bills of accommodation. While the transactions of country traders are thus surveyed by the banks of their respective districts, those of the country banks themselves are subject to the view of the London bankers, their correspondents; and these, again, are in some degree controlled by the bank of England, which restricts, according to its own discretion, the credit with which they are accommodated. A series of checks is thus maintained, which, though far from establishing a complete security against all injurious speculation, presents a powerful obstacle to its progress.

But the bank of England retains another check, of a highly important nature, over the banks in the country. The issue of its own notes is restricted, in ordinary times, by the obligation to convert them into specie. The quantity of country paper, even during the present times, is limited by its accustomed convertibility into the notes of the bank of England. If a particular country banker is imprudent enough to issue an extraordinary quantity of paper, while that of the bank of England does not exceed the demands of London circulation, a local rise of prices will be produced within the district of that country paper, but prices in London will remain as before. In this situation, the holders of country paper, in order that they may purchase goods where they are cheaper, will return that paper to the banker, demanding in return bank of England notes, or at least bills upon London. The excess of his notes will thus be continually returned upon the country banker, and he will at length find himself under the necessity of limiting his issue to that quantity which the circulation of his own district can absorb. The quantity of bank of England paper may thus be said to regulate the quantity of that which is issued by the country banks. It is not, that one uniform ratio is maintained between these two quantities; but that both are in the same proportion to the demand that is created for each by the trade which it is destined to circulate. Whenever the bank of England paper happens to exceed what is required for the purposes of London circulation, the country paper may become excessive in the same degree. And such an excess of bank of England paper may be produced, either by a diminution in the number of payments, while that of notes remains undiminished; or by whatever has a tendency; while the number of payments remains unaugmented, to augment the number or the effective power of the notes in circulation.

The most serious danger to which the bank of England is exposed is that of being drained of its specie. To such a drain it may be subjected in consequence of any alarm that occasions a great demand for guineas, either to be hoarded, or to supply the place of paper thrown out of circulation. If the alarm should be of long continuance, and the bank maintains in circulation no more than its usual quantity of notes, it may be altogether exhausted of its guineas, however small that quantity of notes may be; because if these are always re-issued in loans upon the discounts of bills, they may be perpetually returned upon the bank in demand for more specie.

Should

Should the alarm be great and of long continuance, the bank, by maintaining only a million of notes, in circulation, may, by the continual return of these, be exhausted of fifty millions of guineas. Besides, a more permanent cause of a run upon the bank of England for specie is the excess of the market price of gold above its mint price. This was formerly occasioned by the debased state of gold currency; and the bank has been reduced to the necessity of coining new guineas, which were immediately melted down, that the bullion might be sold to the bank itself at the high market price. In whatever manner the high price of gold is produced, immediate demands are made upon the bank for guineas, in order to export them. These it endeavours to replace, though gold cannot be purchased without a considerable loss. A most unequal competition will thus be established between the bank, on the one hand, which buys and coins at a great loss, and the clandestine dealers, on the other hand, who melt and sell at a great profit. If the unfavourable balance of trade, which has caused this high price of bullion, were not of a temporary nature, the bank of England, by this continued accumulation of unproductive expence, might ultimately be reduced to very great distress. Besides, the excess of the market price of gold above its mint price may likewise be produced by too great a quantity of paper-money. The bank, indeed, has the power of restricting the country paper, by limiting its own notes to those which are actually needed for the purposes of circulation. It has, therefore, the power in a great degree of preventing that high price of gold, and the consequent drain of its own guineas, which proceed from an excessive circulation of paper. So long, then, as the bank is liable to payments in specie, it has an evident interest to prevent its own paper, as well as that of the whole country, from being so excessive, as to occasion a rise in the price of commodities. To limit the total amount of paper issued, and to resort, whenever the temptation of borrowing is strong, to some effectual principle of restriction; never to diminish greatly the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the country is enlarged; and to permit a temporary increase during an extraordinary period of difficulty or alarm:—this, according to Mr. Thornton (*ubi infra*), is the true policy of an institution placed in the circumstances of the bank of England.

If the bank of England, says an anonymous writer (*Edinb. Rev. N^o. I. p. 196.*), must now be considered as a national establishment, not merely influencing, by the superior magnitude of its capital, the state of commercial circulation, but guiding its movements according to views of public policy, an important revolution has taken place since the first erection of that corporation as a banking establishment. That power of issuing the medium of exchange, with the opportunities it implies of varying its quantity and value, which, while precious coin was in use, was exercised under the immediate prerogative of the crown, is now virtually invested in the governor and directors of the bank of England. In the official character of that board, some of the functions of sovereignty are united to those of a trader; and the opportunities of banking profits are blended with a trust and charge of the public interest. It will be pleasing if these shall prove more happily compatible, than they have been found in other instances. The organization of this establishment, possessed of such means to control the operations of commerce, as well as to facilitate the advance of financial supplies, may, into our political constitution already so complicated, introduce a new principle of action, the effect of which cannot be clearly discern-

ed. Perhaps an unbounded field will be opened for the extension of ministerial influence; perhaps an unexpected control may be gained to the people, over the views and measures of the executive.

The suspension of cash payments in 1797, was an event, in the opinion of Mr. Thornton, to which the national bank was liable from its very nature; the probability of which has been too studiously concealed; and to the recurrence of which we may look forward. The gold, in the coffers of the bank, had been much reduced by the effect of an unfavourable balance of trade. The alarms of invasion had led to the failure of some country banks in the north of England; this occasioned a further demand of guineas from the bank, and a diminution in the circulating notes of London. The directors aggravated the distress, and augmented the demand for guineas, by unadvisedly suppressing some of their notes, instead of enlarging the quantity. It has also been alleged, that the loans of the bank to government, which occasioned a limitation in its discount of commercial paper, contributed, by their indirect and unavoidable operation, to aggravate that distress of the circulation which was chiefly produced by other causes. Although the loans to government could have no tendency to diminish the sum of notes in circulation, it nevertheless tended to distress the circulation, by rendering that sum of notes less adequate to the wants of commerce, than if they had flowed into the market through the usual channel of discounts. The suspension of payments in specie was properly continued, according to Mr. Thornton, from the permanence of those circumstances which rendered it originally necessary:—an unfavourable exchange, produced partly by our heavy expenditures, but chiefly aggravated by vast importations of corn; and the prevalence, till the eve of peace, of alarms about hostile invasions. Mr. Thornton maintains that the circulating paper of the bank of England does not in fact amount now to a greater sum than, upon an average of years, was in circulation before the suspension of cash payments. Upon an average of three years, ending in December 1795, their amount, according to the evidence laid before parliament, was 11,975,573*l*. By a subsequent statement presented to the house of Commons, they amounted in December 1800, to 15,450,970*l*. From the difference between these two sums, Mr. Thornton insists that we ought to deduct the amount of two millions, consisting of one and two pound notes, which according to him have displaced in the circulation an equal sum of guineas. After this deduction, there still remains the sum of 1,475,397*l*. by which the bank paper exceeded in 1800, its average amount before the suspension of cash payments. But in the spring of 1801, the governor of the bank stated to the house of commons, that the company had reduced its notes to a sum less, by about a million and a half, than their amount in the preceding December. Lord King, in his "Thoughts on the Restriction of Payments in Specie at the Banks of England and Ireland," 8vo. 1803, disputes the correctness of Mr. Thornton's statement; and alleges, that in the spring of 1801, the issue of notes amounted to 16,365,206*l*. which was still farther increased, in the summer of 1802, to 16,747,300*l*. According to the last account presented to the house of commons, the bank of England notes in circulation amounted to 16,108,560*l*. If we compare, says his lordship, this sum with the above average of three years ending in December 1795, even after we add to the latter the whole two millions of which Mr. Thornton speaks, and which seems a very large allowance, the present issue from the bank will be found to exceed that, which was formerly convertible into specie, by something less than one-sixth

sixth of the whole. If we consider the quick circulation which paper admits of, and the increase which an accelerated rate of circulation gives to the effective powers of currency, this addition of almost one-sixth must be regarded as an immense augmentation of the mass of efficient currency. While the issue of bank of England notes was moderate and restrained, the market price of bullion, particularly of silver bullion, which is a more certain standard than gold, because it is a more regular article of commerce, continued very nearly the same as its established price in our mint. In the summer of 1779, however, about the same time with the great increase of bank paper, a rapid and extraordinary advance took place in the market price of bullion. That of silver rose at once to 5s. 8d. almost ten per cent. above the mint price. It continued to rise along with the progressive increase of notes: and in 1801, when they exceeded sixteen millions, it was as high as 6s. more than 16 per cent. and even at 6s. 1d. more than 17 per cent. above the mint price. Thus also, while the issue of the bank of England notes was moderate and restrained, the rate of exchange at Hamburgh continued in favour of this country, being from three to five per cent. above par. But in the summer of 1799, about the same time with the great increase of bank paper, a very rapid fall took place. It fell at once to 32, above eight per cent. below par; and continued to fall almost regularly, though not quite so regularly as the price of bullion rose, along with the progressive increase of notes. At the commencement of 1801, when they exceeded sixteen millions, the exchange with Hamburgh was as low as 29l. 10s. almost 16 per cent. below par. Lord King has subjoined a set of tables, which exhibit the remarkable correspondence between the variations in the quantity of bank notes, and the variations in the price of bullion and rate of exchange. His lordship has also shewn, that the paper currency of the bank of Ireland has been augmented from 621,917l. to 2,633,864l.; and that its notes at present in circulation exceed more than four times the amount of what were in circulation when the act of restriction was passed. During the same period, the price of silver in Dublin has experienced a great advance, having varied from 6s. 6d. to 7s. Irish currency; an increase, which, estimating the mint price at 5s. 7d. is from 14 to 20 per cent. The rate of exchange between Dublin and London has been also remarkably affected; the difference having progressively increased from 8½, the ordinary difference, to 10, 12, 14, and even 16. This proof of the depreciation of bank of Ireland notes has not been confined to the course of exchange with London; but is felt in the transactions of Dublin with many of the provincial towns, where those notes have not acquired a general circulation; the currency still consisting either of specie, or of country notes. In consequence of this, and of the depreciated condition of the Dublin currency, there is an actual difference of exchange between Dublin and those towns. This is the case, for instance, in Belfast; when a payment is there made in bank of Ireland notes, an additional sum is paid proportional to the discount. Hence lord King infers, that the measure of 1797 has actually had a pernicious influence upon the system of circulation; and in strong terms deprecates its continuance. Mr. Thornton states the following facts, that the enumeration of *country-banks* taken in 1800, differed from that taken in 1797, by the excess of 386 above 353.

It is not, says Dr. Smith (*ubi infra*), by augmenting the capital of the country, but by rendering a greater part of that capital active and productive than would otherwise be so, that the most judicious operations of banking can increase the industry of the country. That

part of his capital which a dealer is obliged to keep by him unemployed, and in ready money for answering occasional demands, is so much dead stock, which, so long as it remains in this situation, produces nothing either to him or to his country. The judicious operations of banking enable him to convert this dead stock into active and productive stock; into materials to work upon, into tools to work with, and into provisions and subsistence to work for; into stock which produces something both to himself and to his country. The gold and silver money which circulates in any country, and by means of which the produce of its land and labour is annually circulated and distributed to the proper consumers, is, in the same manner as the ready money of the dealer, all dead stock. It is a very valuable part of the capital of the country, which produces nothing to the country. The judicious operations of banking, by substituting paper in the room of a great part of this gold and silver, enable the country to convert a great part of this dead stock into active and productive stock; into stock which produces something to the country. The gold and silver money which circulates in any country may very properly be compared to a highway, which while it circulates and carries to market all the grass and corn of the country, produces itself not a single pile of either. The judicious operations of banking, by providing, if I may be allowed so violent a metaphor, a sort of waggon-way through the air; enable the country to convert, as it were, a great part of its highways into good pastures and corn fields, and thereby to increase very considerably the annual produce of its land and labour. The commerce and industry of the country, however, it must be acknowledged, though they may be somewhat augmented, cannot be altogether so secure, when they are thus, as it were, suspended upon the Dædalian wings of paper money, as when they travel about upon the solid ground of gold and silver. Over and above the accidents to which they are exposed from the unskilfulness of the conductors of this paper money, they are liable to several others, from which no prudence or skill of those conductors can guard them. Mr. Hume (*Essays*, vol. i. *Ess.* iii. p. 301.) expresses his doubt concerning the benefit of banks and paper credit. That provisions and labour, he says, should become dear by the increase of trade and money, is, in many respects, an inconvenience, but an inconvenience that is unavoidable, and the effect of that public wealth and prosperity which are the end of all our wishes. It is compensated by the advantages, which we derive from the possession of these precious metals, and the weight which they give the nation in all foreign wars and negotiations. But there appears no reason, as he conceives, for increasing that inconvenience by a counterfeit money, which foreigners will not accept of in any payment, and which any great disorder in the state will reduce to nothing. (See *PAPER-MONEY*.) Inquiry into the nature and effects of the Paper Credit of great Britain, by Henry Thornton, Esq., M.P. London, 1802. Smith's *Nature and Causes of the Wealth of Nations*, vol. i. p. 479—484.

In Scotland, there are two *public* banks erected at Edinburgh; of which the one, called "The Bank of Scotland," was established by act of parliament in 1695; the other, called "The Royal Bank," by royal charter in 1727. New banking companies have been also erected within the last thirty and forty years in almost every considerable town, and even in some country villages. The business of the country, says Dr. Smith (vol. i. p. 442), is almost entirely carried on by means of the paper of these different banking companies, with which purchases and payments of all kinds are commonly made. Silver very seldom appears except in the change.

change of a twenty shilling bank note, and gold seldom. But though the conduct of all these different companies has not been unexceptionable, and has accordingly required an act of parliament to regulate it; the country, notwithstanding, has derived great benefit from their trade. It has been asserted, says this writer, that the trade of the city of Glasgow doubled in about fifteen years after the first erection of the banks there; and that the trade of Scotland has more than quadrupled since the first erection of the two public banks at Edinburgh. Whether this statement be strictly just or not, it is certain, that the trade and industry of Scotland have increased very considerably during this period, and it must be allowed, as an unquestionable fact, that the banks have greatly contributed to this increase. The whole value of the gold and silver, which circulated in Scotland before the union, cannot be estimated at less than a million sterling. In the present times, says Dr. Smith, the whole circulation of Scotland cannot be estimated at less than two millions, of which that part which consists in gold and silver, most probably, does not amount to half a million. But though the circulating gold and silver of Scotland have suffered so great a diminution during this period, its real riches and prosperity do not appear to have suffered any. In agriculture, manufactures, and trade, on the contrary, the annual produce of its lands and labour has evidently been augmented. It is chiefly by discounting bills of exchange, that is, by advancing money upon them before they are due, that the greater number of banks and bankers issue their promissory notes; deducting always, upon the sum they advance, the legal interest till the bill shall become due. The payment of the bill when it becomes due, replaces to the bank the value of what had been advanced, together with a clear profit of the interest. The banker, who advances to the merchant whose bill he discounts, not gold and silver, but his own promissory notes, has the advantage of being able to discount to a greater amount by the whole value of his promissory notes, which he finds by experience are commonly in circulation. He is hereby enabled to make his clear gain of interest into a much larger sum. The commerce of Scotland was much less considerable than it is now, when the two first banking companies were established, and those companies would have had but little trade, if their business had been restricted to the discounting of bills of exchange. They invented, therefore, another method of issuing their promissory notes; by granting, what they called "cash accounts," that is, by giving credit to the extent of a certain sum (e. g. 2 or 3000 pounds), to any individual who could procure two persons of undoubted credit and good landed estate to become security for him, that whatever money should be advanced to him within the sum for which the credit had been given, should be repaid upon demand, together with the legal interest. Credits of a similar kind are commonly granted by banks and bankers, in all different parts of the world. But the easy terms upon which the Scotch banking companies accept of repayment are, says Dr. Smith, peculiar to them, and have, perhaps, been the principal cause, both of the great trade of these companies, and of the benefits which the country has received from it. Whoever has a credit of this kind with one of these companies and borrows e. g. a thousand pounds upon it, may repay this sum by piece-meal, by 20l. and 30l. at a time; the company discounting a proportionable part of the interest of the great sum from the day on which each of those small sums is paid in, till the whole be in this manner repaid. All merchants, therefore, and almost all men of business, find it convenient to keep such cash accounts with them, and are thereby interested to promote the trade of those

companies, by readily receiving their notes in all payments, and by encouraging all those with whom they have any influence to do the same. The banks, when their customers apply to them for money, generally advance it to them in their own promissory notes. These the merchants pay away to the manufacturers for goods, the manufacturers to the farmers for materials and provisions, the farmers to their landlords for rent, the landlords repay them to the merchants for the conveniences and luxuries with which they supply them, and the merchants again return them to the banks in order to balance their cash accounts, or to replace what they may have borrowed of them; and thus almost the whole money business of the country is transacted by means of them. Hence the great trade of those companies.

By means of these cash accounts, every merchant can, without imprudence, carry on a greater trade than he otherwise could do. If there are two merchants, one in London, and the other in Edinburgh, who employ equal stocks in the same branch of trade, the Edinburgh merchant can, without imprudence, carry on a greater trade, and give employment to a greater number of people, than the London merchant. The London merchant must always keep by him a considerable sum of money, either in his own coffers, or those of his banker, who gives him no interest for it, in order to answer the demands continually coming upon him for payment of the goods which he purchases upon credit. Let the ordinary amount of this sum be supposed 500l. The value of the goods in his warehouse must always be less by 500l. than it would have been, had he not been obliged to keep such a sum unemployed. Let us suppose that he generally disposes of his whole stock upon hand, or of goods to the value of his whole stock upon hand, once in the year. By being obliged to keep so great a sum unemployed, he must sell in a year 500l. worth less goods than he might otherwise have done. His annual profits must be less by all that he could have made by the sale of 500l. worth more goods; and the number of people employed in preparing his goods for market, must be less by all those that 500l. more stock could have employed. The merchant in Edinburgh, on the other hand, keeps no money unemployed for answering such occasional demands. When they actually come upon him, he satisfies them from his cash account with the bank, and gradually replaces the sum borrowed with the money or paper which comes in from the occasional sales of his goods. With the same stock, therefore, he can without imprudence have at all times in his warehouse a larger quantity of goods than the London merchant; and can thereby both make a greater profit himself, and give constant employment to a greater number of industrious people who prepare those goods for the market. Hence the great benefit which the country has derived from this trade.

The late multiplication of banking companies in both parts of the united kingdom, an event by which many people have been much alarmed, instead of diminishing, increases the security of the public. It obliges all of them to be more circumspect in their conduct, and, by not extending their currency beyond its due proportion to their cash, to guard themselves against those malicious runs, which the rivalry of so many competitors is always ready to bring upon them. It restrains the circulation of each particular company within a narrower circle, and reduces their circulating notes to a smaller number. By dividing the whole circulation into a greater number of parts, the failure of any company, an accident which, in the course of things, must sometimes happen, becomes of less consequence to the public. This free competition too obliges all bankers to be

more

more liberal in their dealings with their customers, lest their rivals should carry them away. In general, if any branch of trade, or any division of labour, be advantageous to the public, the freer and more general the competition, it will always be the more so. *Smith's Wealth of Nations*, vol. i. p. 446, &c. p. 498, &c.

BANKS of Deposit are such as are instituted wholly for the benefit of the public. Of these Dr. Smith has given the following account: "The currency of a great state, such as France or England, generally consists almost entirely of its own coin. Should this currency, therefore, be at any time worn, clipt, or otherwise degraded below its standard value, the state by a reformation of its coin can effectually re-establish its currency. But the currency of a small state, such as Genoa or Hamburg, can seldom consist altogether in its own coin, but must be made up, in a great measure, of the coins of all the neighbouring states with which its inhabitants have a continual intercourse. Such a state, therefore, by reforming its coin, will not always be able to reform its currency. If foreign bills of exchange are paid in this currency, the uncertain value of any sum, of that which is in its own nature so uncertain, must render the exchange always very much against such a state; its currency being, in all foreign states, necessarily valued even below what it is worth.

In order to remedy the inconvenience to which this disadvantageous exchange must have subjected their merchants, such small states, when they began to attend to the interest of trade, have frequently enacted, that foreign bills of exchange of a certain value should be paid, not in common currency, but by an order upon, or by a transfer in the books of a certain bank, established upon the credit, and under the protection of the state; this bank being always obliged to pay, in good and true money, exactly according to the standard of the state. The bank of Venice established in 1157, that of Genoa in 1345, that of Amsterdam in 1609, that of Hamburg in 1619, and the bank of Nuremberg, seem to have been all originally established with this view, though some of them may have afterwards been made subservient to other purposes. The money of such banks, being better than the common currency of the country, necessarily bore an agio, which was greater or smaller, according as the currency was supposed to be more or less degraded below the standard of the state. The agio of the bank of Hamburg, for example, which is said to be commonly about fourteen per cent. is the supposed difference between the good standard money of the state, and the clipt, worn, and diminished currency, poured into it from all the neighbouring states.

Before 1609, the great quantity of clipt and worn foreign coin which the extensive trade of Amsterdam brought from all parts of Europe, reduced the value of its currency about nine per cent. below that of good money fresh from the mint. Such money no sooner appeared than it was melted down or carried away, as it always is in such circumstances. The merchants, with plenty of currency, could not always find a sufficient quantity of good money to pay their bills of exchange; and the value of those bills, in spite of several regulations which were made to prevent it, became in a great measure uncertain.

In order to remedy these inconveniences, a bank was established in 1609, under the guarantee of the city. This bank received both foreign coin, and the light and worn coin of the country at its real intrinsic value in the good standard money of the country, deducting only so much as was necessary for defraying the expence of coinage, and the other necessary expence of management. For the value

which remained after this small deduction was made, it gave a credit in its books. This credit was called bank money, which, as it represented money exactly according to the standard of the mint, was always of the same real value, and intrinsically worth more than current money. It was at the same time enacted, that all bills drawn upon or negotiated at Amsterdam, of the value of six hundred guilders and upwards, should be paid in bank money, which at once took away all uncertainty in the value of those bills. Every merchant, in consequence of this regulation, was obliged to keep an account with the bank in order to pay his foreign bills of exchange, which necessarily occasioned a certain demand for bank money.

Bank money, over and above both its intrinsic superiority to currency, and the additional value which this demand necessarily gives it, has likewise some other advantages. It is secure from fire, robbery, and other accidents; the city of Amsterdam is bound for it; it can be paid away by a simple transfer, without the trouble of counting, or the risk of transporting it from one place to another. In consequence of these different advantages, it seems from the beginning to have borne an agio, and it is generally believed, that all the money originally deposited in the bank was allowed to remain there, nobody caring to demand payment of a debt which he could sell for a premium in the market. By demanding payment of the bank, the owner of a bank credit would lose this premium. As a shilling fresh from the mint, will buy no more goods in the market than one of our common worn shillings, so the good and true money which might be brought from the coffers of the bank into those of a private person, being mixed and confounded with the common currency of the country, would be of no more value than that currency, from which it could no longer be readily distinguished. While it remained in the coffers of the bank, its superiority was known and ascertained. When it had come into those of a private person, its superiority could not well be ascertained without more trouble than perhaps the difference was worth. By being brought from the coffers of the bank, besides, it lost all the other advantages of bank money; its security, its easy and safe transferability, its use in paying foreign bills of exchange. Over and above all this, it could not be brought from those coffers, as will appear by and by, without previously paying for the keeping.

Those deposits of coin, or those deposits which the bank was bound to restore in coin, constituted the original capital of the bank, or the whole value of what was represented by what is called bank money. At present, they are supposed to constitute but a very small part of it. In order to facilitate the trade in bullion, the bank has been for these many years in the practice of giving credit in its books upon deposits of gold and silver bullion. This credit is generally about five per cent. below the mint price of such bullion. The bank grants at the same time what is called a receipt or receipt, entitling the person who makes the deposit, or the bearer, to take out the bullion again at any time within six months, upon transferring to the bank a quantity of bank money equal to that for which credit had been given in its books when the deposit was made, and upon paying one-fourth per cent. for the keeping, if the deposit was in silver; and one-half per cent. if it was in gold; but at the same time declaring, that in default of such payment, and upon the expiration of this term, the deposit should belong to the bank at the price at which it had been received, or for which credit had been given in the transfer books. What is thus paid for the keeping of the deposit may be considered as a sort of warehouse rent; and why this ware-

house rent should be so much dearer for gold than for silver, several different reasons have been assigned. The fineness of gold, it has been said, is more difficult to be ascertained than that of silver. Frauds are more easily practised, and occasion a greater loss in the most precious metal. Silver, besides, being the standard metal, the state, it has been said, wishes to encourage more the making of deposits of silver than those of gold.

Deposits of bullion are most commonly made when the price is somewhat lower than ordinary; and they are taken out again when it happens to rise. In Holland, the market price of bullion is generally above the mint price, for the same reason that it was so in England before the late reformation of the gold coin. The difference is said to be commonly from about six to sixteen stivers upon the mark, or eight ounces of silver of eleven parts fine, and one part alloy. The bank price, or the credit which the bank gives for the deposits of such silver (when made in foreign coins of which the fineness is well known and ascertained, such as Mexico dollars), is twenty-two guilders the mark; the mint-price is about twenty-three guilders, and the market price is from twenty-three guilders six, to twenty-three guilders sixteen stivers, or from two to three per cent. above the mint price. The proportions between the bank price, the mint price, and the market price, of gold bullion, are nearly the same. A person can generally sell his receipt for the difference between the mint price of bullion and the market price. A receipt for bullion is almost always worth something, and it very seldom happens, therefore, that any body suffers his receipt to expire, or allows his bullion to fall to the bank at the price at which it had been received either by not taking it out before the end of the six months or by neglecting to pay the one-fourth or one-half per cent. in order to obtain a new receipt for another six months. This, however, though it happens seldom, is said to happen sometimes, and more frequently with regard to silver, on account of the higher warehouse rent which is paid for keeping of the more precious metal.

The person who by making a deposit of bullion obtains both a bank credit and a receipt, pays his bills of exchange as they become due with his bank credit; and either sells or keeps his receipt according as he judges that the price of bullion is likely to rise or to fall. The receipt and the bank credit seldom keep long together, and there is no occasion that they should. The person who has a receipt, and who wants to take out bullion, finds always plenty of bank credits, or bank money to buy at the ordinary price; and the person who has bank money, and wants to take out bullion, finds receipts always in equal abundance.

The owners of bank credits, and the holders of receipts, constitute two different sorts of creditors against the bank. The holder of a receipt cannot draw out the bullion for which it is granted, without re-assigning to the bank a sum of bank money equal to the price at which the bullion had been received. If he has no bank money of his own, he must purchase it of those who have it. The owner of bank money cannot draw out bullion without producing to the bank receipts for the quantity which he wants. If he has none of his own, he must buy them of those who have them. The holder of a receipt, when he purchases bank money, purchases the power of taking out a quantity of bullion, of which the mint price is five per cent. above the bank price. The agio of five per cent. therefore, which he commonly pays for it, is paid, not for an imaginary, but for a real value. The owner of bank money, when he purchases a receipt, purchases the power of taking out a quantity of bullion of which the market price is commonly from

two to three per cent. above the mint price. The price of the receipt, and the price of the bank money, compound or make up between them the full value or price of the bullion.

Upon deposits of the coin current in the country, the bank grants receipts likewise as well as bank credits; but those receipts are frequently of no value, and will bring no price in the market. Upon ducatoons, for example, which in the currency pass for three guilders three stivers each, the bank gives a credit of three guilders only, or five per cent. below their current value. It grants a receipt likewise entitling the bearer to take out the number of ducatoons deposited at any time within six months, upon paying one-fourth per cent. for the keeping. This receipt will frequently bring no price in the market. Three guilders bank money generally sell in the market for three guilders three stivers, the full value of the ducatoons, if they were taken out of the bank; and before they can be taken out, one-fourth per cent. must be paid for the keeping, which would be mere loss to the holder of the receipt. If the agio of the bank, however, should at any time fall to three per cent. such receipts might bring some price in the market, and might sell for one and three-fourths per cent. But the agio of the bank being now generally about five per cent. such receipts are frequently allowed to expire, or, as they express it, to fall to the bank. The receipts which are given for deposits of gold ducats fall to it yet more frequently, because a higher warehouse rent, or one half per cent. must be paid for the keeping of them before they can be taken out again. The five per cent. which the bank gains, when deposits either of coin or bullion are allowed to fall to it, may be considered as the warehouse rent for the perpetual keeping of such deposits.

The sum of bank money for which the receipts are expired must be very considerable. It must comprehend the whole original capital of the bank, which, it is generally supposed, has been allowed to remain there from the time it was first deposited, nobody caring either to renew his receipt or to take out his deposit, as for the reasons already assigned, neither the one nor the other could be done without loss. But whatever may be the amount of this sum, the proportion which it bears to the whole mass of bank money is supposed to be very small. The bank of Amsterdam has for these many years past been the great warehouse of Europe for bullion, for which the receipts are very seldom allowed to expire, or, as they express it, to fall to the bank. The far greater part of the bank money, or of the credits upon the books of the bank, is supposed to have been created, for these many years past, by such deposits which the dealers in bullion are continually both making and withdrawing.

No demand can be made upon the bank but by means of a receipt or receipt. The smaller mass of bank money, for which the receipts are expired, is mixed and confounded with the much greater mass for which they are still in force; so that, though there may be a considerable sum of bank money, for which there are no receipts, there is no specific sum or portion of it which may not at any time be demanded by one. The bank cannot be debtor to two persons for the same thing; and the owner of bank money who has no receipt, cannot demand payment of the bank till he buys one. In ordinary and quiet times, he can find no difficulty in getting one to buy at the market price, which generally corresponds with the price at which he can sell the coin or bullion it entitles him to take out of the bank.

It might be otherwise during a public calamity; an invasion

invasion for example, such as that of the French in 1672. The owners of bank money being then all eager to draw it out of the bank, in order to have it in their own keeping, the demand for receipts might raise their price to an exorbitant height. The holders of them might form extravagant expectations, and instead of two or three per cent. demand half the bank money for which credit had been given upon the deposits that the receipts had been respectively granted for. The enemy, informed of the constitution of the bank, might even buy them up, in order to prevent the carrying away of the treasure. In such emergencies, the bank, it is supposed, would break through its ordinary rule of making payment only to the holders of receipts. The holders of receipts, who had no bank money, must have received within two or three per cent. of the value of the deposit for which their respective receipts had been granted. The bank, therefore, it is said, would in this case make no scruple of paying, either with money or bullion, the full value of what the owners of bank money, who could get no receipts, were credited for in its books: paying at the same time two or three per cent. to such holders of receipts as had no bank money, that being the whole value which in this state of things could justly be supposed due to them.

Even in ordinary and quiet times it is the interest of the holders of receipts to depress the agio, in order either to buy bank money (and consequently the bullion, which their receipts would then enable them to take out of the bank) so much cheaper, or to sell their receipts to those who have bank money, and who want to take out bullion, so much dearer; the price of a receipt being generally equal to the difference between the market price of bank money and that of the coin or bullion for which the receipt had been granted. It is the interest of the owners of bank money, on the contrary, to raise the agio, in order either to sell their bank money so much dearer, or to buy a receipt so much cheaper. To prevent the stock jobbing tricks which these opposite interests might sometimes occasion, the bank has of late years come to the resolution to sell at all times bank money for currency, at five per cent. agio. and to buy it again at four per cent. agio. In consequence of this resolution, the agio can never either rise above five, or sink below four per cent. and the proportion between the market price of bank and that of current money, is kept at all times very near to the proportion between their intrinsic values. Before this resolution was taken, the market price of bank money used sometimes to rise so high as nine per cent. agio, and sometimes to sink so low as par, according as opposite interests happened to influence the market.

The bank of Amsterdam professes to lend out no part of what is deposited with it, but, for every guilder for which it gives credit in its books, to keep in its repositories the value of a guilder either in money or bullion. That it keeps in its repositories all the money or bullion for which there are receipts in force, for which it is at all times liable to be called upon, and which, in reality, is continually going from it and returning to it again, cannot well be doubted. But whether it does so likewise with regard to that part of its capital, for which the receipts are long ago expired, for which in ordinary and quiet times it cannot be called upon, and which in reality is very likely to remain with it ever, or as long as the states of the United Provinces subsist, may perhaps appear more uncertain. At Amsterdam, however, no point of faith is better established than that for every guilder, circulated as bank money, there is a correspondent guilder in gold or silver to be found in the treasure of the bank. The city is guarantee that it should be so. The

bank is under the direction of four reigning burgomasters, who are changed every year. Each new set of burgomasters visits the treasure, compares it with the books, receives it upon oath, and delivers it over with the same awful solemnity to the set which succeeds; and in that sober and religious country, oaths are not yet disregarded. A rotation of this kind seems alone a sufficient security against any practices which cannot be avowed. Amidst all the revolutions which faction has ever occasioned in the government of Amsterdam, the prevailing party has at no time accused their predecessors of infidelity in the administration of the bank. No accusation could have affected more deeply the reputation and fortune of the disgraced party, and if such an accusation could have been supported, we may be assured, that it would have been brought. In 1672, when the French king was at Utrecht, the bank of Amsterdam paid so readily as left no doubt of the fidelity with which it had observed its engagements. Some of the pieces which were then brought from its repositories appeared to have been scorched with the fire which happened in the town-house soon after the bank was established. Those pieces, therefore, must have lain there from that time.

What may be the amount of the treasure in the bank, is a question which has long employed the speculations of the curious. Nothing but conjecture can be offered concerning it. It is generally reckoned that there are about two thousand people who keep accounts with the bank, and allowing them to have, one with another, the value of fifteen hundred pounds sterling lying upon their respective accounts (a very large allowance), the whole quantity of bank money, and consequently of treasure in the bank, will amount to about three millions sterling, or at eleven guilders the pound sterling, thirty-three millions of guilders; a great sum, and sufficient to carry on a very extensive circulation, but vastly below the extravagant ideas which some people have formed of this treasure.

The city of Amsterdam derives a considerable revenue from the bank. Besides what may be called the warehouse rent above mentioned, each person, upon first opening an account with the bank, pays a fee of ten guilders: and for every new account, three guilders three stivers: for every transfer two stivers; and if the transfer is for less than three hundred guilders, six stivers, in order to discourage the multiplicity of small transactions. The person who neglects to balance his account twice in the year, forfeits twenty-five guilders. The person who orders a transfer for more than is upon his account, is obliged to pay three per cent. for the sum overdrawn, and his order is set aside into the bargain. The bank is supposed too to make a considerable profit by the sale of the foreign coin or bullion which sometimes falls to it by the expiring of receipts, and which is always kept until it can be sold with advantage. It makes a profit likewise by selling bank money at five per cent. agio, and buying it in at four. These different emoluments amount to a good deal more than what is necessary for paying the salaries of officers, and defraying the expence of management. What is paid for the keeping of bullion upon receipts, is alone supposed to amount to a neat annual revenue of between one hundred and fifty thousand and two hundred thousand guilders. Public utility, however, and not revenue, was the original object of this institution. Its object was to relieve the merchants from the inconvenience of a disadvantageous exchange. The revenue which has arisen from it was unforeseen, and may be considered as accidental. *Smith's Wealth of Nations*, vol. ii. p. 219

BANK of France was first projected by Mr. Law, a native of Scotland, with a view of paying off the public debts of France, by drawing its creditors into the newly projected Mississippi and India companies, and erected in the year 1716. It was taken into the king's hands in 1718, and denominated the royal bank; and by its union with both the companies above-mentioned, formed a bubble, which occasioned great confusion and distress in the year 1720.

BANK, Million, derived its name from king William's million lottery in the year 1695; the proprietors agreeing in partnership to purchase tickets in this lottery. They afterwards purchased many reversions of the 14 per cent. annuities, and admitted many proprietors of annuities to purchase their joint stock, which amounted to 500,000*l*. They were a partnership by deed enrolled in chancery, in the year 1721. They divided 5 per cent. till Lady-day 1728, when they reduced their annual dividend to 4 per cent. and it was again raised to 5 per cent. which it continued until its dissolution.

BANK of Loan, Copenhagen, has a capital stock, consisting of 500,000 rix-dollars, each being of the value of about 4*s*. 6*d*. sterling. Its notes are received in payment of the royal revenues. It lends money on pledges, not exceeding 100 rix dollars, at an interest of 4 per cent. In 1762, his Danish majesty directed the bank for current bank-notes, to exchange their 100 rix-dollar notes, for notes of 50, 10, or 1 rix-dollar; and not to pay to any one person above one crown in specie.

BANK of Rotterdam was created in 1635. It pays bills of exchange in large money, and only 10 per cent. in shillings.

BANK of Assignment, a new bank established in Russia during the hostilities against the Turks. When copper-money could not be coined with sufficient expedition to answer the necessities of the state, bank notes to the value of 50, 75, and 100 rubles, in copper, were issued. These notes are changed at the bank in Petersburg and Moscow. The former is a brick building, containing several vaulted rooms, each capable of holding 400,000*l*. of copper coin in bags, piled one above another. Since the year 1784, the old bank notes were called in, and a new issue made to the acknowledged amount of 100,000,000 rubles, in notes of 5, 10, 15, 25, and 100 rubles. On the first appearance of this paper, it was received, particularly in the remote parts of the empire, not without difficulty, and the discount against it was commonly about 3½, and in some places even 6 per cent. The obvious advantages, however, over copper money, soon recommended it to general use, and it was found so beneficial to commerce, that in 1779 the discount in favour of silver specie was only 1 per cent. and it bore a premium of 1½ per cent. over copper money. But so large a quantity was circulated, and the loans to government so lowered the credit of the state, that in 1790 the discount against the paper currency was near 20 per cent.

The *Loan Bank* is an institution established at Petersburg for the benefit of the nobility and corporations. With this view Catherine II., in 1786, made a deposit of 22 millions of rubles for the nobility, 11 millions for the corporate towns, and 3 millions for the province of Taurida, to be lent out for the improvement of rural economy, of social industry, and the benefit of civilization in general. This bank lends only on real estates. As the value of a landed estate in Russia is estimated according to the number of boors upon it, the bank takes the boors at 40 rubles per head; so that the proprietor of an estate, requiring the loan of 1000 rubles, must give 25 boors as his pledge. The loan is made for 20 years; the mortgagor annually paying 5 per cent. interest, and 3 per cent. on the capital, so that after 20 years he has

paid back the whole of his loan. The loans are subject to no other limitations than what arise from the value and the security of the pledge; every one being allowed to apply for and receive as much money as he is capable of laying down a lawful pledge for. The bank, however, lends no sum under 1000 rubles, and only by thousands, for the sake of avoiding perplexing accounts. The mortgaged property is subject to no suit, to no confiscation, nor to any demands from the crown or from private individuals. Every four years one part of the pawn is discharged, equal in value to that part of the capital already paid. The bank can redeem estates elsewhere mortgaged or appropriated to the payment of debts; and mortgaged estates may be sold; but in that case the purchaser takes upon himself all the obligations which the seller was under to the bank. The municipal magistrate vouches for the worth of the pledge; and must be responsible for it. The interest is paid annually. The bank gives ten days grace; whoever exceeds one month pays a stated penalty per cent. and this likewise holds good the second and third month. If payment be delayed beyond three months, the mortgaged estate is taken into charge by the noble court of wards. The interest and fines are paid from the incomings of the estate, and the remainder is paid to the proprietor. The inhabitants of towns obtain loans on their real estates, paying only 4 per cent. interest, and 3 per cent. capital, and are consequently freed from their debt in 22 years. Storch's *Pict. of Peterb.* p. 211.

BANK of Philadelphia, called the *bank of the United States*, was founded in 1787, and incorporated by act of Congress, Feb. 25, 1791, under the latter appellation; and seems to have been successful; as it divides a profit of 8*l*. per cent. annually, paid half-yearly. Its capital stock was 10 millions of dollars. The stock-holders are to continue a corporate body by the act, until the 4th day of March, 1811; and are capable of holding property to an amount not exceeding, in the whole, 15 millions of dollars.

BANK of Stockholm owes its origin to Palmshut, a merchant, who carried on an extensive trade, and possessed great property in iron mines. He established at Stockholm a bank for the purpose of exchanging and lending money, divided into two departments. Such was his credit, and such were his resources, that, though he was the only banker in the kingdom, and his connections of course very extensive, the notes which he issued at the interest of 8 per cent. for a term of ten years and upwards, were circulated through the kingdom, and received as cash by the trading part of the nation. In process of time, by the issue of counterfeit notes and other unfavourable circumstances, the bank was drained of cash, and its credit was in danger of sinking into disrepute. In this dilemma Palmshut applied to Charles XI., and induced the king to take the bank under his royal direction. Accordingly, the king appointed Palmshut director, and having established the credit of the bank, transferred the direction of it to the states of the kingdom assembled in 1688; and declared himself and his successors protectors of the bank, but renounced all interference in the disposal of the money. The states being thus declared guaranties, proprietors, and directors of the bank, several regulations were made. The bank was permitted to lend money on good security, at the interest of 8 per cent. but to pay for all money borrowed only 6 per cent.; the debtors to discharge interest upon interest, but the bank not to pay interest upon interest; all the king's revenues were to be deposited in the bank, without receiving interest. The bank was empowered to issue notes not exceeding the value of thirty-six dollars copper-mint, or ten shillings; and it was finally resolved, that the states, or those whom they should

depute,

depute, should have the power of inspecting the accounts, and inquiring into the nature of its constitution. By these regulations the credit and riches of the bank increased to such a degree, that towards the close of the 17th century, it became the universal depositary of the whole kingdom, both as to public and private circulation, and lowered the interest from 8 to 7, and afterwards to 6, 4, and 3 per cent. In return, the interest for all money borrowed, or deposited in the bank by way of loan, was likewise lessened from 6 to $4\frac{1}{2}$, 3, and 2 per cent. The large quantity of copper money then current in the country, being, by its bulk and weight, extremely inconvenient, the circulation of bank notes became advantageous to commerce. From 1714 to 1717, the bank supplied Charles XII. with such considerable sums, that the revenues arising from the tolls and customs were insufficient to pay the interest, and of course there was a considerable deficiency. These supplies lowered the credit of the bank in the estimation of the public; and therefore the king on the remonstrance of the states, mortgaged certain revenues of the crown, for the discharge of the interest; and declared that all the revenues then mortgaged should remain in the bank till the debt should be fully discharged; and also promised, that he would not, on any pretext or emergency, recur again to the bank for money, except for such as belonged to the crown. Its credit was thus in some measure retrieved; but its stock was too far drained to repair its former credit, until baron Goertz undesignedly contributed to it by a scheme which was in every other respect detrimental to the nation. To supply Charles with money for his constant wars, Goertz compelled persons by means of fines and penalties, and afterwards by a species of torture, to deliver up their plate, jewels, and coin. In return for these effects, they received copper-money, called "Myntellen," or signs of coins, each weighing only one-third of a stiver, but passing for a silver dollar, of which it was only a ninety-sixth part. The public secretly transferred their property, consisting of plate, jewels, and money, which was thus to be forced from them and exchanged for a debased currency, to the bank, confiding in the royal promise, that the bank should be exempted from the interference and inspection of the crown. Goertz advised the king to seize the property deposited in the bank; but Charles refused to violate his promise, and prohibited Goertz from making any proposals tending to the prejudice of the bank. In this crisis, the bank received such large sums of money, a great part of which paid no interest, that the profits were very considerable. Accordingly the bank, in this flourishing state, was induced, by order of the states, in 1741, to present the king with a donative of 100,000 silver dollars, or 8,333 l. 4 s., and to furnish him with 500,000, or 41,666 l. without interest, towards carrying on the war against Russia. Since that period it has frequently advanced large sums of money to the crown and to the board of manufactures, by order of the states. The bank is divided into two departments; *lane*, or loan; and *wexel*, or exchange bank; each keeping separate accounts, but mutually supplying the other as occasion requires. The former lends money on mortgages or pledges. The proprietors, on depositing these pledges in the bank, receive the full value, on paying 3 per cent. annual interest; these pledges consist of gold and silver in block, copper, brass, and *lane* bank sedler, or certificates of having sent money to the bank; and particularly iron, for which latter article the proprietor receives three-fourths of its value at the interest of 3 per cent.; and when he disposes of it, it is again delivered to him on producing a certificate from the bank that the loan is duly

discharged. Jewels were formerly received as pledges; but as their value is fluctuating, and the bank was once defrauded in that article, they are no longer admitted. Mortgaged lands and houses, being of a less certain value than other articles, pay an interest of 4 per cent. on the money borrowed; and for the purpose of liquidating the debt, the following regulations were adopted: all borrowers on lands and houses shall pay 6 per cent. yearly; of this sum 4 per cent. is the lawful interest, and the remaining 2 per cent. is annually deducted from the capital, by which means the original debt is gradually diminished.

The *wexel*, or exchange bank, exchanges and issues bank notes, discounts bills, receives and assigns the money deposited for interest or security, and discharges the interest of 2 per cent. on all money placed in their hands. Towards the latter end of the reign of Adolphus Frederic, bank notes were issued in such numbers, and many of them at so low a value as 1 s. 6 d., that scarcely any specie was left in the kingdom; the bank was so drained of cash as not to be able to exchange its notes except in copper-money, and paper was almost the only currency. For preventing a total bankruptcy, and calling in the paper currency, the states, in 1766, voted a loan of 3,000,000 rix-dollars, or 750,000 l. to effect the realization of the bank notes, and to circulate a sufficient quantity of specie. Other regulations were also adopted; and in order to counteract the efforts of party, the diet, in 1772, committed to the king the difficult province of realizing the bank notes, and reforming the currency, which was happily effected. In 1777 and 1779, the states confirmed the realization, and made several new regulations, for securing the credit of the bank, and rendering it still farther independent of the crown. The independence of the bank was farther established by the diet of 1784. The accounts were submitted to a committee of revisors, which consists of a certain number of persons chosen by the three houses of nobles, clergy, and burghers, from their respective orders, who continue in office till the meeting of a new diet, when they are either renewed or confirmed. They assemble once every three years, and continue sitting not more than a month. They inspect the general state of the bank, compare the accounts of the directors, and observe that no abuses have been committed, and that the regulations of the states have been observed. Coxe's Travels in Sweden, &c. vol. iv. p. 130—139.

BANK, *Agents of*. See AGENT.

BANK-Bills. See BILL.

BANK, *Days in*. See DAY.

BANK, *Land*, an institution projected during the years 1694 and 1695, by Dr. Hugh Chamberlain, for lending of money at a low interest on land security, which was the principal difference between this and the bank of England; in opposition to which corporation, then in its infancy and struggling with difficulties, this ill-judged project was set up. It was principally encouraged by the Tory party; and an act of parliament, viz. 7 & 8 W. III. c. 31. was obtained for the purpose. The subscriptions for its establishment failed, and the plan proved abortive.

BANK Notes. See NOTE.

BANK, or *Bench*, in *Law*. See BANK.

BANK, *Foot*. See BANQUETTE.

BANK, in *Natural History*, denotes an elevation of the ground, or bottom of the sea, so as sometimes to surmount the surface of the water, or at least to leave the water so shallow, as usually not to allow a vessel to remain afloat over it. In this sense, bank amounts to much the same with flat, shoal, &c.

There are banks of sand, and others of stone, called also shelves.

shelves or rocks. In the North sea, they also speak of banks of ice, which are large pieces of that matter floating. See ICEBERGS.

Vapours at sea sometimes occasion such a *deceptio visus*, that mariners imagine they see land with trees, &c. They call such deceptions fog-banks. For the account of a remarkable deception of this kind, see Dr. Hawkworth's Account of the Voyages to the Southern Hemisphere, vol. i. p. 10. A long narrow bank is sometimes called a *rib*.

The *bank* absolutely so called, or the *main bank*, or *great bank*, denotes that of Newfoundland, the scene of the cod-fishery. It is called the *great bank*, not only by reason of its vast extent, being, according to the English computation, two hundred miles long, and, according to the French, one hundred leagues, or three hundred miles; but also on account of several lesser banks near it, where cod are also caught. These last the French call *banquezeaux*. This is one of those banks which have water enough to float a ship, and which, on this account, are not dangerous.

Banks are usually distinguished by a buoy, post, or the like. On charts, sand-banks are usually marked by little dots, and banks of stone by crosses. The colours of the buoys are also varied accordingly; sand-banks being denoted by light-coloured buoys, and rocks by black ones.

In large rivers, as the Elbe, &c. sand-banks, by high tides and inundations, are liable to change places; care is therefore taken to shift the buoys from time to time, to shew the true channel of the river.

An exact knowledge of the banks, their extent, and the depth of water on them, makes the most essential part of the science of a pilot, and the master of a ship: if the vessel be large, and draw much water, great attention will be necessary to keep clear of the banks: on the contrary, if it be small, the same banks afford a sure asylum, where it may brave the largest and stoutest vessels, which dare not follow it here. By means of this barrier, many a small craft has escaped its enemy.

BANK, in vessels which move with oars, is used for the bench where the rowers are seated; popularly called, by our seamen, the *thought*.

In this sense we read of banks of gallies, of galeasses, of galliots, of brigantines, and the like.

The Venetian gondolas have no banks; for the watermen row standing.

The common gallies have twenty-five banks, that is, twenty-five on each side, in all fifty banks, with one oar to each bank, and four or five men to each oar. The galeasses have thirty-two banks on a side, and six or seven rowers to a bank. See DOUBLE-banked.

BANK also denotes an elevation of earth, stones, stakes, or other materials in form of a wall, or causeway, to stop the waters, and prevent inundations.

These, on other occasions, are denominated *dams*, and *sea-walls*, &c. and by the ancients *aggeres*; those on the coasts of Holland are more particularly denominated *dykes*. The best bank, in the opinion of Dr. Hales, is that contrived by Dr. Wark of Scotland. A quantity of furze is fixed to the bottom of the channel, of such a breadth as is proportioned to the force which it is to resist. The sand, or slime, will soon settle in the furze, and when this is covered, another bed of furze is to be laid on as before, and so on till the bank is raised to a sufficient height.

BANK is also used in several games, for the stock or fund of him who undertakes the game.

BANK at *basset*, a sum of money laid down by the *tailleur*, before the gamblers, to answer all the winning cards that shall turn up in his course of dealing. Yet it is observed,

that what the bankers gain per cent. of all the money adventured at pharo, is greater than that at basset; being two pounds nineteen shillings and ten-pence per cent. in the first, and but fifteen shillings and three-pence in the second. Vide De Moiv. Doctr. Chanc. p. 93.

BANKER, in Commerce, a person who trafficks in money, and remits it from place to place, and supplies his correspondents or customers with money from the stock deposited in his hands for bills of exchange and other securities. (See BANK.) The history of private banks is as follows. The royal mint in the tower of London had for some years before the year 1640, been made use of as a kind of bank, or deposit for merchants to lodge their cash in. But king Charles the First having in that year made free with their money, the mint lost its credit. After this, the merchants and traders of London generally trusted their cash with their servants, until the breaking out of the civil war, when it was very customary for apprentices and clerks to leave their masters and go into the army. Whereupon, in such unsettled times, merchants, not daring longer to confide in their apprentices, began first, about the year 1645, to lodge their necessary cash in goldsmith's hands, both to receive and pay for them; until which time, the whole and proper business of London goldsmiths was to buy and sell plate, and foreign coins of gold and silver, to melt and cull them, to coin some at the mint, and with the rest to supply the refiners, plate-makers, and merchants, as they found the price to vary. This account of the matter we have from a scarce and most curious small pamphlet, published in 1676, intitled, "The Mystery of the new-fashioned Goldsmiths, or Bankers, discovered," in only eight quarto pages.

Bankers, on their first establishment, allowed to those who entrusted their money in their hands a moderate interest for the same, and hereby their business was very considerably increased, and rose to great reputation in the year 1667, when the Dutch burnt our ships at Chatham; but this event caused a *run* on the bankers, which hurt their credit; and in the year 1672, king Charles II. shut up the exchequer, and seized the money which the bankers had lent him at 8 per cent. interest, the whole sum amounting to 1,328,526 l. The king was afterwards necessitated to pay six per cent. interest for this debt out of his hereditary excise, but the principal was never paid. However, the parliament of 12 William, cap. 12. provided for a large arrear of interest, and settled an interest of three per cent. for the future. The debt was hereby made redeemable, on paying one moiety of the principal sum, viz. 664,263 l. farther confirmed by an act of 2 & 3 Anne, cap. 15. which moiety now became the proper debt of the public; and being reduced from six to five per cent. in 1717, was finally subscribed into the South-sea capital stock in the year 1720.

Bankers now allow no interest, and by investing a certain proportion of their capital in the funds, or laying it out on other sufficient security, and trafficking with it in the stocks, in discounts, &c. reap very considerable advantage from it; and by negotiating bills, &c. on the part of their creditors, greatly contribute to the convenience and dispatch of business.

When the people of any particular country, says Dr. Smith (*ubi infra*), have such confidence in the fortune, probity, and prudence of a particular banker, as to believe that he is always ready to pay upon demand such of his promissory notes as are likely to be at any time presented to him, those notes come to have the same currency as gold and silver money, from the confidence that such money can at any time be had for them.

A particular banker lends among his customers his own promissory

promissory notes, to the extent, we shall suppose, of a hundred thousand pounds. As those notes serve all the purposes of money, his debtors pay him the same interest as if he had lent them so much money. This interest is the source of his gain. Though some of those notes are continually coming back upon him for payment, part of them continue to circulate for months and years together. Though he has generally in circulation, therefore, notes to the extent of a hundred thousand pounds, twenty thousand pounds in gold and silver may, frequently, be a sufficient provision for answering occasional demands. By this operation, therefore, twenty thousand pounds in gold and silver perform all the functions which a hundred thousand could otherwise have performed. The same exchanges may be made, the same quantity of consumable goods may be circulated and distributed to their proper consumers, by means of his promissory notes, to the value of a hundred thousand pounds, as by an equal value of gold and silver money. Eighty thousand pounds of gold and silver therefore, can, in this manner, be spared from the circulation of the country; and if different operations of the same kind should, at the same time, be carried on by many different banks and bankers, the whole circulation may thus be conducted with a fifth part only of the gold and silver which would otherwise have been requisite.

Let us suppose, for example, that the whole circulating money of some particular country amounted, at a particular time, to one million sterling, that sum being then sufficient for circulating the whole annual produce of their land and labour. Let us suppose too, that some time thereafter, different banks and bankers issued promissory notes, payable to the bearer, to the extent of one million, reserving in their different coffers two hundred thousand pounds for answering occasional demands. There would remain, therefore, in circulation, eight hundred thousand pounds in gold and silver, and a million of bank notes, or eighteen hundred thousand pounds of paper and money together. But the annual produce of the land and labour of the country had before required only one million to circulate and distribute it to its proper consumers, and that annual produce cannot be immediately augmented by those operations of banking. One million, therefore, will be sufficient to circulate it after them. The goods to be bought and sold being precisely the same as before, the same quantity of money will be sufficient for buying and selling them. The channel of circulation, if I may be allowed such an expression, will remain precisely the same as before. One million we have supposed sufficient to fill that channel. Whatever, therefore, is poured into it beyond this sum, cannot run in it, but must overflow. One million eight hundred thousand pounds are poured into it. Eight hundred thousand pounds therefore must overflow, that sum being over and above what can be employed in the circulation of the country. But though this sum cannot be employed at home, it is too valuable to be allowed to lie idle. It will, therefore, be sent abroad, in order to seek that profitable employment which it cannot find at home. But the paper cannot go abroad; because at a distance from the banks which issue it, and from the country in which payment of it can be exacted by law, it will not be received in common payments. Gold and silver, therefore, to the amount of eight hundred thousand pounds, will be sent abroad, and the channel of home circulation will remain filled with a million of paper, instead of a million of those metals which filled it before.

But though so great a quantity of gold and silver is thus sent abroad, we must not imagine that it is sent abroad for nothing, or that its proprietors make a present of

it to foreign nations. They will exchange it for foreign goods of some kind or another, in order to supply the consumption either of some other foreign country, or of their own.

If they employ it in purchasing goods in one foreign country in order to supply the consumption of another, or in what is called the carrying trade, whatever profit they make will be an addition to the neat revenue of their own country. It is like a new fund, created for carrying on a new trade; domestic business being now transacted by paper, and the gold and silver being converted into a fund for this new trade.

If they employ it in purchasing foreign goods for home consumption, they may either, first, purchase such goods as are likely to be consumed by idle people who produce nothing, such as foreign wines, foreign silks, &c.; or, secondly, they may purchase an additional stock of materials, tools, and provisions, in order to maintain and employ an additional number of industrious people, who re-produce, with a profit, the value of their annual consumption.

So far as it is employed in the first way, it promotes prodigality, increases expence and consumption, without increasing production, or establishing any permanent fund for supporting that expence, and is in every respect hurtful to society.

So far as it is employed in the second way, it promotes industry; and though it increases the consumption of the society, it provides a permanent fund for supporting that consumption, the people who consume, re-producing, with a profit, the whole value of their annual consumption. The gross revenue of the society, the annual produce of their land and labour, is increased by the whole value which the labour of those workmen adds to the materials upon which they are employed; and their neat revenue by what remains of this value, after deducting what is necessary for supporting the tools and instruments of their trade. Smith's *Wealth of Nations*, vol. i. p. 434, &c.

In Italy, the employment of a banker, especially in republics, does not derogate from nobility; and hence it is, that most of the cadets, or younger sons of persons of condition, undertake it for the support of their family. The nobility of Venice and Genoa were for a long time the chief bankers in the other countries of Europe.

The ancient bankers were called *argentarii*, and *nummularii*; and by the Greeks *τραπεζηται*, *κολλυβισται*, and *αργυρομοιβοι*. Their chief business was to put out the money of private persons to interest; they had their boards and benches for this purpose in all the markets and public places where they took in the money from some to lend it to others. The Romans had two kinds of bankers, though their office was much more extensive than that of the bankers among us, theirs being that of public officers, in whom were united the functions of a broker, agent, banker, and notary; managing the exchange, taking in money, assisting in buying and selling, and drawing up the writings necessary on all these occasions.

BANKERS in the Court of Rome, are persons authorized, exclusive of all others, to solicit and procure by their correspondents at Rome, all bulls, dispensations, and other acts dispatched at the papal datary, or in the legateship of Avignon; they are dispersed in all the cities of France, where there is a parliament, or a presidial; and were erected into a regular and hereditary office, by an edict in 1673.

They owe their origin to the Guelphs, who took shelter at Avignon, and in other cities within the obedience of the pope, in the time of the civil wars in Italy. The favour they were in with the pontiffs, for having espoused the pa-

pal cause, occasioned their being employed in procuring expeditions of the court of Rome. But the heavy extortions they practised towards their clients, soon rendered them odious, and occasioned several denominations of reproach, as *coarcini*, *caturcini*, *caursini*, *corfini*, &c. from the city Cahors, the native place of pope John XXII. in whose pontificate they were in their highest power. See CAURSINES.

BANKER, in *Bricklaying*, a piece of timber whereon they cut the bricks.

The banker is six feet long or more, according to the number of men to work at it, and nine or ten inches square; it is to be laid on two piers of timber, three feet high from the floor they stand on.

BANKER, in *Sea Language*, signifies a vessel employed in the cod-fishery on the banks of Newfoundland.

BANKES, SIR JOHN, in *Biography*, lord chief justice of the common pleas in the reign of king Charles I. was descended from a good family at Kewick in Cumberland, and born there in the year 1589. In 1604 he removed to Queen's college, Oxford, and afterwards pursued the study of the law in Gray's inn. By his application and proficiency he acquired a reputation which recommended him to his Sovereign Charles I. who, in 1629, made him his attorney. In August 1634, he was knighted, and appointed to the office of attorney-general; from which office he was advanced, in 1640, to that of chief justice of the common pleas. In both these offices he acted with wisdom and integrity, and obtained universal approbation. So singular was his merit, that, though he decidedly took part with the king in his contest with the parliament, it was desired by the latter, in 1643, that he might be continued in office. However, he soon after lost all his credit at Westminster; for he declared from the bench at Salisbury, that the actions of Essex, Manchester, and Waller, were treasonable; and the commons voted him and the rest of the judges who were of this opinion, traitors. Lady Bankes manifested extraordinary fortitude in the defence of Corff Castle in the isle of Purbeck, where sir John and his family resided. When it was besieged by the parliamentary forces, she refused to surrender it, though she had about her only her children, a few servants and tenants, amounting at one time only to five and at most to no more than forty. When the town was obliged to surrender, and the besiegers became remiss under a notion that their business was completed, lady Bankes procured a supply of provision and ammunition, and was thus enabled to hold out till the siege was raised. Sir John remained with the king at Oxford, in the discharge of his duty as a privy-counsellor, till his death, which happened in December 1644. By his will he bequeathed, besides other charities, an annuity of thirty pounds to the town of Kewick for the support of a manufacture of coarse cottons, which had been lately established, and which, without this aid, would have been lost. Sir John Bankes was distinguished by sound integrity, cool judgment, and an amiable temper. Biog. Brit.

BANKIANA, in *Entomology*, a species of PHALÆNA (*Tortrix*), named after sir Joseph Banks; it inhabits the woods of England and Germany; is of a large size; and is distinguished by having the wings brown, with two snowy white bands, the posterior one undentated. Fabricius.

BANKING, in general, the making of banks to oppose the force of the sea, rivers, or the like, and secure the land from being overflowed thereby.

With respect to the water which is to be kept out, this is called banking; with respect to the land, which is hereby to be defended, imbanking.

BANKING, in a *Salt-work*, the raising of a fence against the

sea, whereby its waters may be kept out, excepting so much as is necessary for the preparation of the salt.

BANKING, in *Commerce*. See BANK, and BANKER.

BANKOK, or BANCOK, in *Geography*, a town of Siam, at the mouth of the river Meinam, which discharges itself into the gulf of Siam.

BANKRUPT, in *Commerce and Law*, a trader, who secretes himself, or does certain other acts, tending to defraud, or injure, his creditors.

The word is formed from the ancient Latin *bancus*, a bench, or table, and *ruptus*, broken.

Bank, we have elsewhere observed, originally signified a bench, which the first bankers had in the public places, in markets, fairs, &c. on which they told their money, wrote their bills of exchange, &c. Hence, when a banker failed, they broke his bank, to advertise the public, that the person to whom the bank belonged was no longer in a condition to continue his business. As this practice was very frequent in Italy, it is said the term bankrupt is derived from the Italian *banco rotto*, broken bench.

Cowel rather chuses to deduce the word from the French *banque*, table, and *route*, *vestigium*, *trace*, by metaphor from the sign left in the ground, of a table once fastened to it and now gone. On this principle he traces the origin of bankrupts from the ancient Roman *mensarii*, or *argentarii*, who had their *tabernæ* or *mensæ* in certain public places; and who, when they fled, or made off with the money that had been trusted to them, left only the sign or shadow of their former station behind him. 4 Inst. 277.

And it is observable, that the title of the first English statute concerning this offence, 34 Hen. VIII. cap. 4. "against such persons as do make bankrupt," is a literal translation of the French idiom *qui font banque route*.

A bankrupt was formerly considered merely as a criminal or offender (stat. 1. Jac. I. c. 15. § 17.); but at present the laws of bankruptcy are regarded as laws calculated for the benefit of trade, and founded on the principles of humanity as well as justice; and to that end, they confer some privileges, not only on the creditors, but also on the bankrupt himself:—on the creditors, by compelling the bankrupt to give up all his effects to their use, without any fraudulent concealment;—and on the debtor, by exempting him from the rigour of the general law, whereby his person might be confined at the discretion of his creditor, though in reality he has nothing to satisfy the debt; whereas the law of bankrupts, taking into consideration the sudden and unavoidable accidents to which men in trade are liable, has given them the liberty of their persons, and some pecuniary emoluments, upon condition of surrendering their whole estate to be divided among the creditors.

By the Roman law of the twelve tables, the creditors might cut the debtor's body into pieces, and each of them take his proportionable share: though some learned men have doubted whether the law "de debitore in parte secundo," is to be understood in so very butcherly a light. There were also other laws, less inhuman, for imprisoning the debtor's person in chains, subjecting him to stripes and hard labour, at the mercy of his rigid creditor, and sometimes selling him, his wife and children, to perpetual foreign slavery "trans Tiberim;" but this was an oppression that produced many popular insurrections, and secessions to the "mons sacer." In Pegu, and the adjacent countries in East India, the creditor is entitled to dispose of the debtor himself, and likewise of his wife and children; insomuch that he may even violate with impunity the chastity of the debtor's wife; but then, by so doing, the debt is understood to be discharged. In some places, bankrupts are condemned to wear

wear a green cap ; at Lucca, an orange cap. Our legislators, however, in framing the laws of bankruptcy, seem humanely and wisely to have attended to the example of the Roman law of "Cession," introduced by the Christian emperors ; by which, if a debtor ceded or yielded up all his fortune to his creditors, he was secured from being dragged to a gaol ; "Omni quoque corporali cruciatu semoto." (Cod. 7. 71. *per tot.*) For as the emperor justly observes (Inst. 4. 6. 40.), "inhumanum erat spoliatum fortunæ suis in solidum damnari." But by a deviation into the other extreme, it was afterwards enacted (Nov. 135. c. 1.), that if the debtor by any unforeseen accident was reduced to low circumstances, and would *swear* that he had not sufficient left to pay his debts, he should not be compelled to cede or give up even that which he had in his possession ;—a law which, under a false notion of humanity, seems to be fertile of perjury, injustice, and absurdity. The laws of England steer between these extremes ; providing at once against the inhumanity of the creditor, who is not suffered to confine an honest bankrupt who has delivered up all his effects, and at the same time taking care that all his just debts shall be paid, so far as the effects will extend. But they are still cautious of encouraging prodigality and extravagance by this indulgence to debtors ; and, accordingly, allow the benefit of the laws of bankruptcy to none but actual *traders*, who, generally speaking, are the only persons liable to accidental losses, and to an inability of paying their debts, without any fault of their own. Trade cannot be carried on without mutual credit on both sides ; and here the contracting of debts is not only justifiable, but even necessary. And if by accidental calamities, as by the loss of a ship in a tempest, the failure of brother traders, or by the non-payment of persons out of trade, a merchant or trader becomes incapable of discharging his own debts, it is his misfortune and not his fault. To the misfortunes of debtors, therefore, the law has given a compassionate remedy, but denied it to their faults ; since, while it provides for the security of commerce, by enacting that every considerable trader may be declared a bankrupt, for the benefit of his creditors as well as himself, it has also, with a view of discouraging extravagance, declared, that no one shall be capable of being made a bankrupt, but only a *trader* ; nor capable of receiving the full benefit of the statutes, but only an *industrious* trader.

The first statute made concerning any English bankrupts was 34 Hen. VIII. c. 4. when trade began first to be properly cultivated in England : which has been almost totally altered by statute 13 Eliz. c. 7. whereby bankruptcy is confined to such persons only as have used the trade of merchandize, in gross or by retail, by way of bargaining, exchange, rechange, bartering, chevifance, or otherwise ; or have sought their living by buying and selling. And by statute 21 Jac. I. c. 19. persons using the trade or profession of a scrivener, receiving other men's monies and estates into their trust and custody, are also made liable to the statutes of bankruptcy ; and the benefits as well as the penal parts of the law, are extended as well to aliens and denizens as to natural born subjects, being intended entirely for the protection of trade, in which aliens are often as deeply concerned as natives. By many subsequent statutes, but lastly by statute 5 Geo. II. c. 30. bankers, brokers, and factors, are declared liable to the statutes of bankruptcy ; and this upon the same reason that scriveners are included by the statute of James I. viz. for the relief of their creditors ; whom they have otherwise more opportunities of defrauding than any other set of dealers ; and they are properly to be looked upon as traders, since they make merchandize of money, in

the same manner as other merchants do of goods and other moveable chattels. But by the same act, no farmer, grazier, or drover, shall (as such) be liable to be deemed a bankrupt ; for though they buy and sell corn, and hay, and beasts, in the course of husbandry, yet trade is not their principal, but only a collateral object ; their chief concern being to manure and till the ground, and make the best advantage of its produce. And, besides, the subjecting them to the laws of Bankruptcy might be a means of defeating their landlords of the security which the law has given them above all others, for the payment of their reserved rents ; wherefore also, upon a similar reason, a receiver of the king's taxes is not capable, as such, of being a bankrupt ; lest the king should be defeated of those extensive remedies against his debtors, which are put into his hands by the prerogative. By the same statute, no person shall have a commission of bankrupt awarded against him, unless at the petition of some one creditor to whom he owes 100l. ; or of two, to whom he is indebted 150l. ; or of more, to whom altogether he is indebted 200l. For the law does not look upon persons, whose debts amount to less, to be traders considerable enough, either to enjoy the benefit of the statute themselves, or to entitle the creditors, for the benefit of public commerce to demand the distribution of their effects.

In the interpretation of these several statutes, it hath been held, that buying only, or selling only, will not qualify a man to be a bankrupt ; but it must be both buying and selling, and also getting a livelihood by it ; as, by exercising the calling of a merchant, a grocer, a mercer, or, in one general word, a chapman, who is one that buys and sells any thing. But no handicraft occupation (where nothing is bought and sold, and where therefore an extensive credit for the stock in trade is not necessary to be had) will make a man a regular bankrupt ; as that of a husbandman, a gardener, and the like, who are paid for their work and labour. Also an inn-keeper cannot, as such, be a bankrupt ; for his gain or livelihood does not arise from buying and selling in the way of merchandize, but in a great degree from the use of his rooms and furniture, his attendance, and the like ; and though he may buy corn and victuals, to sell again at a profit, yet that no more makes him a trader, than a schoolmaster or other person is, that keeps a boarding-house, and makes considerable gains by buying and selling what he spends in the house ; and such a one is clearly not within the statutes. But where persons buy goods, and make them up into saleable commodities, as shoe-makers, smiths, and the like ; here, though part of the gain is by bodily labour, and not by buying and selling, yet they are within the statutes of bankrupts ; for the labour is only in melioration of the commodity, and rendering it more fit for sale.

One single act of buying and selling will not make a man a trader ; but a repeated practice, and profit by it. Buying and selling bank-stock, or other government securities, will not make a man a bankrupt ; they not being goods, wares, or merchandize, within the intent of the statute, by which a profit may be fairly made. Neither will buying and selling under particular restraints, or for particular purposes ; as if a commissioner of the navy uses to buy victuals for the fleet, and dispose of the surplus and refuse, he is not thereby made a trader within the statute. An infant, though a trader, cannot be made a bankrupt ; for an infant can owe nothing but for necessaries ; and the statutes of bankruptcy create no new debts, but only give a speedier and more effectual remedy for recovering such as were before due ; and no person can be made a bankrupt for debts which he is not liable at law to pay. But a feme covert in London, being a sole

trader according to the custom, is liable to a commission of bankrupt.

Having shewn who may, and who may not be made a bankrupt, the next subject of inquiry comprehends the particular acts of bankruptcy which render a man a bankrupt. For full satisfaction on this point, it will be necessary to consult the several statutes, and the resolutions formed upon them by the courts. Among these may be reckoned, 1. Departing from the realm, whereby a man withdraws himself from the jurisdiction and coercion of the law, with intent to defraud his creditors. 2. Departing from his own house, with intent to secrete himself, and avoid his creditors. 3. Keeping in his own house, privately, so as not to be seen or spoken with by his creditors (except for just and necessary cause), which is likewise construed to be an intention to defraud his creditors, by avoiding the process of the law. 4. Procuring or suffering himself willingly to be arrested, or outlawed, or imprisoned, without just and lawful cause; which is likewise deemed an attempt to defraud his creditors. 5. Procuring his money, goods, chattels, and effects, to be attached or sequestered by any legal process; which is another plain and direct endeavour to disappoint his creditors of their security. 6. Making any fraudulent conveyance to a friend, or secret trustee, of his lands, tenements, goods, or chattels; which is an act of the same suspicious nature with the last. 7. Procuring any protection, not being himself privileged by parliament, in order to screen his person from arrests; which also is an endeavour to elude the justice of the law. 8. Endeavouring or desiring, by any petition to the king, or bill exhibited in any of the king's courts against any creditors, to compel them to take less than their just debts; or to procrastinate the time of payment, originally contracted for; which are an acknowledgement of either his poverty or his knavery. 9. Lying in prison for two months, or more, upon arrest or other detention for debt, without finding bail, in order to obtain his liberty. For the inability to procure bail, argues a strong deficiency in his credit, owing either to his suspected poverty, or ill character; and his neglect to do it, if able, can arise only from a fraudulent intention; in either of which cases it is high time for his creditors to look to themselves, and compel a distribution of his effects. 10. Escaping from prison after an arrest for a just debt of 100l. or upwards. For no man would break prison that was able and desirous to procure bail; which brings it within the reason of the last case. 11. Neglecting to make satisfaction for any just debt to the amount of 100l. within two months after service of legal process, for such debt, upon any trader having privilege of parliament. Stat. 13 Eliz. c. 7. 1 Jac. I. c. 15. 21 Jac. I. c. 19. 4 Geo. III. c. 33.

The legislature having thus by positive laws declared what are the acts which shall be regarded as criterions of insolvency or fraud, on which a commission of bankruptcy may be grounded, our courts of justice will not allow of extending or multiplying acts of bankruptcy by any construction or implication. And, therefore, sir John Holt held (Lord Raym. 625.) that a man's removing his goods privately to prevent their being seized in execution, was no act of bankruptcy. It has also been determined expressly, that a banker's stopping or refusing payment is no act of bankruptcy; and if in consequence of such refusal, he is arrested and puts in bail, it is still no act of bankruptcy (7 Mod. 139.); but if he goes to prison, and lies there two months, then, and not before, he is become a bankrupt.

The proceedings in a commission of bankrupt, depend entirely on the several statutes of bankruptcy; and they are digested by Blackstone into the following concise order.

And, first, there must be a petition to the lord chancellor by one creditor to the amount of 100l., or by two to the amount of 150l., or by three or more to the amount of 200l.; which debts must be proved by affidavit: upon which he grants a commission to such discreet persons as to him shall seem good, who are then styled commissioners of bankrupt. The petitioners, to prevent malicious applications, must be bound in a security or bond to the lord chancellor of 200l., to make the party amends in case they do not prove him a bankrupt. And if on the other hand they receive any money or effects from the bankrupt, as a recompence for suing out the commission, so as to receive more than their rateable dividends of the bankrupt's estate, they forfeit not only what they shall have so received, but their whole debt. These provisions are made, as well to secure persons in good credit from being damaged by malicious petitions, as to prevent knavish combinations between the creditors and bankrupt, in order to obtain the benefit of a commission. When the commission is awarded and issued, the commissioners are to meet, at their own expence, and to take an oath for the due execution of their commission, and to be allowed a sum not exceeding 20s. per diem each, at every sitting. And no commission of bankrupt shall abate, or be void, by the death of the bankrupt, subsequent to the commission, stat. 1 Jac. I. c. 15.; nor upon any demise of the crown, stat. 5 Geo. II. c. 33. The granting of a commission of bankruptcy is not discretionary, but a matter of right. 1. Vern. 153. Stat. 13 Eliz. c. 7.

When the commissioners have received their commission, they are first to receive proof of the person's being a trader, and having committed some act of bankruptcy; and then to declare him a bankrupt, if proved so; and to give notice thereof in the gazette, and at the same time to appoint three meetings. At one of these meetings an election must be made of assignees. And at the third meeting, at farthest, which must be on the forty-second day after the advertisement in the gazette (unless the time be enlarged by the lord chancellor), the bankrupt, upon notice also personally served upon him or left at his usual place of abode, must surrender himself personally to the commissioners; which surrender (if voluntary) protects him from all arrests till his final examination is past; and he must thenceforth in all respects conform to the directions of the statutes of bankruptcy; or, in default of either surrender or conformity, shall be guilty of felony without benefit of clergy, and shall suffer death, and his goods and estate shall be distributed among his creditors. Stat. 5 Geo. II. c. 30.

In case the bankrupt absconds, or is likely to run away, between the time of the commission issued, and the last day of surrender, he may by warrant from any judge or justice of the peace be apprehended and committed to the county gaol, in order to be forthcoming to the commissioners; who are also empowered immediately to grant a warrant for seizing his goods and papers. Stat. 5 Geo. II. c. 30.

When the bankrupt appears, the commissioners are to examine him touching all matters relating to his trade and effects. They may also summon before them, and examine the bankrupt's wife, and any other person whatsoever, as to all matters relating to the bankrupt's affairs. And in case any of them shall refuse to answer, or shall not answer fully to any lawful question, or shall refuse to subscribe such their examination, the commissioners may commit them to prison without bail, till they submit themselves and make and sign a full answer; the commissioners specifying in their warrant of commitment the question so refused to be answered.

fewered. And any gaoler, permitting such person to escape, or to go out of prison, shall forfeit 500*l.* to the creditors. Stat. 21 Jac. I. c. 19. 5 Geo. II. c. 30.

The bankrupt, upon this examination, is bound upon pain of death to make a full discovery of all his estate and effects, as well in expectancy as possession, and how he has disposed of the same; together with all books and writings relating thereto: and is to deliver up all in his own power to the commissioners (except the necessary apparel of himself, his wife, and his children); or, in case he conceals or embezzles any effects to the amount of 20*l.* or withholds any books or writings, with intent to defraud his creditors, he shall be guilty of felony without benefit of clergy; and his goods and estate shall be divided among his creditors. And unless it shall appear, that his inability to pay his debts arose from some casual loss, he may, upon conviction by indictment of such gross misconduct and negligence, be set upon the pillory for two hours, and have one of his ears nailed to the same and cut off. Stat. 5 Geo. II. c. 30. 21 Jac. I. c. 19.

After the time allowed to the bankrupt for such discovery is expired, any other person voluntarily discovering any part of his estate, before unknown to the assignees, shall be entitled to 5 per cent. out of the effects so discovered, and such farther reward as the assignees and commissioners shall think proper. And any trustee, wilfully concealing the estate of any bankrupt, after expiration of the two and forty days, shall forfeit 100*l.* and double the value of the estate concealed to the creditors. Stat. 5 Geo. II. c. 30.

Hitherto every thing is in favour of the creditors; and the law seems to be pretty rigid and severe against the bankrupt; but, in case he proves honest, it makes him full amends for all this rigour and severity. For if the bankrupt hath made an ingenuous discovery (of the truth and sufficiency of which there remains no doubt), and hath conformed in all points to the directions of the law; and if, in consequence thereof, the creditors, or four parts in five of them in number and value (but none of them creditors for less than 20*l.*), will sign a certificate to that purport; the commissioners are then to authenticate such certificate under their hands and seals, and to transmit it to the lord chancellor: and he, or two of the judges whom he shall appoint, on oath made by the bankrupt that such certificate was obtained without fraud, may allow the same; or disallow it, upon cause shewn by any of the creditors of the bankrupt. Stat. 5 Geo. II. c. 30.

If no cause be shewn to the contrary, the certificate is allowed of course; and then the bankrupt is entitled to a decent and reasonable allowance out of his effects, for his future support and maintainance, and to put him in a way of honest industry. This allowance is also in proportion to his former good behaviour, in the early discovery of the decline of his affairs, and thereby giving his creditors a larger dividend. For, if his effects will not pay one half of his debts, or ten shillings in the pound, he is left to the discretion of the commissioners and assignees, to have a competent sum allowed him, not exceeding 3 per cent.; but if they pay ten shillings in the pound, he is to be allowed 5 per cent.; if twelve shillings and six-pence, then 7½ per cent.; and if fifteen shillings in the pound, then the bankrupt shall be allowed 10 per cent.: provided, that such allowance do not in the first case exceed 200*l.*, in the second 250*l.*, and in the third 300*l.* Stat. 5 Geo. II. c. 30.

Besides this allowance, he has also an indemnity granted him, of being free and discharged for ever from all debts owing by him at the time he became a bankrupt; even

though judgement shall have been obtained against him, and he lies in prison upon execution for such debts; and, for that among other purposes, all proceedings on commissions of bankrupt are, on petition, to be entered of record, as a perpetual bar against actions to be commenced on this account: though, in general, the production of the certificate properly allowed shall be sufficient evidence of all previous proceedings. Stat. 5 Geo. II. c. 30.

The certificate, when allowed, will not discharge the sureties of a bankrupt: but if he obtains it before his bail are fixed, it will discharge them: whereas if not till after they are fixed, they will remain liable notwithstanding the certificate: and if the creditor prove his debt, with intent to obstruct the certificate, it does not preclude him from pursuing his legal remedies: and even if he had received his debt or part of it, under the commission, still he might proceed to fix the bail who would be entitled to their remedy, so far as they are oppressed, by "audita querela," or by "motion." (1 Atk. 84. 1 Burr. 244. 2 Burr. 716.) The certificate does not discharge a bankrupt from his own express collateral covenant, which does not run with the land (2 Burr. 2443.); nor from a covenant to pay rent. (4 Term. Rep. 94.) A bankrupt, after a commission of bankruptcy sued out, may, in consideration of a debt due before the bankruptcy, and for which the creditor agrees to accept no dividend or benefit under the commission, make such creditor a satisfaction, in part, or for the whole of his debt, by a new undertaking or agreement; and "assumpsit" will lie upon such new promise or undertaking. (1 Atk. 67.) Although a creditor of a bankrupt under 20*l.* is excluded from assent or dissent to the certificate, yet as he is affected by the consequence of allowing the certificate, he has a right to petition and shew any fraud against allowing the certificate. 7 Vin. Abr. 134. pl. 18.

No allowance or indemnity shall be given to a bankrupt, unless his certificate be signed and allowed: and also, if any creditor produces a fictitious debt, and the bankrupt does not make discovery of it, but suffers the fair creditors to be imposed upon, he loses all title to these advantages. Neither can he claim them, if he has given with any of his children above 100*l.* for a marriage portion, unless he had at that time sufficient left to pay all his debts; or if he has lost at any one time 5*l.* or in the whole 100*l.* within a twelvemonth before he became bankrupt, by any manner of gaming or wagering whatsoever; or, within the same time has lost to the value of 100*l.* by stock-jobbing. Also to prevent the too common practice of frequent and fraudulent or careless breaking, a mark is set upon such as have been once cleared by a commission of bankrupt, or have compounded with their creditors, or have been delivered by an act of insolvency. Persons who have been once cleared by any of these methods, and afterwards become bankrupts again, unless they pay full fifteen shillings in the pound, are only thereby indemnified as to the confinement of their bodies; but any future estate they shall acquire remains liable to their creditors, excepting their necessary apparel, household goods, and the tools and implements of their trades. Stat. 5 Geo. II. c. 30. 24 Geo. II. c. 57.

By the statute 13 Eliz. c. 7. the commissioners for that purpose, when a man is declared a bankrupt, shall have full power to dispose of all his lands and tenements, which he had in his own right at the time when he became a bankrupt, or which shall descend or come to him at any time afterwards, before his debts are satisfied or agreed for; and all lands and tenements which were purchased by him

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jointly with his wife or children to his own use (or such interest therein as he may lawfully part with), or purchased with any other person upon secret trust for his own use; and to cause them to be appraised to their full value, and to sell the same by deed indented and enrolled, or divide them proportionably among the creditors. This statute expressly included not only free, but customary and copyhold, lands: and the lord of the manor is thereby bound to admit the assignee (Cro. Car. 568. 1 Atk. 96.): but did not extend to estates-tail, farther than for the bankrupt's life; nor to equities of redemption on a mortgaged estate; wherein the bankrupt has no legal interest, but only an equitable reversion. Whereupon the statute 11 Jac. I. c. 19. enacts, that the commissioners shall be empowered to sell or convey, by deed indented and enrolled, any lands or tenements of the bankrupt, wherein he shall be seised of an estate-tail in possession, remainder, or reversion, unless the remainder or reversion thereof shall be in the crown; and that such sale shall be good against all such issues in tail, remaindermen, and reversioners, whom the bankrupt himself might have barred by a common recovery, or other means: and that all equities of redemption upon mortgaged estates, shall be at the disposal of the commissioners; for they shall have power to redeem the same, as the bankrupt himself might have done, and after redemption to sell them. And the commissioners may sell a copyhold entailed by custom. (Stone 127. Billing 148.) And also, by this and a former act, all fraudulent conveyances to defeat the intent of these statutes are declared void; but that no purchaser *bona fide*, for a good or valuable consideration, shall be affected by the bankrupt laws, unless the commission be sued forth within five years after the act of bankruptcy committed. 1 Jac. I. c. 15.

By virtue of these statutes a bankrupt may lose all his real estates; which may at once be transferred by his commissioners to their assignees, without his participation or consent. See ASSIGNEES.

The property vested in the assignees is the whole that the bankrupt had in himself, at the time he committed the first act of bankruptcy, or that has been vested in him since, before his debts are satisfied or agreed for. And therefore, if a commission is afterwards awarded, the commission and the property of the assignees shall have a relation, or reference, back to the first and original act of bankruptcy. Inasmuch that all transactions of the bankrupt are from that time absolutely null and void, either with regard to the alienation of his property, or the receipt of his debts from such as are privy to his bankruptcy; for they are no longer his property or his debts, but those of the future assignees. If a banker pay the draft of a trader keeping cash with him, after knowledge of an act of bankruptcy, the assignees may recover the money. (2 Term Rep. 113. 3 Bro. C. R. 313.) And if an execution be sued out, but not served and executed on the bankrupt's effects till after the act of bankruptcy, it is void as against the assignees. But the king is not bound by this fictitious relation, nor is, within the statutes of bankrupts; for if, after the act of bankruptcy committed and before the assignment of his effects, an extent issues for the debt of the crown, the goods are bound thereby. As these acts of bankruptcy may sometimes be secret to all but a few, and it would be prejudicial to trade to carry this notion to its utmost length, it is provided by statute 19 Geo. II. c. 32. that no money paid by a bankrupt to a *bona fide* or real creditor, in a course of trade, even after an act of bankruptcy done, shall be liable to be refunded. Nor, by statute 1 Jac. I. c. 15. shall any debtor of a bankrupt, that pays him his debt,

without knowing of his bankruptcy, be liable to account for it again. The intention of this relative power being only to reach fraudulent transactions, and not to distress the fair trader.

Sale of goods by a bankrupt, after an act of bankruptcy, is not merely void; the contract is good between the parties; but it may be avoided by the commissioners or assignees at pleasure; so that they may either bring trover for the goods, as supposing the contract may be void, or may bring debt or assumpsit for the value, which affirms the contract. (3 Salk. 59. pl. 2. 2 T. R. 143. 4 T. R. 216. 7.) And so if a bankrupt on the eve of bankruptcy fraudulently deliver goods to a creditor. (4 Term. Rep. 211.) The assignees after four, and within twelve months after the commission issued, must give twenty-one days notice to the creditors of a meeting for a dividend; at which time they must produce their accounts, and verify them upon oath, if required. And then the commissioners shall direct a dividend to be made, at so much in the pound, to all creditors who have before proved, or shall then prove, their debts. This dividend must be made equally, and in a rateable proportion, to all the creditors, according to the quantity of their debts; no regard being had to the quality of them. Mortgages indeed, for which the creditor has a real security in his own hands, are entirely safe; for the commission of bankrupt reaches only the equity of redemption. So are also personal debts, where the creditor has a chattel in his hands, as a pledge or pawn for the payment, or has taken the debtor's lands or goods in execution. And, upon the equity of the statute 8 Ann. c. 14. (which directs, that, upon all executions of goods being on any premises demised to a tenant, one year's rent and no more shall, if due, be paid to the landlord) it hath also been held, that under a commission of bankrupt, which is in the nature of a statute-execution, the landlord shall be allowed his arrears of rent to the same amount, in preference to other creditors, even though he hath neglected to distrain, while the goods remained on the premises: which he is otherwise entitled to do for his entire rent, be the quantum what it may. But, otherwise, judgments and recognizances (both which are debts of record, and therefore at other times have a priority), and also bonds and obligations by deed or special instrument (which are called debts by specialty, and are usually the next in order), these are all put on a level with debts by mere simple contract, and all paid *pari passu*. Nay, so far is this matter carried, that, by the express provision of the statutes, debts not due at the time of the dividend made, as bonds or notes of hand payable at a future day certain, shall be proved and paid equally with the rest, allowing a discount or drawback in proportion. And incurances, and obligations upon bottomry or *respondentia*, *bona fide* made by the bankrupt, though forfeited after the commission is awarded, shall be looked upon in the same light as debts contracted before any act of bankruptcy. Stat. 21 Jac. c. 19. 7 Geo. I. c. 31. 19 Geo. II. c. 32.

Within eighteen months after the commission issued, a second and final dividend shall be made, unless all the effects were exhausted by the first. And if any surplus remains, after selling his estates and paying every creditor his full debt, it shall be restored to the bankrupt. This is a case which sometimes happens to men in trade, who involuntarily, or at least unwarily, commit acts of bankruptcy, by absconding and the like, while their effects are more than sufficient to pay their creditors. And, if any suspicious or malevolent creditor will take the advantage of such acts, and sue out a commission, the bankrupt has no remedy, but must quietly submit to the effects of his own imprudence;

dence; except that, upon satisfaction made to all the creditors, the commission may be superseded. This case may also happen, when a kuave is desirous of defrauding his creditors, and is compelled by a commission to do them that justice which otherwise he wanted to evade. And therefore, though the usual rule is, that all interest on debts carrying interest shall cease from the time of issuing the commission, yet, in case of surplus left after payment of every debt, such interest shall again revive, and be chargeable on the bankrupt, or his representatives. Stat. 5 Geo. II. c. 30. 13 Eliz. c. 7.

The first step to be taken towards procuring a commission of bankruptcy is for the petitioning creditor to make an affidavit of his debt before a master in chancery; or if he resides altogether in the country, before a master extraordinary there, to be filed in the secretary of bankrupt's office in London, and exhibited to the commissioners at their first meeting. When the affidavit is sworn, it is carried to the secretary of bankrupt's office, where the party suing for the commission enters into the bond to the chancellor. The clerk of the bankrupts fills up a blank petition in the name of the person that makes the affidavit, and annexes the affidavit and bond to the petition, when he prefers the same to the lord chancellor. This petition is answered in a few days, and the petitioning creditor has a commission without any further trouble. Having got the commission, he must employ one of the messengers to summon a meeting of the major part of the commissioners to open the same, when the petitioning creditor must come prepared to prove his debt, and the party a bankrupt, within the statutes. Upon the commissioners' declaring the party a bankrupt, they issue their warrant for seizing of his effects, and the messenger, by virtue of it seizes the effects, and continues to keep possession till the commissioners have executed the assignment. The application to enlarge the time for the bankrupt's surrender must be by petition to the great seal, six days at least before the last sitting appointed in the gazette; which petition may be either in the name of the bankrupt or of his assignees. It is usual for the commissioners to recommend, and the creditors to agree to return the bankrupts their rings, monies, &c. particularly the jewels, &c. of their wives. If the bankrupt does not surrender himself to the commissioners at twelve o'clock at night of the last day given, the messenger warns him so to do by a proclamation made by him in the middle of Guildhall; the commissioners continuing to sit till that time. The certificate when duly signed, together with the attestations of signature, must be lodged with the secretary of bankrupts, and he will give the messenger an authority to the printer of the gazette, to insert an advertisement signifying that the acting commissioners have certified to the great seal, that the bankrupt hath conformed, and that the certificate will be allowed and confirmed, unless cause be shewn to the contrary within twenty-one days from the date of the said advertisement. If no cause be shewn within twenty-one days against the allowance of the certificate, the lord chancellor will allow the same by a subscription upon it. Jacob's Law Dict. by Tomlyns, art. *Bankrupt*.

BANKRUPTCY, the act of becoming a bankrupt. (See **BANKRUPT**.) The French make this difference between a *bankruptcy* and a *failure*, that the first is supposed voluntary and fraudulent, and the latter constrained and necessary, by means of accidents, &c.

BANKS'S ISLAND, in *Geography*, an island in the North Pacific ocean, near the west coast of North America, about 60 miles long and 5 broad. It is separated from Pitt's

archipelago by the canal del Principe; and its north point is situated in N. lat. $53^{\circ} 39\frac{1}{2}'$. W. long. $130^{\circ} 13'$.

BANKS'S ISLAND is also an island of the Southern Pacific ocean, about five leagues west of the coast of the northern branch of New Zealand islands. It is about twenty-four leagues in compass; its surface is irregular and elevated; and it may be seen at sea at the distance of twelve or fifteen leagues. Its south point is in S. lat. $43^{\circ} 32'$. W. long. $186^{\circ} 30'$.

BANKS, Port, a harbour on the north-west coast of America, south-easterly from cape Edgcombe, and north-westerly from Sea Otter sound.

BANKSAL POINT, a point of the river of Balefore, on the coast of Coromandel, known by the English ware-houses that are built on it, and by the tomb of a Dutchman who was there interred.

BANKSEA SPECIOSA, Retz. in *Botany*. See *COSTUS Speciosus*.

BANKSIA, so named by Linnæus in honour of sir Joseph Banks, president of the Royal Society, who first discovered it in his voyage with captain Cook. Lin. gen. Schreb. n. 191. Suppl. 15. Gært. t. 47. Juss. 79. Clafs. *tetrandriamonomynia*. Nat. Ord. *aggregatæ*. *Protea*, Juss. Gen. Char. *Cal.* perianth one-leaved, four-cleft, inferior. *Cor.* one-petalled; tube cylindric, very short; border very long, four-parted; parts linear, lanceolate at the tip, internally hollowed by a little cavity, acute. *Stam.* filaments none; anthers four, lanceolate, sessile in the cavity of the parts of the corolla. *Pist.* germ superior, minute; style filiform, stiff, longer than the corolla; stigma pyramidal, acute. *Per.* capsule ovate, or globose, woody, one-celled, two-valved. *Seeds* two, obovate, convex on one side, flat on the other, terminated by a very large membranaceous veinless wing. Qu. Is this an *Arillus*?

Ess. Char. *Cal.* four-cleft, inferior. *Cor.* four-parted; tube very short; border very long, linear-lanceolate; anthers sessile in the cavity of the parts of the corolla. *Capf.* two-seeded, one or two-celled, two-valved.

Species, 1. *B. ferrata*, ferrate-leaved banksia. White Voy. 223. fig. 1, 2, 3. *B. conchifera*. Gært. fruct. 221. t. 48. f. 1. "Leaves linear, attenuated into the petiole, equally ferrate, truncate at the end with a point." This is the handsomest species of the genus; trunk thick and rugged; leaves alternate, thick at the ends of the branches, on short petioles, obtuse, ferrate, bright green above, beneath opaque and whitish, with a strong rib running through their middle; each branch terminated by a large cylindrical spike of flowers; the capsules covered with thick down; the flowers and fruits collected into a large globular ament; the seed in each cell of the capsule single, rather large, winged and dark brown. 2. *B. integrifolia*, entire-leaved *B. B. spicata*. Gært. fruct. 221. t. 48. f. 2. "Leaves wedge-form, quite entire, white-tomentose underneath." The flowers and fruits are collected into a cylindric ament; and before they are ripe, are pubescent with a nap of snowy whitencfs; capsule coriaceous, orbiculate at top, turgidly lens-shaped, and continued at bottom into a conical, compressed beak; within black, two-celled, and gaping at the tip. 3. *B. ericifolia*, heath-leaved *B.* "Leaves approximating, acerose, truncate-emarginate, smooth." The leaves are very small, but more abundant than those of the preceding species. 4. *B. dentata*, tooth-leaved *B.* "Leaves oblong, attenuated into the petiole, curved, flexuose, toothed, teeth ending in a spinule, white underneath." The flowers of this species are smaller than in the others. 5. *B. pyriformis*, pear-fruited *B.* "Flowers solitary; capsules ovate, pubescent; leaves

leaves lanceolate, very entire, smooth." The capsules are larger than in any other known species, one-celled, and opening longitudinally on the lower side; there are two seeds of a rufous cinnamon colour, convex on one side and flat on the other, with a large membranaceous, veinless wing. 6. *B. gibbosa*, gibbous-fruited *B. B. dactyloides*, Gært. 221. t. 47. f. 2: "Flowers solitary; capsules ovate, gibbous, wrinkled; leaves columnar." Leaves about two inches long, and one line in diameter, pale green, and smooth. Dr. Smith says that the *B. dactyloides* of Gærtner and this are different species. 7. *B. musculiformis*, muscle-fruited *B.* "Flowers solitary; capsules ovate-conical, muscle-shaped, pointed, with tubercles on the outside; leaves obovate, emarginate." Leaves alternate, from six to eight inches long, and three broad; flowers in a short simple raceme, in which only one or two fruits ripen; the capsule from one to two inches or more in length, woody, with roundish tubercles, variegated brown and rust colour, one-celled; the seeds are two and dark bay. 8. *B. spinulosa*, prickly-leaved *B.* "Leaves linear-revolute, with a little sharp point, and with spinous denticulation towards the top." Stem woody and branched; leaves irregularly scattered, closely covering the branches, on very short foot-stalks, green and smooth above, white and downy beneath, ending abruptly, tipped with three small spines, and having several hooked upwards in the margin; flowers thick set in a cylindrical erect spike, coming out in pairs. It differs from *B. ericaefolia*, in having leaves at least four times as long, obtuse, but with a small central sharp point from the midrib between two other terminal points, as well as in having a greater or less number of small sharp-hooked lateral teeth towards the end of each leaf. The inhabitants of New South Wales call it "Wattangre." All these plants are natives of that country, except the 7th, which Rumphius observed in Amboina, in 1693. This genus is nearly allied to *Protea* and *Embothrium* in appearance and character, but sufficiently distinguished from both in the fruit. It boasts some of the most specious plants that have been discovered in the South seas, and even in the known world. Those with solitary flowers and one-celled capsules (5, 6, 7.) form a separate genus, which Dr. Smith names *Salisburya*; which see.

Propagation and Culture. Some of the species have flowered and seeded here; they have been increased merely by seeds. These, and the plants in general from the South seas, are hardy, considering their climate, and may be treated much in the same manner with the Cape plants; they covet much air, and flourish best near the front of the dry stove. Martyn's Miller.

BANKSIA, Forst. See **PIMELEA**.

BANKSIA Abyssinica, or **CUSO**, so called by Mr. Bruce after Sir Joseph Banks, an inhabitant of the high country of Abyssinia, and indigenous there. Mr. Bruce, who has described and given a drawing of it, and who represents it as one of the most beautiful and useful trees, says, that he never saw it in the Kolla nor in Arabia, nor in any other part of Asia or Africa. It seldom grows above 20 feet high, and generally inclined; its leaf is about two inches and a quarter long, divided into two by a strong rib; its colour is a deep unvarnished green, very pleasant to the eye, and the fore-part is covered with soft hair or down; it is much indented, and resembles a nettle leaf, only that it is narrower and longer. The leaves grow alternately by pairs upon a branch terminating with a single leaf at the point; the end of the stalk is broad and strong, like that of a palm-branch; and it opens in the part that is without leaves,

about an inch and an half from the bottom, and from this aperture proceeds the flower. The whole cluster of flowers has very much the shape of a cluster of grapes, and the stalk that supports it resembles the stalk of the grape; the flower itself is of a greenish colour, tinged with purple; when fully blown, it is altogether of a deep red or purple; the corolla consists of five petals, with a short pistil in the middle, having a round head, and surrounded by eight stamina of the same form, loaded with yellow farina. The calyx consists of five petals, which much resemble another flower; they are rounded at the top, and nearly of an equal breadth every way. The bark of the tree is smooth, of a yellowish white, interspersed with brown streaks which pass through the whole body of the tree. On the upper part, before the first branch of leaves set out, are rings round the trunk of small filaments of the consistence of horse-hair; these are generally 14 or 16 in number, and are a very remarkable characteristic belonging to this tree. The tree is always planted near churches for the use of the town or village; and it is very serviceable as an antidote to a disorder to which the Abyssinians of both sexes and at all ages are subject. Every individual once a month evacuates a large quantity of worms of the kind called ascarides; and the method of promoting the evacuations is by infusing a handful of dry Cuso flowers in about two English quarts of bouza, or the beer that is made from teff; after it has been steeped all night, it is next morning fit for use. The seed of this tree is very small, smaller than the semen Santonicum; it is easily shed; and on this account no greater quantity of the seed is gathered, and therefore the flower is substituted for it. It is bitter, but much less so than the semen Santonicum. Mr. Bruce conceives that this plant may be found in latitudes 11° or 12° north in the West Indies or America; and having been found a gentle, safe, and efficacious medicine in Abyssinia, it is not doubted but the superior skill of physicians would turn it to the advantage of mankind in general, when used here in Europe. Bruce's Travels, vol. v. Appendix, p. 73—76.

BANKSIA, in *Entomology*, a species of **PAPILIO** (*Nymph.*) with angulated wings; above brown, with a yellowish disk, and a black ocellar spot with a double pupil. Fabricius. This is a native of New Holland, and is the **PAPILIO Iffmene** of Cramer.

BANKSII, a species of **SCARABÆUS** (*Melontha*) described by Fabricius from a specimen in the museum of Sir Joseph Banks. The head and thorax are black; wing-cases villose, and with the legs testaceous; abdomen short and refuse.

BANKSII, a species of **CIMEX**, (*Reduvius*) that inhabits India. It is rufous above, with black wings; abdomen deep black; border rufous. Fabricius.

BANKSII, a species of **CHRYSOMELA** that inhabits Calabria. It is brassy above, beneath testaceous. Fabricius.

BANKSII, a species of **CERAMBYX** (*Lamia*), that is found at the Cape of Good Hope. It is of a greyish colour; thorax slightly spined; wing-cases speckled with ferruginous, and marked with two cinereous bands. Fabricius.

BANLEUGA, or **BANNILEUGA**, or **BANLIEU**, in *Middle Age Writers*, the territory within which the jurisdiction of municipal magistrates, or ordinary judges of a city, town, or the like, is confined.

It is thus called, because within this tract they may make their proclamations, prohibitions, and other acts of justice and policy, comprised under the name of **BAN**, or **BANNUM**.

BANN, in *Geography*, a river in Ireland, which rises in the

the northern part of the Mourne mountains, in the county of Down, and swelled by various little brooks, soon becomes a large stream. It takes a serpentine course to the north-west, having many bridges over it, till it comes to Portadown, where it is joined by the Newry canal, and a few miles farther it falls into Lough Neagh at Banufoot ferry, after running about thirty miles. The waters of this river, which is distinguished by the name of the South or Upper Bann, are esteemed superior to any other for the purpose of bleaching. After passing through Lough Neagh, out of which it breaks at Toome castle, where is a bridge over it, it again expands into a small lake called Lough Beg, the views in which are very pleasing. From this, still keeping a north-west direction, it passes through a country formerly overgrown with immense woods, then forces its way over a ridge of rocks called the Salmon-leap, and having again collected its scattered waters, rushes with an impetuous force into the sea at Bannhaven, a few miles below Coleraine. It is certainly one of the finest rivers in Ireland; and if we include its passage through the lake, runs in the whole near ninety miles, with so pure and limpid a stream, that it has acquired the name of "*the silver Bann*." The lower or northern part of it, being the only outlet for seven rivers and innumerable streams that pour their tributary waters into Lough Neagh, is broad and rapid; but notwithstanding this, and the ridge of rocks already mentioned, it is thought that it might be rendered navigable, a measure from which great advantages are expected. The Salmon caught in this river is very highly esteemed, and the fishery is the greatest in the kingdom. (See COLERAINE.) Campbell's Political Survey. Beaufort's Memoir. Young's Tour, &c.

BANN, the name of a river in the north-eastern part of the county of Wexford, Ireland, which falls into the Slaney near Ferns.

BANN, a township in the county of York, in Pennsylvania.

BANN, or *Ban*, *Bannum*, or *Bannus*, in the *Feudal Law*, a solemn proclamation, or publication of any thing.

The origin of the word is uncertain: some deduce it from the British *ban*, *clamour*, *noise*; others from the Saxon *pau*, a thing spread; whence *ban* and *band*, used for a flag. Bracon mentions *bannus regis* for a proclamation of silence anciently made by the court, before the encounter of the champions in a combat.

BANN is also used for a solemn convocation of the nobility of a province, to attend the king in his army, conformably to their several tenures.

Bann, in this sense, differs from *rear-bann*; as the former respects those who hold mediately of him. But the words are now confounded; and bann and rear-bann denote a summons to all the feudal tenants, mediate and immediate, to go to war in the king's service.

BANN also denotes the assembly, or body of nobility and gentry thus convoked.

In this sense, they say, the bann and rear-bann are long in getting into the field; the bann and rear-bann were assembled, &c.

The French nobility appear to have served the king, in the way of bann and rear-bann, from the beginning of the monarchy; though the usage was not regularly settled till the time of the investiture of fiefs.

BANN is more particularly used to denote a proscription or banishment, for a crime proved; because anciently published by sound of trumpet; or, as Vossius thinks, because those who did not appear at the above mentioned summons were punished by proscription.

Hence, to put a prince under the bann of the empire, is to declare him divested of all his dignities.

The sentence only denotes an interdict of all intercourse and offices of humanity with the offender, the form of which seems taken from that of the Romans, who banished persons, by forbidding them the use of fire and water.

Sometimes also cities are put under the imperial bann; that is, stripped of their rights and privileges.

BANN also denotes a pecuniary mulct or penalty laid on a delinquent for offending against a bann.

BANNS of *Marriage* are certain solemn notices of matrimonial contracts made, in the parish church, before the marriage; that if there be any objections to either party as to prior engagements, &c. there may be an opportunity of making them. The publication of banns (popularly called *asking in the church*) was intended as an expedient to prevent clandestine marriages; but a licence or dispensation is now easily procured, so that their use is defeated. By the laws of the church, banns are to be published thrice, on three distant days, in the places where the parties live, on pain of nullity of marriage; and excommunications are threatened against those, who, knowing impediments, conceal them. (But see 26 Geo. II. cap. 33. and MARRIAGE.) The use of matrimonial banns is said to have been first introduced in the Gallican church, though something like it obtained even in the primitive times; and it is this Tertullian is supposed to mean by *trinundina promulgatio*.

BANN is also used for a solemn anathema, or excommunication, attended with curses, &c.

In this sense, we read of *papal banns*, &c.

BANN of *God*, *bannus Dei*, or the judgment of God. Spelman takes it for excommunication.

BANN is also used for a prohibition.

In which sense, the ban of harvest or vintage, &c. in the French customs, imports a prohibition to reap, or gather the grapes, without the leave of the lord.

The former is now taken away, and the peasant may reap his corn when he pleases; but the latter still remains, persons not being allowed to open the vintage till publication is made by the officer of the place for that purpose.

BANN-*Vin*, in the *French Customs*, a privilege enjoyed by lords, of selling the wine of their own growth, during a certain time, exclusive of all other persons within the compass of their fees or lordships.

The same right, in some places, extends also to other liquors; and even to hogs, cows, and other animals.

BANNALEC, in *Geography*, a town of France, in the department of Finistère, and chief place of a canton in the district of Quimperlé; $2\frac{1}{4}$ leagues north-west of Quimperlé. The place contains 4750, and the canton 9800 inhabitants; the territory includes 195 kilometres, and four communes.

BANNALIS MOLA, or *Bannal-mill*, a kind of feudal service, whereby the tenants of a certain district are obliged to carry their corn to be ground at a certain mill, and to be baked at a certain oven, for the benefit of the lord.

The oldest account of such bannal-mills occurs in the eleventh century. Fulbert, bishop of Chartres, and chancellor of France, in a letter to Richard, duke of Normandy, complains, that attempts began to be made to compel the inhabitants of a part of that province to grind their corn at a mill situated at the distance of five leagues. Vid. "Maxima Bibliotheca Veterum Patrum." Lugdun. 1677, tom. xviii. p. 9. Other examples of this species of servitude, in the tenth and thirteenth centuries, may be seen in Du Fresne, under "Molendinum Bannale." De la Mare (*Traité de la Police*, ii. p. 151.) gives an instance, where a lord in affranchising

chising his subjects, A. D. 1248, required of them, in remembrance of their former subjection, and that he might draw as much from them in future as possible, that they should agree to pay a certain duty, and to send their corn to be ground at his mill, their bread to be baked in his oven, and their grapes to be pressed at his wine-press. The origin of these servitudes may possibly be accounted for thus: the building of mills was at all times expensive, and undertaken only by the rich; who, to indemnify themselves for the money expended in order to benefit the public, stipulated that the people in the neighbourhood should grind their corn at no other mills than those erected by them.

BANNER, in *Geography*, a town of Hindoostan, in the district of Coorg-wynaad, seated on the upper branch of the Copany river. N. lat. $11^{\circ} 48'$ E. long. $76^{\circ} 26'$.

BANNAT of Temeswar, a district of Upper Hungary, in the circle on the farther side of the Theis, bounded by the rivers Maros, Theis, and Danube, and watered by the Temes, which is joined by the Beg or Beyhe. In 1552, the Turks became masters of it, and retained it at the peace of Karlowitz, in 1699; but lost it, after a possession of 164 years, in 1716; and in 1718, it was formally ceded to the emperor, at the peace of Passarowitz; which cession, one district excepted, which was granted to the Turks, was ratified in 1739, at the treaty of Belgrade. Its government is divided into the civil and military jurisdiction. Its capital is Temeswar. This bannat presents many ridges of considerable height.

BANN-BRIDGE, a market and post-town of the county of Down, province of Ulster, Ireland, which takes its name from a bridge over the river Bann. It is a pleasant town on the road from Dublin to Belfast, and is remarkable for its great linen fairs. Distance north from Dublin $60\frac{1}{2}$ Irish miles.

BANNER, in *Heraldry*, is a small square flag with fringe, fastened to a lance or spear, similar to the standards now borne by the regiments of cavalry, and was always borne in the field before a prince, duke, marquis, earl, viscount, baron, knight of the garter, and knight-banneret.

Menage derives the word from the Latin *bandum*, a *band*, or *flag*; and supposes *banniere* to have been first written for *bandiere*; which is confirmed by this, that we meet with the word *banderia*, used, in the same sense, by Latin writers of the barbarous age.

In the reign of Henry VIII. the size of the royal banner was an ell long, and a yard broad; in queen Elizabeth's reign, the length was two yards and a half, and the breadth two yards, besides the fringe; the complement of men to each banner in the field was always one hundred.

BANNER, in *Military Language*. See COLOURS.

BANNERS of the Romans. See SIGNA.

BANNERETS, an ancient order of knights, or feudal lords, who, possessing several large fiefs, led their vassals to battle, under their own flag, or banner, when summoned thereto by the king.

The word seems formed from *banner*, a square flag, or from *band*, which anciently also denoted a flag.—*Bannerets* are also called in ancient writers, *miles vexilliferi*, and *vexillarii*, *bannerarii*, *banderisii*, &c.

Anciently there were two kinds of knights, *great* and *little*, the first whereof were called **BANNERETS**, the second **BACHELORS**; the first composed the upper, the second the middle, nobility.

The banneret was a dignity allowed to march under his own flag, whereas the *bachelarius eques* followed that of another. Knights bannerets were originally entitled to display

their banners in the field. A knight Banneret must be a gentleman of family, and have land sufficient to enable him to bring into the field fifty men at arms, with the archers and cross-bowmen appertaining thereto, making in the whole one hundred.

Banneret, according to Spelman, was a middle order between a baron and a simple knight; called sometimes also *vexillarius minor*, to distinguish him from the greater, that is, from the baron, to whom alone properly belonged the *jus vexilli*, or privilege of the square flag.

Hence the banneret was also called *bannerettus*, *quasi baro minor*, a word frequently used by English writers in the same sense as banneret was by the French; though neither of them occurs before the time of Edward II.

Some will have bannerets to have originally been persons who had some portion of a barony assigned them; and enjoyed it under the title of *baro proximus*, and that with the same prerogatives as the baron himself.

Some again find the origin of bannerets in France; others in Brittany; others in England. These last attribute the institution of bannerets to Conan, lieutenant of Maximus, who commanded the Roman legions in England under the empire of Gratian, in 383. This general, say they, revolting, divided England into forty cantons, and in these cantons distributed forty knights, to whom he gave a power of assembling, on occasion, under their several banners, as many of the effective men as were found in their respective districts; whence they are called bannerets.

However this be, it appears from Froissart, &c. that anciently such of the military men as were rich enough to raise and subsist a company of armed men, and had a right to do so, were called bannerets. Not, however, that these qualifications rendered them knights, but only bannerets; the appellation of knight being only added thereto, because they were simple knights before.

At the ceremony of creation, the king, at the head of his army, after a victory, is surrounded by all the field officers and nobles at court, under the royal standard displayed to receive the intended knight banneret, who is led to the sovereign by two renowned knights or valiant men at arms, having his pennon or guidon of arms in his hand, preceded by the heralds, who proclaim his valiant achievements. The king then says to him, "Advance thy banneret," and commands the ends of his pennon or guidon to be torn off, which then becomes a banner, being square (on which he has his arms and supporters embroidered). The new knight banneret then returns to his tent, accompanied by martial music, and attended by many nobles and field officers, where they are highly entertained. A knight banneret has a right to display his banner in the field. Neither the title nor supporters are hereditary. In the 28th of Edward I. the daily pay of a knight banneret was four shillings and their diet at court; they take precedence of the younger sons of viscounts and barons. The last knight banneret was sir John Smith, by Charles I. after the battle of Edge-hill, where he rescued the royal standard from the rebels.

BANNERET is also the name of an officer, or magistrate of Rome, towards the close of the fourteenth century.

The people of that city and throughout the territory of the church, during the disputes of the antipopes, had formed a kind of republican government; where the whole power was lodged in the hands of a magistrate, called senator, and twelve heads of quarters, called bannerets, by reason of the banners which each raised in his district.

BANNER-ROLLS, in *Heraldry*, are small flags used at funerals.

BANNIMUS, q. d. *we banisb*, from the obsolete *bannio*, the form of expulsion of any member from the university of Oxford, by affixing the sentence up in some public place, as a denunciation or promulgation of it.

BANNOCK, in *Food*, is an oat-cake, kneaded only with water, and baked in the embers. These cakes are common in Lancashire and some other counties.

BANNOCKBURN, in *Geography*, a village of Scotland, in the county of Stirling, where was fought a battle between the English and Scots on the 25th of June 1314, in which the English were defeated with great loss, and by which the independence of Scotland was secured, and Bruce fixed on the throne of the kingdom; and where James III., king of Scotland, was in 1487 overpowered by his subjects, wounded, and soon after murdered by a priest taking his confession: two miles south of Stirling.

BANNOW, the name of a town which formerly existed in the county of Wexford, province of Leinster, Ireland, situated at the south-eastern extremity of a small haven of the same name, formerly called Bagganbun. This is noted as the place at which Robert Fitzstephens, Harvey of Mountmorres, and Maurice of Pendergalt (not earl Strongbow, as some accounts erroneously state), the first of the English adventurers, landed in A. D. 1170. It is said by Giraldus Cambrensis, to be a little creek lying in the county of Wexford, near to Feathard a fishing town, the open sea being on the east, and not far from the haven the mouth of Waterford on the south. The same writer speaks of it as very unfit for a harbour, and says that it derived its name from that of one of the ships in which the Englishmen arrived. The name Bagganbun is retained in an ancient rhyme:

“At the creek of Bagganbun,
Ireland was lost and won.”

And the place was so noted, that some old writers have even spoken of the whole island by the name of Bannow. Though the town seems never to have arrived at the same consequence that its neighbour Feathard did, it was made a borough and continued to send members until the union. “So late as the year 1626,” says the writer of a letter to Dr. W. Hamilton, “Bannow is registered in the custom-house books of Wexford, as having four streets, which paid quit-rent to the crown, and some buildings surrounding the church.” The name of one of these streets, Weavers’ street, indicates some manufacture to have been carried on. “The only remains of it,” continues the latter writer, “which stand visible at this day (1786) are the walls of its church. There is not in or near the site of the former town even one solitary hut. The election for the representatives of the town is held on the walls of an old chimney, adjoining to the church, which tumbled down piece-meal, and forms the council table of that ancient and loyal corporation. Towns die as well as men; the vestiges of Bannow are traced with difficulty amidst heaps of barren sand, and now the privilege which interested some in its continuance having ceased, in a few years it may be entirely forgotten. Its distance south from Dublin is 76½ Irish miles, long. 6° 50′. W. lat. 52° 12′. N. Hollingshead. Transactions of Royal Irish Academy.

BANNUM Capitis, was a mulct paid in cattle.

BANNUS, or **BANUS**, a title anciently given to the governor or viceroy of Croatia, Dalmatia, and Sclavonia.

BANNUS Episcopalis, was a mulct paid to the bishop by those guilty of sacrilege, or other crimes.

BANON, in *Geography*, a town of France, in the department of the Lower Alps, and chief place of a canton in the district of Forcalquier. The place contains 945 and the

canton 4743 inhabitants; the territory includes 330 kilometres and 11 communes.

BANONCOURT, a town of France in the department of the Meuse, and chief place of a canton in the district of St. Mihiel, 1½ league north of St. Mihiel.

BANOY, in *Ornithology*, the name given, by the people of the Philippine islands, to a kind of hawk, somewhat larger than our sparrow-hawk, and of a yellowish colour on the back and wings, and white under the belly. It is the most common of all the kinds of hawk in that part of the world, and is a very voracious animal.

BANQUET, in the *Manege*, denotes that small part of the branch of a bridle under the eye, which, being rounded like a small rod, gathers and joins the extremities of the bit to the branch, in such a manner, that the banquet is not seen, but covered by the cap, or that part of the bit next the branch.

BANQUET-Line, is an imaginary line drawn by the bit-makers along the banquet, in forging a bit, and prolonged upwards and downwards, to adjust the designed force or weakness of the branch, in order to make it stiff or easy; for the branch will be hard and strong if the scivil-hole be on the outside of the banquet, with respect to the neck; and it will be weak and easy, if the scivil-hole be on the inside of the line, taking the centre from the neck.

BANQUETING-Room, or *house*. (See **XENIA**, **SALOON**, &c.) The ancient Romans supped in the atrium of their houses: but, in after-times, magnificent saloons or banqueting-rooms were built for the more commodious and splendid entertainments of their guests. Lucullus had several of these, each distinguished by the name of some god; and there was a particular rate of expence appropriated to each. Plutarch relates (in Lucullum, apud Oper. t. i. p. 519.) with what magnificence he entertained Cicero and Pompey, who went with design to surprise him, by only telling a slave who waited that the cloth should be laid in the Apollo. The emperor Claudius, among others, had a splendid banqueting-room, named Mercury. But every thing of this kind was outdone by the lustre of that celebrated banqueting-house of Nero, called *domus aurea*; which by the circular motion of its partitions and ceilings, imitated the revolution of the heavens, and represented the different seasons of the year, which changed at every service, and showered down flowers, essences, and perfumes on the guests. Helioabalus, nevertheless, is said to have improved as much upon Nero, as the latter had done on Lucullus. Senec. Ep. 90.

BANQUETTE, in *Fortification*, is a little foot-bank, or an elevation of earth forming a path which runs along the inside of a parapet; by which the musqueteers get up to discover the counterescarp, or to fire on the enemies in the moat or in the covert-way.

The banquette is generally between two and three feet high, and three feet broad, and four feet and a half lower than the parapet, having two or three steps to mount it by. Where the parapet is very high, they make a double banquette one over the other. See **BREASTWORK**.

BANSTEAD, in *Geography*, a village of Surry in England, is celebrated for its pasture downs, and the delicate mutton they produce. The sheep bred here are of a small species, and being fed mostly on the short sweet herbage which abounds with wild thyme, juniper, &c. their flesh is peculiarly rich, and is often sold in the London markets for lamb. (See **SHEEP**.) The soil of these downs consists of chalk, flints, and a thin stratum of blackish mould. Here is an annual horse-race, much frequented by the sporting people of London.

BANSTICKLE, in *Ichthyology*, a name synonymous

with prickle-bag, prickle-back, and stickle-back. See *GASTEROSTEUS*.

BANSWALEH, in *Geography*, a district of Hindoostan, situated on the west part of Malwa.

BANSWARA, a town of Hindoostan, in the country of Tellingana or Golconda, twenty miles from Indelovoy.

BANSWARAH, a town of Hindoostan, in the country of Malwa, 75 miles west of Ougcin, and 105 E.N.E of Amedabad. N. lat. $23^{\circ} 25'$. E. long. $74^{\circ} 25'$.

BANTAM, a sea-port town in the north-west part of the island of Java, and capital of a kingdom. It is situated at the bottom of the bay of the same name, about a quarter of an hour's walk from the sea-side; and lies between two branches of a river that descends from the mountains, in an extensive plain, behind which there is a range of high and massy hills extending far to the southward. Its distance from Batavia is about 13 Dutch miles, each of which is about $3\frac{1}{2}$ English miles. The communication between these places by land is very difficult, and almost impracticable, on account of the thick forests and deep morasses which lie between them; whereas the passage by water, with the advantage of the land and sea-winds, in the light Indian vessels or proas, called flyers, is performed in four hours. The town of Bantam is large, but has no walls or fortifications towards the sea, nor any on the land side, except fort Diamond, in which the king's palace stands. Bantam resembles a grove of cocoa-nut trees rather than a city. The houses are mere huts, walled up with reeds or canes, plastered with clay, and covered with attap or leaves of palm-trees, and are confusedly dispersed, without any arrangement of streets; and round each of them is a plantation of cocoa-nut trees, the whole being surrounded by a paling of split bamboo, by which every family is wholly separated from its neighbours. The river of Bantam, at its mouth, is about 170 or 180 feet wide, and is very shallow. However, at high water and in spring tides, it is from five to seven feet deep. Above the town it divides into three channels, of which that just mentioned is the middle one; the other two branches run into the sea, about the distance of $1\frac{1}{2}$ league on each side.

The gulph or bay of Bantam, bounded by a point of the same name and that of Pentang, forms a commodious retreat for ships, where a great number may anchor in safety. Within this bay are several small islands which are all uninhabited, except Pulo-Panjang, or the Long island, which is the largest and in which some fishermen reside. Fish are plentiful; and the inhabitants prefer one called the kaalkop or bald-head, which has some resemblance to our cod. This bay was formerly famous for being the principal rendezvous of the shipping from Europe in the east. Bantam was the great mart for pepper and other spices, from whence they were distributed to other parts of the world. The chief factory of the English as well as Dutch East India company was settled there. The merchants of Arabia and Hindoostan resorted to it. Its sovereigns were so desirous of encouraging trade, by giving security to foreign merchants against the violent and revengeful disposition of the natives, that the crime of murder was never pardoned when committed against a stranger, but might be committed by a foreigner for a fine to the relations of the deceased. This place flourished for a considerable time; but the Dutch having conquered the neighbouring province of Jacatra, where they have since built Batavia, and transferred their principal business to it; and the English having removed to Hindoostan and China, Bantam was reduced to a poor remnant of its former opulence and importance. Other circumstances have also accelerated its decline. The bay is so choaked up with daily accumulations of new earth washed down from the mountains, as well as by coral shoals extending a considerable way to the

east, that it is inaccessible at present to vessels of burden. A fire also destroyed most of the houses; and few have been since rebuilt. With the trade of Bantam the power of its sovereign declined. In his wars with other princes of Java, he called in the assistance of the Dutch; and from that period he became, in fact, their captive. He resides in a palace, built in an European style, within a fort called the Diamond, situated in a large open field, denominated the Pascebaan, where three roads, leading from different quarters of the town, unite to the westward of the river, and garrisoned by a detachment from Batavia; the commander of which takes his orders, not from the king of Bantam, but from a Dutch governor, who lives in another fort, called Speelwyk, adjoining to the town, on the east side of the river, and nearer to the sea side. The royal palace is an oblong square, 840 feet long, and nearly half as broad; it has regular bastions at the four corners, and several semicircular places of arms on the sides. Stavorinus counted 66 pieces of cannon, most of them being brass, and heavy artillery, but old, and few of them fit for service. The Dutch garrison consists of a captain, three subalterns, and 130 privates who guard the king's person, and keep him always in the company's power. None of his subjects, nor even his sons, are allowed to approach him without the knowledge of the captain of the Dutch military, who keeps up a regular intercourse with the commandant at fort Speelwyk. No Javanese or Bantammer is ever allowed to pass the night within the walls of the fort. The approach to it is by a drawbridge, thrown over the moat; and at the gate of the fort an officer and 24 men mount guard night and day. The walls of the king's seraglio are raised higher than those of the fort, to guard it against the inspection of the curious. When the king's sons arrive at the age of puberty they are removed from their father, but have each their separate seraglio or harem. All the servants of the place are women, and even the king's attendant guards are females. However, when he appears in public, he is accompanied by his Bantam life-guards, though they are never admitted within the gates of the fortress, who besides their side arms, which are crisses or long daggers, are provided with pikes, having very long and broad iron heads; and when the king goes abroad he is likewise attended by a guard of Europeans from the garrison. Besides maintaining a body of native troops, his Bantamese majesty is allowed to keep several small armed vessels, by means of which he maintains authority over some part of the south of Sumatra. His subjects are obliged to sell him all the pepper they raise in either island at a low price, which he has contracted to deliver to the Dutch at a small advance, and much under the marketable value of that commodity. The religion of the kingdom of Bantam is the same with that which prevails in the island of Java, or Mahometan; and the present king joins the spiritual to the temporal power, and is high-priest of this religion; with which, indeed, he blends some of the rights and superstitions of the aboriginal inhabitants of Java; adoring, for instance, the great banyan or indian fig-tree, which is likewise held sacred in Hindoostan, and under which religious rites may be conveniently performed; in the same manner as all affairs of state are actually transacted by the Bantamese, under some shadowy tree by moonlight.

In the middle of the plain, or Pascebaan already mentioned, is a large weringa tree, or casuarina equisetifolia, which, by its spreading branches, affords an agreeable shade; and at the foot of it a grave, covered with a large blue stone, in which was buried one of the former kings of Bantam. This is regarded by the inhabitants as a very holy place, and held in great veneration. Near this is a building which is used as a place of circumcision for the children

children of the king; and on such occasions, it is hung round and richly decorated with costly tapestry and pieces of cloth. The Pascebaan is likewise the scene of horse-races and similar exercises, in which the courtiers appear on horseback, magnificently apparelled, to contend with the king or his sons; but they always take care to yield the palm of victory to their royal competitors. The mosque or temple stands at the end of a pleasant lawn, is of a square form, with five roofs above one another, decreasing in size and at last terminating in a point, and surrounded by a wall. The spire serves, like the minarets in Turkey, to announce the hours of prayer. Neither Christian nor Pagan may enter this temple upon pain of death.

The chief authority at Bantam, on behalf of the company, is vested in a senior merchant, with the title of commandant, who manages the trade, consisting chiefly in pepper and some cotton yarn. To the commandery of Bantam belong the two residences or factories which the Dutch company possess in the southern part of the island of Sumatra; whence they derive annually a considerable quantity of pepper. At Bantam all heavy goods are weighed by *bhars*, each containing three *picols*, and these last are estimated at 125 lb. Stavorinus and some of his companions were admitted to an audience by the Bantam king. His dress consisted of a long Moorish coat, made of stuff interwoven with gold, and manufactured at Surat, called *foesjes*, which hung down almost to his feet, and the sleeves of which were fastened by a row of small gold buttons. Under this coat, he wore a white shirt, and a pair of drawers reaching down to his heels, of the same stuff as the coat. His head was covered with a round and somewhat sharp-pointed cap, of a violet colour, laced with silver. Behind his chair stood one of his female life-guards, armed with a large gold kris, in a sheath of massy gold, which she held in an elevated position: two female slaves were seated on each side of him on the ground; one held his tobacco-box and his betel-box, both of which were of gold, and when he wanted either, it was handed to him, wrapped in a silk-handkerchief; the other presented a golden-spitting pot to his majesty, whenever he had occasion for it. Pipes and tobacco were presented to the guests, as soon as they were seated, and the table was furnished with all kinds of Indian food, variously dressed. One singular practice is mentioned, which was that of the king's frequently belching during his meal, and it was followed by all the company. This custom, which is an etiquette of the court of Bantam, was designed to shew that each person's appetite was good and the food agreeable, which was pleasing to the king. Bantam is situated in S. lat. 6° 20'. E. long. 105° 24'. Stavorinus's *Voyages*, vol. i. p. 57—89. Staunton's *Embassy to China*, vol. i. p. 296—298.

BANTAM-COCK, in *Ornithology*, a variety of the *PHASIANUS Gallus*, or the *gallus pusillus*, tibiis pennatis, pennis posticis elongatis, in the Linnæan system. It much resembles, says Buffon, the rough-footed cock of France. Its feet are covered with feathers, but only on the outside; the plumage of the legs is very long, and forms a sort of boots which reach a considerable way beyond the claws. It is courageous, and resolutely fights with one stronger than itself. Its iris is red; and it is said, that most of this breed have no tuft.

BANTAM-Work, a kind of Indian painting and carving on wood, resembling Japan work, only more gay, and decorated with a great variety of gaudy colours.

Bantam-work is of less value among connoisseurs, though sometimes preferred by the unskilful, to the true Japan work. Formerly it was in greater use and esteem than

at present; and the imitation of it much practised by our japanners.

There are two sorts of Bantam as well as of Japan work; as, in the latter, some are flat, lying even with the black, and others high, or embossed; so in Bantam-work, some are flat, and others in-cut, or carved into the wood, as we find in many large screens; with this difference, that the Japan artists work chiefly in gold and other metals, and the Bantam generally in colours, with a small sprinkling of gold here and there.

As to the flat Bantam-work, it is done in colours, mixed with gum-water, proper for the thing designed to be imitated. The method of performing the carved or in-cut kind is thus described by an ingenious artist. The wood is first to be primed with whiting and size, so often till the primer lie near a quarter of an inch thick; then it is to be water-plained, i. e. rubbed with a fine wet cloth, and some time after, brushed very smooth, the blacks laid on, varnished up with a good body, and polished well, though with a gentle hand. This done, the design is to be traced out with vermilion and gum-water, exactly in the manner where it is intended to be cut; the figures, trees, buildings, &c. in their due proportions. Then the graver is applied, with other tools of proper shapes, differing according to the workman's fancy. With these he cuts deep or shallow, as is found convenient, but never deeper than the whiting lies; the wood being never to feel the edge of the instrument. Lines or parts of the black are still to be left, for the draperies and other out-lines, and for the distinction of one thing from another; the rule being to cut where the white is, and leave the black untouched. The carving being finished, they then use the pencil, with which the colours are laid into the cut-work. After this, the gold is to be laid in those places which the design requires; for which purpose, a strong thick gum-arabic water is taken, and laid with a pencil on the work; and, while this remains wet, leaf-gold is cut with a sharp smooth-edged knife, in little pieces, shaped to the bigness and figure of the places where they are to be laid. These being taken up with a little cotton, they dab them with the same close to the gum-water, which affords a rich lustre. The work thus finished, they clear up the black with oil, taking care not to touch the colours. The European workmen, in lieu of leaf-gold, ordinarily use brass-dust, which is less bright and beautiful. Park. *Treat. of Japan*.

BANTAYAN, in *Geography*, a small island of the East Indies, belonging to the group of Philippines, situate north-east of Zebu, near cape Burulaque. It is encompassed by four or five of a smaller size; and the inhabitants employ themselves in fishing and making cotton hose.

BANTEIA, or **BANTIA**, in *Ancient Geography*, a town of Italy, in Apulia. Plutarch, in his life of Marcellus, speaks of this place in his account of the march of this general against Hannibal; and Horace (Od. iv. lib. 3.) calls the desiles in its vicinity "faltus Bantinos."

BANTELN, in *Geography*, a town of Germany, in the circle of Lower Saxony, and principality of Calenberg; in which is a carpet manufacture.

BANTI, **BRIGIDA GEORGI**, in *Biography*, an opera singer of the first class. In 1777, she was engaged by the proprietors of the pantheon, to supply the place of the Agujari; a measure adopted merely on speculation, upon hearing from Paris of the effects of her fine voice in that capital.

She was the daughter of a *gondoliere* at Venice, and for some time a piazza performer in that city. After this exercise of her natural vocal powers, she sung her way to Lyons, where she performed in coffee-houses for such small

donations as are usually bestowed on itinerant talents in such places. Hence, by the power of song, she was conveyed to Paris, where her voice was so much admired, that, after very little teaching by some of her countrymen whom she met with there, she was permitted to sing at the concert spirituel. Here the applause was so loud, that it soon reached England, and inclined the proprietors of the pantheon to engage her for three seasons, at 800*l.* a year, upon condition that 100*l.* should be deducted each season out of her salary, for the payment of an able master to cultivate her voice. Sacchini was the first appointed to this office; but soon found her so idle and obstinate, that he quitted her as an incurable patient. She was next assigned to signor Piozzi, whose patience was likewise exhausted before she became a perfect singer. In 1779, she returned to Italy as ignorant of music as when she left that country; but from the accuracy of her ear, and power of imitation, she soon improved, more by example than precept or study; and in 1783, we find in musical records that she was engaged at Florence, as first woman, to sing with Marchesi, then at the zenith of his powers and favor. The next year she sung at Turin; then at Milan; and in 1786, she went to Vienna; thence to Warsaw in 1787; and in 1788, first performed at Naples, where the theatre is the largest in Europe, and reckoned the post of honour among singers. And here her favour was so great, that after singing at Milan with Crescentini, and at Venice with Pacchierotti, she was recalled to Naples three several times before the year 1793, when she went to Spain; and at Madrid she seems still to have increased in fame and favour. His Catholic majesty finding that she had a large family of children, which was increased during her residence in Spain, took two off her hands, and promised to have them educated, and to provide for them. It is hardly credible, with a person and voice so entire and well preserved, but she used to declare, that she had had children and miscarriages to the amount of eighteen!

In 1794, on quitting Spain, she returned to England, where she preserved her voice, increased its powers, and her favour with the public, every season, till 1802, when she again returned to her own country; and in November performed at Bologna, in *Antigona*, an opera composed by Bianchi. From Bologna she was invited to Naples for the fourth time; and from Naples was invited to sing at Milan, during the carnival of 1803.

We cannot take our leave of this admirable performer, without declaring, that we never heard a voice of more grateful tone, or more constant in tune; or an execution (as far as she attempted *bravura*) more neat, brilliant, and articulate. The low notes of her voice were mellifluous, rich, and full to an uncommon degree; and in pathetic airs, the tones through her whole compass were truly touching.

Her knowledge of music was inconsiderable, and this she always confessed; that is, she could not sing at sight: but who is ever required in public to sing airs at sight? and whether she was an hour or week in studying a part, it was the same thing to the audience, as she was always perfect on the stage; so that the inconvenience was all her own.

It has been said that she wanted variety in her embellishments; but few female singers are sufficiently skilled in the laws of counterpoint to invent graces themselves, that shall not break the time or injure the harmony; and we believe that composers must rejoice in such ignorance, as modestly delivers their melodies unsophisticated, disguised, and changed by what are vulgarly termed graces, but which persons of true taste and judgment, with more propriety, denominate ignorance and impertinence.

We long wished the Banti's shake a little more open, but even that wish was gratified before her departure.

And now, quitting the singer, we shall pay our respects to her as an actress; in which faculty she surpassed in grace, dignity, and propriety, all the stage fingers whom we remember ever to have seen; and whoever recollects her performance in the opera of Semiramide, will not dispute her transcendent merit in that particular: ever attentive to the persons who addressed her in each scene, whether good or bad singers, friends or foes to herself, she never seemed to think them less worthy of her notice than the ladies of her acquaintance in the pit or the boxes.

Her person and figure were good, and her countenance, though not handsome, was expressive, and her features strong and flexible. Upon the whole, we know not whether she gratified us most as a singer or an actress.

BANTON, or BATAN, in *Geography*, one of the smaller Philippine islands.

BANTRY, a market and post town of the county of Cork, Ireland, situated at the bottom of the extensive bay called from it, on the east side. It was formerly called the Old town, to distinguish it from a settlement more to the north, where general Ireton caused a fortification to be erected, but when the fort went to decay, it was entirely forsaken. Several years ago, Bantry was a thriving town, on account of the pilchard fishery, several thousand pounds worth of them having been sent to Italy, Spain, and Portugal, and much oil made from them. In 1748 and 1749, there was a great herring fishery, as appears from returns made to the Dublin society, but the town has since fallen into decay. It was however brought into notice by the French fleet going there, and fortifications were erected there to prevent a future surprise. Whiddy island, opposite the town, is remarkable for its fertility and beauty; and Glengariff, between Bantry and Bear island, is a charming place, the rocks of which are covered with *Arbutus* trees, and plants of different kinds. Bantry is 164 Irish miles S.W. from Dublin. N. lat. 51° 39'. W. long. 9° 20'.

BANTRY Bay, a large harbour in the western part of the county of Cork, Ireland, which is one of the finest in the world, being twenty-six miles long, and from three to five broad. There is in some parts from 30 to 40 fathom water, and the tides move very gently right in and out through the whole bay. There are few strands round it, the coast being all high and stupendous rocks. In this bay, near the entrance, there was an engagement in A. D. 1689, between the French fleet which brought James II. to Ireland, and the British fleet, of very inferior force, under admiral Herbert, when, after engaging some hours, the former got into the bay, and the latter returned to England with very small loss. In 1796, it was fixed as the place of rendezvous for the French force destined to invade Ireland, and some ships arrived there the 22d of December, which caused a great alarm throughout the country, but general Hoche, the commander in chief, with the rest of the fleet, not arriving, they failed the 27th of the same month, without having attempted to land.

BANUB, a town of Egypt, 52 miles W.N.W. of Mansoura.

BANVILLE, a town of France, in the department of the Calvados, three leagues N.N.W. of Caen, and 2½ E. of Bayeux.

BANY, the name of a river that lies on the south-west coast of Africa. The Dead island is in this river; and the coast runs here east and west from cape Fermosa.

BANYAN TREE, in *Botany*. See *Ficus*.

BANZA, in *Geography*, a town of Africa, in the kingdom of Congo, now called St. Salvador.

BANZKOW, a town of Germany, in the circle of Lower Saxony, and county of Schwerin.

BAOBAB, in *Natural History*, the name of an African fruit, described by Prosper Alpinus. It is of the size of a lemon, but it resembles a gourd, and contains several black seeds, whose extremities are a little crooked. Its substance also much resembles that of the gourd; and, when first pulled off, is moist, red, and of a grateful acid taste. The people of Ethiopia, where it is plentiful, are very fond of it, in the scorching heats of summer; and the richer sort add sugar to it, to correct its acidity. It is a great cooler, and very agreeably quenches thirst; and has also some medicinal use, as it is good in contagious and pestilential fevers. The people of Cairo, where the fresh fruit is not to be had, use its pulp dried and powdered; and it is so used at Senegal in pestilential fevers, the dysentery, and bloody flux. The dose is a drachm, taken either in common water, or in an infusion of the plantain.

The baobab tree, the *Adansonia digitata* (see *ADANSONIA*), has been very minutely and accurately described by Mr. Adanson, in the Memoirs of the Academy of Sciences at Paris. It is found at Senegal in Africa; and its bulk is so enormous, that it has more the appearance of a forest than of a single tree. Its trunk, which seldom exceeds twelve feet in height, measures between seventy and eighty feet in circumference, and is crowned with a number of branches, remarkable for their thickness and their length, which is from fifty to sixty feet. They mostly shoot out in an horizontal direction, and give to the trunk the appearance of an hemisphere from sixty to seventy feet high, and about a hundred and forty feet in diameter. The bark is an inch thick, of an ash-coloured grey, greasy to the touch, bright, and very smooth; the outside is covered with a varnish, and the inside is green speckled with red; the wood is white and soft; the leaves are oval, pointed at the end, and about five inches long, and two and a half broad; seven of these are generally attached to one pedicle. The tree produces flowers much larger than any hitherto known; the calyx of the flower consists only of one piece, the lower part of which forms a short tube, which spreads into the shape of a saucer, having its edge divided into five equal parts of a triangular figure. The petals are five in number, of the same length with the calyx. From the same centre, and within the petal, rises a cone, which spreads into about seven hundred filaments, each having a small substance in form of a kidney at the end of it, the convex part of which opens into two cells, which shed a dust, consisting of small white transparent particles. The pistil rises from the centre of the calyx, and consists of an ovary, a stylus, and several stigmata, in number from ten to fourteen. The ovary becomes a very considerable fruit. The tree flowers in July, and the fruit ripens in October and November. The bark and leaves are dried, and powdered by the negroes of Senegal, and used like pepper and salt. Mr. Adanson used it as a preservative from the epidemic fever of the country, and found it of great benefit in promoting perspiration, and attenuating the excessive heat of the blood. The woody bark of the fruit, and the fruit itself, supply the negroes with an excellent soap, which they prepare by drawing a ley from the ashes, and boiling it with palm-oil that begins to be rancid. The decaying trunks are hollowed out into burying places for persons most esteemed by the negroes; such as poets, musicians, and buffoons; and their bodies shut up in these trunks become perfectly dry, without rotting, and form a kind of mummies, without the help of embalment. This is the largest tree in Abyssinia. The

wild bees perforate the trunk, which is soft and spongy, and lodge their honey in the holes made in it; and this honey is preferred to any other in Abyssinia. It may be propagated by seeds, procured from the country where it naturally grows. These must be sown in pots and plunged in a hot-bed; and when in about six weeks the plants come up, they should be transplanted into separate pots, filled with light sandy earth, and plunged into a fresh hot-bed, shading them till they have taken new root; after which they should have free air in warm weather, and be sparingly watered. As the plants advance in growth, they must be shifted into larger pots, and kept constantly plunged in the bark-bed, and remain in the stove with other tender exotic plants. In three years, many of them rise to the height of six feet, and put out several lateral branches, and their stems are proportionable; but after four or five years' growth, they are almost at a stand, their annual shoots rarely exceeding two or three inches. Some seeds obtained from Mr. Adanson have succeeded here, and many of the plants grow upwards of twelve or fifteen feet high. Martyn's Miller. The African baobab has been sometimes confounded with the American calabash.

BAOL, or **BAUL**, in *Geography*, a kingdom of Africa, in the country of Senegal, about eighty leagues long and twenty-four wide.

BAOOM, or **APOOM**, one of the newly discovered islands in the Southern Pacific ocean. S. lat. 16° 26'. W. long. 186° 17'.

BAONS, **LES**, a town of France, in the department of the Lower Seine, 2½ leagues north of Caudebec.

BAPEAUME, a town of France, in the department of the straits of Calais, and chief place of a canton in the district of Arras; three posts south of Arras, and 19½ north of Paris. The place contains 3145, and the canton 12,050 inhabitants; the territory includes 147½ kilometres and 23 communes.

BAPHE, in the *Writings of the Ancients*, a word used to express that fine red colour, with which they used to illuminate the capital letters in manuscripts, at the beginning of chapters. It is also called, by some, *encaustum sacra*; and, by others, *coccus* and *cinnabaris*. It was a very elegant colour, and is said to have been prepared of the purple colour taken from the *murex*, and some other ingredients. It was called *encaustum* from its resembling very much the fine bright red used in enamels.

BAPTACA, in *Geography*, a town of North America in the country of New Navarre, forty-five miles E.S.E. of Casa Grand.

BAPTÆ, in *Antiquity*, an effeminate voluptuous kind of priests at Athens, belonging to Cotys or Cotytto, the goddess of wantonness; thus called, from their stated dippings and washings, by way of purification. It seems, they were to be made very clean and pure, that they might wallow and defile themselves with the less reserve; for their rites were performed in the night, and consisted chiefly of lascivious dances.

Eupolis having composed a comedy to expose them, intitled βαπτῆς, they threw him into the sea, to be revenged; and the same fate is also said to have befallen Cratinus, another Athenian poet, who had written a comedy against the baptæ, under the same title.

Others deduce the denomination baptæ, from the practice of dyeing and painting their bodies, especially their eyebrows, and officiating at the service of their deity with the parade and demureness of women. Juvenal describes them in this light. Sat. ii. ver. 91.

“Talia secretâ coluerunt orgia tædâ
Cecropiam soliti baptæ lassare Cotytto.”

BAPTES,

BAPTES, in *Natural History*, a name given by the ancients to a foetid substance used in medicine; they have left us but very short descriptions of it. Pliny only tells us that it was soft and of an agreeable smell. Hence Agricola judges, that it was probably one of the bitumens.

BAPTISM, in *Theology*; formed from the Greek βαπτίζω, of βαπτω, *I dip or plunge*, a rite or ceremony by which persons are initiated into the profession of the Christian religion; or, it is the appointed mode by which a person assumes the profession of Christianity, or is admitted to a participation of the privileges belonging to the disciples of Christ. It was by this mode that those who believed the gospel were to be separated from unbelievers, and joined to the visible Christian Church; and the rite accompanying it, or washing with water, was probably intended to represent the washing away, or renouncing the impurities of some former state, viz. the sins that had been committed, and the vicious habits that had been contracted, and to this purpose it may be observed, that the profession of repentance always accompanied, or was understood to accompany, the profession of faith in Christ. That our Lord instituted such an ordinance as baptism, is plain from the commission given to the apostles after his resurrection, and recorded in Matth. xxviii. 19, 20. To this rite, there is also an allusion in Mark, xvi. 16. John, iii. 5. Acts, ii. 41. viii. 12, 36—38. xxii. 16. The design of this institution, which was to express faith in Christ on the part of those who are baptized, and to declare their resolution of openly professing his religion, and cultivating real and universal holiness, appears from Rom. vi. 3, 4. 1 Peter, iii. 21. Ephes. v. 26. and Tit. iii. 5. Some have inferred from Acts, ii. 38. xxii. 16. Tit. iii. 4—7. that God did thereby give to believers a token of the forgiveness of their sins, according to the terms of the gospel covenant; and they have alleged, that there is a sense in which baptism may be called a seal of the covenant of grace.

We find no account of baptism as a distinct religious rite, before the mission of John, the forerunner of Christ, who was called the "Baptist," on account of his being commanded by God to baptize with water all who should hearken to his invitation to repent. Washing, however, accompanied many of the Jewish rites, and, indeed, was required after contracting any kind of uncleanness. Also, soon after the time of our Saviour, we find it to have been the custom of the Jews solemnly to baptize, as well as to circumcise, all their proselytes. As their writers treat largely of the reasons for this rite, and give no hint of its being a novel institution, it is probable, that this had always been the custom antecedent to the time of Moses, whose account of the right of circumcision, and of the manner of performing it, is by no means circumstantial. Or, baptism, after circumcising, might have come into use gradually from the natural propriety of the thing, and its easy conformity to other Jewish customs. For if no Jew could approach the tabernacle, or temple, after the most trifling uncleanness, without bathing, much less would it be thought proper to admit a proselyte from a state so impure and unclean as heathenism was conceived to be, without the same mode of purification. On the other hand, it has been alleged, that none of the washings which were practised among the Jews, bear the least resemblance to Christian baptism, except in the single circumstance of dipping; and this circumstance is a mere accident, and may as well be taken from Pagan rituals, as from the ceremonies of the Jews; or, in other words, it is so vague and far-fetched, that it deserves, in this point of view, no consideration at all. Accordingly,

it is maintained, there was no baptism in the world among any people till John, and that the purification of a proselyte by dipping himself, which is called baptism, was a late tradition, long after the time of John. The antiquity of this practice of proselyte-baptism among the Jews, has been a subject of considerable debate. It has been strenuously maintained by Lightfoot (Works, vol. ii. p. 120, &c.), Emlyn (Previous Question in Tracts, vol. i. p. 394.), Wall (History of Infant Baptism, Introd.); and contested by Dr. Benfon (On St. Paul's Epist. vol. i. Disc. viii. p. ii.), Gale (Reflections on Wall), Robinson (Hist. of Baptism, p. 37.) &c. Dr. Benfon was at first an advocate for the Jewish custom of initiating heathen proselytes by baptism; but upon further inquiry he relinquished this opinion; alleging that he had not found any instance of one person's washing another by way of consecration, purification, or sanctification; except that of Moses's washing Aaron and his sons, when he set them apart to the office of priests, Lev. viii. 6.; and that he cannot find that the Jews do at present practise any such thing as that of baptizing the proselytes that go over to them, though they are said to make them wash themselves. He then asks, where is any intimation of such a practice among the Jews, before the coming of our Lord? If any one, he says, could produce any clear testimony of that kind from the Old Testament, the Apocrypha, Josephus, or Philo, that would be of great moment. He adds, in former times, proselytes coming over from Heathenism to the Jewish religion, used to wash themselves, which is a very different thing from baptism, or one person's being washed by another. The genuine Targums, say Gill and Gale, written about the close of the first century, and the Mishna, written about the middle of the second century, say nothing on this subject. The Christian writers, called Fathers, speak of Jewish proselytes, and washings, and purifications from ceremonial uncleanness; but nothing of admitting proselytes into the community by baptism. The baptism of proselytes, it is said, came to light through the later Rabbies, and is chiefly to be sought in the writings of Maimonides, who flourished in the eleventh or twelfth century. In the Old Testament there are many precedents of admitting proselytes into the Jewish church, as Rahab, Ruth, and others; but not one word is said of their being baptized. Among the laws of admission given by Moses, Exod. xii. 48, 49, this is not mentioned. Dr. John Owen (Theologoumena) considers the opinion, that Christian baptism came from the Jews, as destitute of all probability. On the other hand, Mr. Wall has made it highly probable, to say the least, from many testimonies of the Jewish writers, who without one dissenting voice allow the fact, that the practice of Jewish baptism obtained before and at, as well as after, our Saviour's time. There is also a strong intimation, even in the gospel itself, of such a known practice among the Jews in the time of John the Baptist. John i. 25. The testimonies of the Jewish writers are of the greater weight, because the practice, reported by them to have been of so ancient a date, did still remain among them; for if it had not been of that antiquity to which it pretends, viz. before the time of Christ, it is not likely that it would ever have become a custom among the Jews afterwards. Would they begin to proselyte persons to their religion by baptism in imitation of the disciples of Jesus of Nazareth, whom they held accursed? And yet if this proselyte baptism were adopted by the Jews since the time of Christ, it must have been a mere innovation in imitation of Christians, which is not very likely. See on this subject Maimon. in Mishn. tom. ii. Ifure bia. c. 1. and c. 13. Selden de Jure Naturali, &c. l. ii. c. 2. Altingius de Proselytis, diss. 7. § 46. Vi-

ting. Archifynagog. c. 18. Curcellæi Inſtit. l. v. c. 2. § 7. Ainfworth on Gen. xxiii. 12. Lightfoot ad Matt. iii. 6. The queſtion of the Pharifees to John the Baptiſt, "Why baptizeſt thou?" evidently favours the ſuppoſition, that ſuch a cuſtom exiſted; and our Saviour's queſtion to Nicodemus, "Art thou a maſter, or teacher, in Iſrael, and knoweſt not theſe things?" is a manifeſt alluſion to the cuſtom of initiating proſelytes by water-waſhing or baptizing, who after being ſo waſhed or baptized, were eſteemed regenerated or born again; and therefore to a ruler in Iſrael, who, could not be unacquainted with theſe things, our Saviour's diſcourſe ought not to have appeared ſo unintelligible. Origen, in his Com. on Epiſt. to the Romans, c. 6. ſays, that Chriſt was baptized by John, not with that baptiſm which is in Chriſt, but with that which is in the law; implying, that under the law there was ſuch a cuſtom of baptizing. See alſo Arrian in Epiſtet. l. ii. c. 9.

In the primitive times, this ceremony was performed by immerſion, as it is to this day in the oriental churches, according to the original ſignification of the word. However, it is not improbable, that when great numbers were baptized at the ſame time, the water was applied by ſprinkling, which was a practice ſufficiently familiar to the Jews. The practice of the weſtern churches is, to ſprinkle the water on the head or face of the perſon to be baptized, except in the Church of Milan, in whoſe ritual, it is ordered, that the head of the infant be plunged three times into the water; the miniſter at the ſame time pronouncing the words "*I baptize thee in the name of the Father, the Son, and the Holy Ghoſt*;" importing that by this ceremony the perſon baptized is received among the profeſſors of that religion, which God, the Father of all, revealed to mankind by the miniſtry of his Son, and confirmed by the miracles of his Spirit.

It is obſervable that the baptiſmal form, above cited from St. Matthew, never occurs in the ſame words, either in the book of the Acts, or in any of the Epiſtles. But perſons are required to be baptized in the name of Chriſt, or ſaid to have been baptized into Chriſt; that is, they made a profeſſion of faith in Jeſus, as the Chriſt, and acknowledged their obligations to him, by being baptized. Acts, ii. 38. viii. 16. 35. 38. Rom. vi. 3. Gal. iii. 27. But though the form which is in St. Matthew never appears elſewhere, the thing intended thereby is always implied. Nor could any be brought to make a profeſſion of faith in Jeſus, as the Chriſt, but upon the ſuppoſition that he had taught in the name and with the authority of God the father, and had proved his commiſſion by miraculous atteſtations which could not be denied nor gainſaid. It is obſerved that the baptiſm of Jeſus was, like that of John, a reception to his inſtruction, or information in his doctrine, or concerning him; as appears from his own injunction, Matt. xviii. 19, 20; and alſo from that clause which has been conſidered as the form of Chriſtian baptiſm; which ought to have been rendered not *in*, but (*εἰς*) *unto, into, or upon*, the name of God, of Chriſt, and of the Holy Spirit. The verſion which ſome have preferred is, "baptize *upon* the name of the Father, and of the Son, and of the Holy Spirit;" i. e. receive them to inſtruction upon theſe ſubjects; thus expreſſing what were to be the topics of their information, and what the great and diſtinguiſhing character of the inſtitution. On the part of the baptizer, baptiſm was a form of reception to inſtruction; and on the part of the perſons coming to baptiſm, it was an acknowledgment of the truth of the pretenſions of the perſon who baptized, an acknowledgment of his capacity and of his authority to propoſe himſelf as a religious inſtructor, and a deſire of being initiated into his ſchool, for the purpoſe of conforming to his diſcipline.

Hence it would follow, that "to be baptized *unto, or upon* Chriſt," was a public ſolemn profeſſion of faith in him. However the baptiſm of the Ethiopian miniſter by Philip, in a ſcene ſo private, and before ſo few, if indeed before any witneſſes, ſeems to be inconſiſtent with the notion that baptiſm was a ſolemn public profeſſion of faith in Chriſt; and the requiſition of a previous verbal declaration of ſuch faith totally overturns it. See Cappe's Diſſertation on Baptiſm. in Crit. Rem. vol. ii. p. 102.

Baptiſm is not to be repeated, ſince it is a right of initiation into Chriſt's church. However, thoſe perſons might be baptized in the name of Jeſus, as the Meſſiah already come, who had before been baptized by John and his diſciples into the general expectation of a Meſſiah ſhortly to be revealed. Compare Acts, xix. 5. The Chriſtians in Abyſſinia repeat their baptiſm annually, on the feſtival of Epiphany. The naming of the baptized perſon is by no means any part of this inſtitution; and when it is uſed, is to be conſidered as an addreſs to the perſon, calling him by his name, rather than as the manner of giving a name to him: though it is probable, that the cuſtom of naming a child at baptiſm might ariſe from the practice of the Jews at their circumciſion. Luke, i. 59—63. ii. 21.

A triple immerſion was at an early period uſed, and continued for a long time; this was to ſignify either the three days that our Saviour lay in the grave, or the three perſons in the Trinity. But it was afterwards laid aſide, becauſe the Arians uſed it; it was then thought proper to plunge but once. (See IMMERSION.) Some are of opinion that ſprinkling in baptiſm was begun in cold countries. It was introduced into England about the beginning of the ninth century. At the council of Celchyth, in 816, it was ordered, that the prieſt ſhould not only ſprinkle the holy water upon the head of the infant, but likewiſe plunge it in the baſon. Some have referred the introduction of ſprinkling in the church of Rome to a canon of pope Stephen III., who, during his reſidence in France, in 754, was conſulted by ſome monks of Creſſy in Britanny with regard to ſeveral queſtions; one of which is ſaid to have given occaſion to the firſt authentic law for adminiſtering baptiſm by pouring, which in time was interpreted to ſignify ſprinkling. The queſtion propoſed was, whether in caſe of neceſſity occaſioned by illneſs of an infant, it were lawful to baptize by pouring water out of the hand or a cup on the head of the infant? To which Stephen replied, that if ſuch a baptiſm were performed in ſuch a caſe of neceſſity, in the name of the holy Trinity, it ſhould be held valid. This, ſays the learned James Baſnage (Monum. vol. i. præf. c. v. §. 4. de Canone Steph. III. Papæ), is accounted the firſt law for ſprinkling, but it doth not forbid dipping; allowing it only in caſe of imminent danger. He adds, that the authenticity of it is denied by ſome Catholics; that many laws were made after this time in Germany, France, and England, to compel dipping, and without any provision for caſes of neceſſity; and therefore that this law did not alter the mode of dipping in public baptiſms, and that it was not till 557 years after, that the legiſlature, in a concil at Ravenna, in the year 1311, declared dipping or ſprinkling indifferent. It has been alleged, that this answer of Stephen is the true origin of private baptiſm and of ſprinkling. The introduction of ſprinkling inſtead of dipping, in ordinary caſes, into this iſland, is ſaid to have been effected by ſuch Engliſh, or more ſtrictly ſpeaking Scots exiles, as were diſciples of Calvin at Geneva, during the Marian perſecution; and it is added, that the Scots Calviniſts, who firſt introduced ſprinkling in ordinary baptiſm into the northern parts of the iſland, were the importers of it into the ſouthern. In the reign

reign of king Edward, the established church practised in ordinary cases trine immersion; and pouring or sprinkling was allowed, only in cases of danger, in private. It is further argued by those who maintain that in the primitive church there is no mention of baptizing by pouring, that the administration of baptism by sprinkling was first invented in Africa in the third century, in favour of clinics, or bed-ridden people; but that even African Catholics, the least enlightened and the most depraved of all Catholics, derided it, and reputed it no baptism. See Jo. Andreæ Bosii de Clinicis exercit. Hist. Jenæ, cited by Robinson in his "History of Baptism," p. 449. In the liturgy of the English church at Frankfort, king Edward's service book was used, and baptism was administered by trine immersion. In the Scots church at Geneva, the minister was directed to take water in his hand, and lay it upon the child's forehead, which was called pouring. About 100 years after, in the assembly of divines, Dr. Lightfoot caused dipping to be excluded, and sprinkling declared sufficient. In the Eastern and Greek churches, dipping is said to have been the invariable mode of administering baptism from the first introduction of it to this day. See Dr. King's Rites of the Greek church.

There are many ceremonies delivered by ecclesiastical writers, as used in baptism, which were introduced after the age of Justin Martyr, but which are now disused; as the giving milk and honey to the baptized, in the East; wine and milk in the West, &c. They also added unction and the imposition of hands. Tertullian is the first who mentions the signing with the sign of the cross, but only as used in private, and not in public worship; and he particularly describes the custom of baptizing without mentioning it. Indeed, it does not appear to have been used in baptism till the latter end of the fourth or fifth century; at which time great virtue was ascribed to it. Lactantius, who lived in the beginning of the fourth century, says (Inst. l. iv. c. 27. p. 439.), the devil cannot approach those who have the heavenly mark of the cross upon them, as an impregnable fortress to defend them; but he does not say it was used in baptism. After the council of Nice, Christians added to baptism the ceremonies of exorcism and adjurations, to make evil spirits depart from the persons to be baptized. They made several signings with the cross, they used to light candles, they gave salt to the baptized person to taste, and the priest touched his mouth and ears with spittle, and also blew and spat upon his face. At that time also baptized persons wore white garments till the Sunday following. They had also various other ceremonies; some of which are now abolished, though others of them remain in the church of Rome to this day.

The Quakers (see QUAKERS) assert, that water baptism was never intended to continue in the church of Christ any longer than while Jewish prejudices made such an external ceremony necessary; which they argue from that passage, in which *one* baptism is spoken of as necessary to Christians; Ephes. iv. 5. which, as they say, must be a baptism of the spirit. But from comparing the texts that relate to this institution, which have been already cited, it will plainly appear that water baptism was instituted by Christ in more general terms than will agree with this explication. That it was administered to all the Gentile converts, and not confined to the Jews, appears from Matt. xxviii. 19, 20, compared with Acts, x. 47; and that the baptism of the spirit did not supersede water baptism, appears to have been the judgment of Peter and of those that were with him; so that the one baptism spoken of seems to have been that of water; the communication of the Holy Spirit being

only called baptism in a figurative sense. As for any objection which could be drawn from 1 Cor. i. 17. it is sufficiently answered by the preceding verses, and all the numerous texts, in which, in epistles written long after this, the apostle speaks of *all* Christians as baptized; and argues from the obligation of baptism, in such a manner as we can never imagine he would have done, if he had apprehended it to have been the will of God that it should be discontinued in the church. Compare Rom. vi. 3, &c. Col. ii. 12. Gall. iii. 27.

Baptism was also wholly rejected by the Valentinians, Manichees, Paulicians, and many other sects.

Several of the Socinians have maintained, that baptism was only to be used by those who are converted to Christianity from a different profession; and that though the children of such proselytes were to be baptized with their parents, all who descended from them were to be considered as baptized in them; and they urge the practice of proselyte baptism among the Jews in support of this opinion. (See Emlyn's Previous Question, *ubi supra*). However, it has been alleged in reply, that the antiquity of this practice of proselyte baptism among the Jews has been doubted, and even disallowed by many; and if it be admitted, all the rules and circumstances relating to it might not be known even to the apostles themselves; and it is also probable, that some of the rules of proselyte baptism did not prevail among them so early, particularly that which supposed that all natural relations were annulled by it. Besides, although it be acknowledged that no instance occurs in the earliest primitive antiquity, in which the baptism of any child of Christian parents, whether infant or adult, is expressly mentioned; yet it is certain that Christians in general have always been spoken of by the most ancient fathers as baptized persons; and the apostles, when writing to Christian churches planted many years before the date of their respective epistles, argue with the members of them from the obligation which their baptism brought upon them, in such a manner as would lead us to conclude, that they were baptized in their own persons; and it is also certain, that as far as our knowledge of primitive antiquity reaches, no unbaptized person received the Lord's supper, which, nevertheless, was an ordinance none will deny that the descendants of Christians participated. It is added, that on this supposition, genealogies would be of great importance in religion, contrary to what St. Paul intimates; nor can it be reasonably thought that our right to Christian communion should rest on a fact, the evidence of which might sometimes be so obscure, as the baptism of some remote ancestor. See Gale's Sermon, vol. ii. N^o 9. Benson on 2 Tim. p. 134—136. Whit. Life, vol. i. p. 367, 368.

Theological authors distinguish three kinds of baptism: 1. Water baptism, which is that above-mentioned. 2. Baptism of fire, which is the perfect love of God, joined with an earnest desire to be baptized: called also the *baptism of the Holy Ghost*: on occasion this may supply the place of water baptism. 3. Baptism of blood, which is the martyrdom of a catechumen.

Baptism, in the primitive times, was only administered at Easter and Whitsuntide, except in cases of necessity. Adult persons were prepared for baptism by abstinence, prayer, and other pious exercises. It was to answer for them, says Mosheim (Eccl. Hist. vol. i. p. 211.), that sponsors, or godfathers, were first instituted in the second century, though they were afterwards admitted also in the baptism of infants. This, according to M. Daillé, was not done till the fourth century. Wall (Hist. Inf. Bapt. vol. i. p. 49.) refers the origin of sponsors, or godfathers, on the authority

authority of Tertullian, to the commencement of the second century; who were used in the baptism of infants that could not answer for themselves. (See GODFATHERS.) The catechumens were not forward in coming to baptism: St. Ambrose was not baptized before he was elected bishop of Milan; and some of the fathers not till the time of their death. Some deferred it out of a tender conscience; and others out of too much attachment to the world; it being the prevailing opinion of the primitive times, that baptism, whenever conferred, washed away all antecedent stains and sins. Accordingly, they deferred this sanctifying rite as long as possible, even till they apprehended they were at the point of death. Cases of this kind occur at the beginning of the third century. Constantine the Great was not baptized till he was at the last gasp, and in this he was followed by his son Constantius; and two of his other sons, Constantine and Constans, were killed before they were baptized. Divers of the fathers rallied this superstitious delicacy to such a degree, that they introduced a different extreme; the ridiculous zeal of some people carrying them to baptize even the dead, by proxy. Epiphanius, Chrysostom, and Theodoret, observe, that this custom prevailed in some places in their time. See Bafnage Hist. des Eglises Reformées, vol. i. p. 137.

The opinion of the necessity of baptism in order to salvation, is grounded on these two sayings of our Saviour: "He that believeth, and is baptized, shall be saved;" and, "Except a man be born of water, and of the spirit, he cannot enter into the kingdom of God." Mark xvi. 16. John iii. 5. In the age immediately following that of the apostles, we find that baptism and regeneration were used as synonymous terms; and whereas, originally, the pardon of sin was supposed to be the consequence of that reformation of life which was only promised at baptism, it was now imagined that there was something in the rite itself, to which that grace was annexed; and in general it seems to have been imagined that this sanctifying virtue was in the water, and in no other part of the ordinance as administered by the priest. Tertullian says, that the Holy Spirit was always given in baptism; and he says, that the spirit of God descends upon the water of baptism like a dove. Chrysostom asserts, that the water ceases to be what it was before, and is not fit for drinking, but is proper for sanctifying; and that the Christian baptism is superior to that of John, as his was the baptism of repentance, but had not the power of forgiving sin. Austin says, that it touches the body, and purifies the heart. Bafnage (*ubi supra*), p. 138. And it appears by a passage in Austin, that the African Christians usually called baptism *salvation*, and the eucharist *life*, preferring the former to the latter. Wickliffe thought baptism to be necessary to salvation. "The priest," he says, "in baptism administers only the token or sign, but God, who is the priest and bishop of our souls, administers the spiritual grace." Gilpin's Life of Wickl. p. 64. It is also the language of the public forms of the Church of England, that baptism is necessary to salvation, and that by baptism an infant is regenerated, becomes a child of God by adoption, and is incorporated into God's holy church. Similar to this is the doctrine of the church of Scotland; for, in their confession of faith, baptism is said to be a sign or seal of the covenant of grace, of persons ingrafting into Christ, of regeneration, of remission of sins, &c. As to the necessity of baptism, we may observe, however, that, though some seem to have laid too great stress upon it, as if it were indispensably necessary in order to salvation; it must be allowed, that for any person to omit baptism, when he acknowledges it to be an institution of Christ, and that it is the

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will of Christ that he should submit to it, is an act of disobedience to his authority, which is inconsistent with true faith.

Mr. Dodwell maintains that the ordinance of baptism, if administered by persons duly ordained, conveys an immortalizing spirit; whereas persons dying unbaptized are not immortal. Mr. Hallet also (*Notes on Script.* vol. iii. p. 299—311.), though he does not assert it in express terms, seems to intimate something very like it, when he says, that circumcision was that which gave the infant a right to immortality; and that baptism in this respect comes in the room of circumcision; and yet that no infants are miserable in a future state.

Some have maintained that the commission to baptize was addressed by Jesus only to the apostles; and hence they argue that none but apostles and apostolical men, their successors, have any right to administer baptism. But it has been asked by others, is it a true fact that during the lives of the apostles, none but they baptized? Philip the deacon baptized the Samaritans (*Acts* xviii. 5—14); there was an apostle at Damascus when Paul was baptized, but he was baptized by a certain disciple named Ananias. *Acts* ix. 18. *Rom.* vi. 4. See also *Acts* xviii. 2, &c. *Acts* x. 5—23. It is also inquired further by persons of this latter class, who are the successors of the apostles? and whether or not Jesus instituted a priesthood or any order of men to succeed the apostles? It is, however, a fact which cannot be contested, that in the earliest age of the Christian church, the bishop only, or the priests by his permission, administered baptism; as with his leave, they also performed any other of his functions: but it appears from Tertullian, that in his time laymen had in some cases the power of baptizing. This baptism, nevertheless, seemed to have required the confirmation of the bishop, and would not be allowed but in case of necessity, as at the approach of death, &c. At a synod at Elvira, in 306, it was allowed, that a layman, provided he had not been married a second time, might baptize catechumens in case of necessity; but it was ordered, that if they survived they should be brought to the bishop for the imposition of hands. Afterwards, when the bounds of the church were much enlarged, the business of baptism was left almost entirely to the priests, or the country bishops; and the bishops of great sees only confirmed afterwards. It seems, however, to be decent and proper, that baptism should be administered only by the teachers and ministers of the church, where their assistance can be had; not only because it appears that these were the persons by whom it was administered in the New Testament, but because, *ceteris paribus*, they must be most capable of judging who are the fit subjects of it.

Great doubts were raised in early times about the validity of baptism as administered by heretics. Tertullian, before he became a Montanist, wrote a treatise to prove that heretics, not having the same God or the same Christ with the orthodox, their baptism was not valid. Cyprian called a synod at Carthage, in which it was determined, that no baptism was valid out of the Catholic church, and therefore, that those who had been heretics should be re-baptized. But Stephen, the bishop of Rome, did not approve of this decision; and by degrees his opinion, which continued to be that of the church of Rome, became every where prevalent. Indeed, when so much stress was laid upon baptism itself, it would have introduced endless anxiety, if much doubt had remained about the power of administering it. For a further account of the subjects and mode of baptism, see BAPTISTS, and PÆDOBAPTISTS; see also ANA-BAPTISTS.

BAPTISM of the Dead, a custom which anciently prevailed

vailed among some people in Africa. The third council of Carthage speaks of it as a thing that ignorant Christians were fond of. Gregory Nazianzen also takes notice of the same superstitious opinion prevailing among some who delayed to be baptized. In his address to this kind of men, he asks, whether they staid to be baptized after death? Philastrius also notes it as the general error of the Montanists or Cataphrygians, that they baptized men after death.

The practice seems to be grounded on a vain opinion, that when men had neglected to receive baptism in their life-time, some compensation might be made for this default by receiving it after death.

BAPTISM of the *Dead* was also a sort of vicarious baptism formerly in use, where a person dying without baptism, another was baptized in his stead; a practice founded on 1 Cor. xv. 29. concerning the sense of which passage critics have been much divided. Several Catholics understand it of the baptism of tears, penance, and prayers, which the living undergo for the dead, and allege it as a proof of the belief of purgatory in the apostles' days. See Heinsius's Exerc. ad Nov. Test. lib. vii. cap. 13.

Michaelis understands, with Grotius and Simon, by βαπτισμος *υπερ νεκρων*, or baptism for the dead, a vicarious baptism for the dead. Whether this vicarious baptism was practised in the first century, and meant by the apostle, it is difficult at present to determine; and Dr. Teller, one of the most sensible expositors of the New Testament, candidly confesses, that he is unable to comprehend the meaning of the passage. It is, however, certain that the custom was not unknown in the fourth century, as appears from Chrysostom's 40th homily to the first epistle to the Corinthians; and in the same century it was not unusual to defer baptism till the approach of death, and if the patient died suddenly, to baptize even the deceased. Michaelis's Introd. by Marsh, vol. i. p. 359.

Others have supposed that the superstitious custom of baptizing a living person as the representative of one who had died unbaptized, is more likely to have arisen from an erroneous interpretation of this passage than to have been so early prevalent. Some conceive that *νεκρων* is here put for *νεκροι*, and refers to those who were baptized into the religion of Jesus, who on the hypothesis of the adversaries against whom the apostle reasons, are *still dead*. Sir Richard Ellys, in his "Fortuita Sacra," p. 137. interprets these words in the following manner: "*what should they do who are baptized, in token of their embracing the Christian faith, in the room of the dead, who are just fallen in the cause of Christ, but are yet supported by a succession of new converts, who immediately offer themselves to fill up their place, as ranks of soldiers that advance to the combat in the room of their companions, who have just been slain in their fight.*" Doddr. in loc. Wakefield (Translation, vol. ii. p. 89.) renders the words: "Besides, what advantage above the *other* dead will they have, who are submitting constantly to baptism? Why indeed are they *thus* baptized, if the dead will certainly live no more? Why should we too expose ourselves to the danger of it *every* hour?" The apostle, says this critic, here begins a new argument of the resurrection, grounded on the practice of the apostles themselves, who had been eye-witnesses of their master's revival. What contributed not a little to obscure this passage, he adds, was the second *υπερ των νεκρων*, a clause not acknowledged by the Coptic and Ethiopic versions. For this sense of baptism, the reader may consult Matt. xx. 22. Luke xii. 50. Euseb. Eccl. Hist. vi. 4. *fin*; and for an illustration of the argument, Rev. xx. 4.

BAPTISM, *Lay*, seems to have been allowed in the rubric

of the English liturgy, till the time of king James I. though there were great disputes among the bishops at the Hampton-court conference in 1603, whether the words of the liturgy imported such allowance or not. The bishop of Worcester allowed them to be doubtful; but that the contrary practice of the church, which censured women for conferring baptism, shewed, that the compilers of the book did not intend them as a permission: they had indeed propounded them ambiguously, because otherwise, perhaps, the book would not have passed the parliament. The archbishop of Canterbury insisted, that the administration of private baptism by women and laymen was not allowed in the practice of the church, but, on the contrary, censured by the bishops in their visitations. He even added, that the words of the liturgy do not infer any such meaning. To which king James excepted; urging and pressing the words of the book, that they could not but intend a permission of women and private persons to baptize. Till this time it had been customary for bishops to license midwives to their office, and to allow their right to baptize in cases of necessity, under an oath which was prescribed to them.

At present, the English divines condemn it as invalid; and Burnet, bishop of Sarum, was severely handled by some of them, for asserting that faith in the Trinity gives every man a right to baptize. Collins's Dis. on Free-Think. p. 73.

BAPTISM, *Clinic*. See CLINIC.

BAPTISM is also applied abusively to certain ceremonies used in giving names to many inanimate things.

BAPTISM, in *Sea Language*, is a ceremony in long voyages aboard merchant-ships; practised both on persons and vessels which pass the tropic, or equinoctial line, for the first time.

That of vessels is simple, and consists only in the washing them throughout with sea-water; that of passengers is ludicrous: but neither the one nor the other is done without making the crew drunk; the seamen on christening the ship, pretending, to a right of cutting off the beak-head, unless redeemed by the master or captain.

BAPTISM of Bells. See BELL.

BAPTISMAL FONT. See BAPTISTERY.

BAPTISMAL Presents are in use in Germany, made by the sponsors to the infant, consisting of money, plate, or even sometimes fiefs of lands; which, by the laws of the country, are to be kept for the child till of age, the parents having only the trust, not the right of disposing of them.

An anonymous author has published a discourse expressive on this occasion, intitled, "De Pecunia Lustrica."

BAPTISMAL Vow, or Covenant, a profession of obedience to the laws of Christ, which persons, in the ancient church, made before baptism.

It was made by turning to the East, but for what mystical reasons is not well agreed.

BAPTIST, JOHN, MONNOYER, in *Biography*, an eminent painter of flowers and fruit, was born at Lisle in 1635, and educated at Antwerp. The composition and colouring of this master are in a bolder style than those of Van Huysum, but his pictures are not so exquisitely finished. The disposition of his objects is so elegant and beautiful as to form a test by which his compositions may be distinguished from those of other masters. He was invited to England by the duke of Montagu, and employed in conjunction with La Fosse and Rousseau, to embellish Montague house, which is now the British Museum, and in which are preserved some of the finest performances of Baptist. A very celebrated work of this artist is a looking-glass preserved in the royal palace at Kensington, decorated with a garland

garland of flowers, for queen Mary II. who sat by him during the greatest part of the time whilst he was employed in painting it. He died in 1699. His son Anthony Baptist was also a painter of flowers in the style and manner of his father. Pilkington.

BAPTIST, JOHN, GASPARS, a painter of history and portrait, was born at Antwerp, and was a disciple of Thomas Willeborts Boschaert. During the civil wars he came over to England; and after the restoration was employed by sir Peter Lely, to paint the postures and draperies of his portraits, and distinguished by the name of Lely's Baptist. He made designs for tapestry, which were accounted good, and his drawing was generally correct. In the hall of St. Bartholomew's hospital there is a portrait of king Charles II. painted by this master. He died in 1691. Pilkington.

BAPTISTERY, in *Ecclesiastical Writers*, a place or edifice where water is preserved for persons to be baptized in. Anciently in the churches which baptized by immersion, the baptistery was a kind of pond where the catechumens were plunged: though in many places the next river served for a baptistery, which was the case in the time of Justin Martyr and of Tertullian.

About the middle of the third century, they began to build baptisteries; but there were none that adjoined to churches till the year 496, and then they stood without the church, and of this kind the first was prepared for the baptism of Clovis king of France, who, with his sister Audofledis was dipped three times by immersion. But there were none within the churches till the sixth century; and it is remarkable, that though there were many churches in one city, yet, with few exceptions, there was but one baptistery. This simple circumstance became in time a title to dominion; and the congregation nearest the baptistery, and to whom in some places it belonged, and by whom it was lent to the other churches, pretended that all the others ought to consider themselves as dependent upon them. When the fashion of dedication was introduced, the church that owned the baptistery was generally dedicated to St. John the Baptist, and assumed the title of St. John *in fonte*, or St. John *ad fontes*, that is the church near or at the baptistery. The noble and splendid cities of Florence, Pisa, Bologna, Parma, Milan, and many others in Italy, had but one baptistery in each; and these baptismal churches were usually built near rivers and waters, as was the case with respect to those of Milan, Naples, Ravenna, Verona, and many more. In later times, the bishop of the baptismal church, having obtained secular power granted licences for other churches to erect baptisteries; taking care at the same time to maintain his own dominion over the people.

By a baptistery, which must not be confounded with a modern font, is to be understood an octagon building, with a cupola roof, resembling the dome of a cathedral, adjacent to a church, but forming no part of it. The whole middle part of this edifice was one large hall capable of containing a great number of people; the sides were parted off, and divided into rooms; and in some, rooms were added on the outside in the fashion of cloisters. In the middle of the great hall was an octagon bath, which, strictly speaking, was the baptistery, and from which the whole building derived its appellation. Some of these were erected over natural rivulets; others were supplied by pipes, and the water was conveyed into one or more of the side-rooms. Some of the surrounding rooms were vestries, others school-rooms, both for transacting the affairs of the church, and for the instruction of youth. They were large and capacious; for as baptism was administered only twice a year, the candidates were numerous, and the spectators more numerous

than they. In process of time there were baptisteries at most of the principal churches of Rome, as at those of St. Peter, St. Laurence, St. Agnes, St. Pancras, and others. The most ancient is that at St. John Lateran. Baptisteries were also erected separate from the churches in all the principal cities of Italy, as Florence, Ravenna, Milan, Pisa, Parma, and the rest. The baptistery annexed to the spacious and splendid church of St. Sophia at Constantinople, resembled the convocation room of a cathedral; it was very large; councils have been held in it; and it was called *μεγαλὸν φωτιστηριον*, the great illuminatory. In the middle was the bath, in which baptism was administered; and there were outer rooms for all concerned in the baptism of immersion, the only baptism of the place. The Lateran baptistery at Rome, belonging to the church of St. John Lateran, is an octagon edifice, the roof of which is supported by eight large polygonal pillars of porphyry; and under the cupola, in the centre of the floor, is the baptistery properly so called, lined with marble, with three steps for descent into it, and about five Roman palms, or $37\frac{1}{2}$ inches, deep. Ciampini apprehends, after much investigation of the opinions of antiquarians, that this baptistery was originally a bath in the precincts of the imperial palace; that it was begun to be converted into a baptistery by the emperor Constantine; that the buildings were carried on by pope Xystus III.; and that they were completed and ornamented by pope Hilary. Baptisteries were in fashion in Italy from the reign of Constantine to that of Charlemagne, during a period of about 500 years; and within this interval they were amply adorned and endowed. The first gifts of the faithful were milk, honey, and wine, for the refreshment of the catechumens and their attendants; the next were oils, unguents, and salts; along with these came cups, vases, plates, and utensils, marked with the initial letters of the name of John Baptist, I. B. or John the fore-runner, *ΙΩΑΝΝΗΝ ΠΡΟΔ.* which perhaps is the true origin of baptismal inscriptions; then came money for the poor, and for the support of those who spent their time in teaching and officiating; after these came habits, ornaments, pictures of John holding out his right hand, with a lamb lying in it, being a reference to his words, "Behold the lamb of God;" and these were followed by others more complex; the whole forming a large body of superstitious theology, glaring in practice, but cumbersome to virtue.

In the baptism of infants, it was unnecessary for the administrators to go into the water, and therefore they contrived cisterns, which they called *fonts*, in which the children were dipped. These were at first small baths, erected on a platform, into which those who performed the ceremony plunged children, without going into the water themselves. In modern practice, the font remains, but a basin of water set in the font serves the purpose, because it is not thought necessary either that the administrator should go into the water, or that the candidate should be immersed. This in England was custom, but not law; for in the time of queen Elizabeth, the governors of the episcopal church did in effect expressly prohibit sprinkling, by forbidding the use of basins in public baptism. See "A booke of certain canons, concerning some part of the discipline of the church of England," in 1571, by John Daye, p. 19. Fonts in parish-churches for the purpose of baptizing infants were introduced soon after the arrival of Austin the monk; and each parish was enjoined to provide fonts of wood and stone for this purpose. In the old church of St. Peter at Oxford, built by Grymbald, who was brought over from Flanders into England by Alfred, in the year 885, there was till lately a very ancient baptismal font, of a circular form, and elegant sculpture,

eleven feet in circumference, and of proportionable depth, with the twelve apostles represented in separate niches. After having kept its place about 500 years, it was ordered to be removed, and another much inferior put in its place. In the church of Bridekirk, near Cockermouth in Cumberland, there is a large open vessel of greenish stone, which antiquaries pronounce to be a Danish font. The chief characters on this baptismal font (see Gibson's Camden's Brit. vol. ii. p. 1007.) are Runic, but some are purely Saxon. This is supposed to be the oldest font yet remaining in this kingdom, being of the ninth century, when the Danes first received the Catholic religion. Whether the font be Danish or Saxon, the baptism which it exhibits is that of the Catholics opposed to that of the old Pelagian Britons.

There were several fonts and altars in each baptistery, because then they baptized at once, all of whom received the eucharist immediately after.

The right of having fonts was confined to parishes alone; and if any monasteries were found with baptismal fonts, it was because they had baptismal churches in another place: though the bishops sometimes granted them to monks, upon condition that they would have a secular priest along with them to take care of the people; but they afterwards found means to throw off the priest; and make themselves masters of the church, and attach it, with its baptismal fonts, to their own monastery. For a copious account of baptisteries and fonts, illustrated by figures, see Robinson's History of Baptism, p. 56—131.

BAPTISTERY is also used for a baptismal or parochial church.

BAPTISTERY is also used by the Armenians, for the feast of Epiphany, when the anniversary of Christ's baptism is celebrated.

BAPTISTERY is also used for a church-book, wherein the prayers and ceremonies of baptism were particularly described. Some take the *baptisterium* to have contained the order of all the sacraments, except the eucharist.

BAPTISTS, in *Ecclesiastical History*, from βαπτίζω, *I baptize*, a denomination of Christians, distinguished from other Christians by their particular opinions respecting the mode and the subjects of baptism.

Instead of administering the ordinance by sprinkling or pouring water, they maintain that it ought to be administered only by immersion. Such, they insist, is the meaning of the word βαπτίζω; so that a command to baptize is a command to immerse. Thus it was understood by those who first administered it. John the Baptist, and the apostles of Christ, administered it in Jordan and other rivers and places where there was much water. Both the administrators and the subjects are described as going down into, and coming up again out of the water. And the baptized are said to be buried in baptism, and to be raised again; which language could not, they say, be properly adopted on supposition of the ordinance's being administered in any other manner than by immersion. Thus also, they affirm, it was in general administered in the primitive church. Thus it is now administered in the Russian and Greek church; and thus it is, at this day, directed to be administered in the church of England, to all who are thought capable of submitting to it in this manner. With regard to the subjects of baptism, the Baptists say, that this ordinance ought not to be administered to children or infants at all, nor to grown up persons in general, but to adults only of a certain character and description. Our Saviour's commission to his apostles, by which Christian baptism was instituted, is to go and teach all nations, baptizing them: that is, say they, not to baptize all they meet with; but first to instruct

them—to teach all nations, or to preach the gospel to every creature—and whoever receives it, him to baptize in the name of the Father, and of the Son, and of the Holy Ghost. To such persons, and to such only, baptism appears to have been administered by the apostles, and the immediate disciples of Christ. They are described as repenting of their sins, as believing in Christ, and as having gladly received the word. Without these qualifications, Peter acquaints those who were converted by his sermon, that he could not have admitted them to baptism. Philip holds the same language in his discourse with the eunuch. And Paul treats Lydia, the jailor, and others, in the same manner. Without these qualifications, Christians in general think it wrong to admit persons to the Lord's supper; and, for the same reasons, without these qualifications, at least a profession of them, the Baptists think it wrong to admit any to baptism. Wherefore they withhold it, not only from the impenitently vicious and profane, and from infidels who have no faith, but also from infants and children, who have no knowledge, and who are incapable of every action civil and religious. They farther insist, that all positive institutions depend entirely upon the will and declaration of the institutor; and that therefore reasoning by analogy from previous abrogated rites is to be rejected, and the express commands of Christ respecting the mode and subjects of baptism ought to be our only rule.

The Baptists in England form one of the three denominations of Protestant dissenters. They separate from the establishment for the same reasons as their brethren of the other denominations do, with whom they are united; and from additional motives derived from their particular tenets respecting baptism. The constitution of their churches, and their modes of worship, are congregational or independent: in the exercises of which they are protected, in common with other dissenters, by the act of toleration. Before this act, they were liable to pains and penalties as non-conformists, and often for their peculiar sentiments as Baptists. A proclamation was issued out against them, and some of them were burnt in Smithfield in 1538. They bore a considerable share in the persecutions of the 17th and of the preceding centuries; and, as it should seem, in those of some centuries before; for there were several among the Lollards and the followers of Wickliff, who disapproved of infant baptism. There were many of this persuasion among the Protestants and reformers abroad. In Holland, Germany, and the North, they went by the names of ANABAPTISTS and MENNONITES; and in Piedmont and the South, they were found among the ALBIGENSES and WALDENSES. See the Histories of the Reformation, and the above articles in this Dictionary.

The Baptists subsist under two denominations, viz. the *Particular* or Calvinistical, and the *General* or Arminian. The former is by far the most numerous. Some of both denominations allow of mixed communion, others disallow it; and some of them observe the seventh day of the week as the sabbath, apprehending the law that enjoined it not to have been repealed by Christ or his apostles. But a difference of opinion respecting these and other matters is not peculiar to the Baptists; it is common to all Christians, and to all bodies of men who think and judge for themselves. See PÆDOBAPTISTS, under which article an account will be given of the principal arguments in favour of infant baptism.

BAR, in *Architecture*, a long slender piece of wood or iron, used to keep things close and fast together.

In this sense, we speak of bars of windows, of doors, and the like.

BARs of iron are made of the metal of the fows and pigs as they come from the furnaces.

These pass through two forges called the finery and the chaufery; where, undergoing five several heats, they are formed into bars. Phil. Transf. N^o 138. p. 954. See IRON, and FORGE.

BAR Shot, in *Artillery*. See SHOT.

To **BAR** or *strike a Vein*, among *Farriers*, an operation performed on the veins of a horse's legs, or other parts of his body, in order to stop the course, and lessen the quantity of malignant humours prevailing there.

It is thus performed: the farrier opens the skin, after disengaging the vein, ties it above and below, and then strikes between the two ligatures.

BAR of a Port, in *Marine Fortification*. See BOOM.

BAR, in *Geography*, is used for a heap of sand or mud, or a chain of rocks, which block up the mouth of a river or port, so that there is no entrance except at high water.

The bar of Siam is a remarkable bank of mud, gathered in the mouth of the river, which allows not above thirteen feet of water, when the tide is highest.

BAR, a town of Arabia, fifty-six miles south-east of El Catif, near the Persian gulph.

BAR, a town of Hindoostan, in the country of Bahar, fifteen miles north of Bahar, and thirty E.S.E. of Patna.

BAR, Le, a town of France, in the department of the Var, and chief place of a canton in the district of Grasse, four miles north-east of Grasse; the place contains 1143, and the canton 6025 inhabitants; the territory includes 177½ kilometres and 11 communes.

BAR sur Aube, a town of France, and principal place of a district in the department of the Aube. The place contains 4000 and the canton 13,701 inhabitants; the territory includes 257½ kilometres and 23 communes. N. lat. 48° 14'. E. long. 4° 36'.

BAR sur Seine, a town of France, and principal place of a district in the department of the Aube, situate at the foot of a mountain, on the Seine; it has three gates, a college, and a hospital; 5½ leagues S.E. of Troyes. The place contains 2299, and the canton 11,342 inhabitants; the territory includes 257 kilometres and 23 communes. N. lat. 48° 7'. E. long. 4° 16'.

BAR le Duc, a town of France, and principal town of a district in the department of the Meuse; and, before the revolution, the capital of the duchy of Bar. It is divided into the Upper and Lower town by a castle called the Bar, and was a kind of barrier between France and Lorraine. The walls and towers of this castle were demolished by Louis XIV. The river Ormain runs through the lower part of the town. It is seven leagues S.S.E. of St. Menchould, and 9½ west of Toul. The place contains 9,900, and the canton 14,217 inhabitants; the territory includes 77½ kilometres and 8 communes. N. lat. 48° 47'. E. long. 4° 4'.

BAR, Duchy of, was, before the revolution, the name of a country of France, situate to the west of Lorraine, thirty-two leagues long and sixteen wide; the face of the country is irregular, presenting hills and plains; and it abounds with wood, wine, corn, game, and fish. Its name was derived from the castle of Bar, and it was erected into a county by the emperor Otho, but the time when it was raised to a duchy is not ascertained.

BAR, a district of Switzerland, in the canton of Zug. See ZUG.

BAR, is also the name of a fortress of Poland, in Podolia.

BAR, in *Heraldry*, denotes an ordinary nearly resembling the *Fess*: it consists of two lines drawn horizontally across the field, and contains a fifth part thereof. The Bar hath two diminutives; viz. a closet, which is in breadth one-half;

and a barrulet, which is in breadth one fourth of that of the bar. When the field is divided into four, six, eight, ten, twelve, or more equal parts, it is then blazoned, *barry*; and the number of pieces are to be specified, e. gr. *barry of so many pieces*; but if it contains an odd number, the field must be first named, and the number of bars expressed; they are then called bars. See *PLATE of Heraldry*.

BARs Gemel, or *Bars-Gemelles*, are diminutives of the bar, and are placed in pairs, or two and two on a shield. They derive their name from the Latin *gemelli*, twins. See *PLATE of Heraldry*.

BAR, in a *Court of Justice*, denotes an inclosure made with a strong partition of timber, three or four feet high, where the counsel are placed to plead causes; and where prisoners are brought to answer their indictments, &c.

This the French call *barre d'audience* and in some places *auditoire*. It answers to what, among the Romans, was denominated *causidica*.

It is called bar, because inclosed with a barrier, called also in Latin writers *cancelli* and *caulae*, by a metaphor taken from sheep-folds.

The denomination bar is also given to the benches where the lawyers or advocates are seated—The appellation arose hence, that anciently there was a bar, or barrier, to separate the counsellors and pleaders from the attorneys and others.

Hence our lawyers who are called to the bar, or licensed to plead, in other countries called *licentiati*, are termed *barristers*. 24 Hen. VIII. c. 24.

BAR, or **BARR**, **BARRA**, in *Common Law*, denotes a peremptory exception against a demand or plaint.

The author of the "Terms de Ley" defines bar, a plea brought by the defendant in an action, whereby the action of the plaintiff is destroyed for ever. And it is divided into *bar* to common intendment, and *bar special*; the former is an ordinary or general bar, which is usually a bar to the declaration of the plaintiff; and the latter is that which occurs upon some special circumstance of the fact, as to the case in hand. Modern writers also divide bars into *perpetual* and *temporary*: bar perpetual, is that which overthrow the action for ever, and bar temporary, or bar *pro tempore*, is that which is allowed good for the present, but may fail, or be set aside hereafter. Plowd. 26. A plea in bar not giving a full answer to all the matter contained in the plaintiff's declaration, is not good. 1 Lill. Abr. 211. If one be barred by plea to the writ, or to the action of the writ, he may have the same writ again, or his right action again: but if the plea in bar be to the action itself, and the plaintiff be barred by judgment, &c. it is a bar for ever in personal actions. 6 Rep. 7. And a recovery in debt is a good bar to action on the case, for the same thing; also a recovery on assumpsit in case is a good bar in debt, &c. Cro. Jac. 110. 4 Rep. 94. In all actions personal, as debt, account, &c. a bar is perpetual, and in such case the party hath no remedy but by writ of error or attain; but if a man is barred in a real action or judgment, yet he may have an action of as high a nature, because it concerns his inheritance; as e. g. if he is barred in a *formedon in descender*, yet he may have a *formedon in the remainder*, &c. 6 Rep. 7. It has been resolved, that a bar in any action. real or personal, by judgment upon demurrer, verdict or confession, is a bar to that action, or any action of the like nature for ever; but, according to Pemberton, chief justice, this is to be understood, when it doth appear that the evidence in one action would maintain the other; for otherwise the court shall intend that the party hath mistaken his action. Skin. 57, 58.

Bar to a common intent is good; and if an executor be sued for his testator's debt, and he pleadeth that he had no goods

goods in his hands at the day when the writ was taken out against him, that is a good bar to a common intendment, till it is shewn there are goods; but if the plaintiff can shew, by way of replication, that more goods have fallen into his hands since that time, then, except the defendant allege a better bar, he shall be condemned in the action. Plowd. 26. Kitch. 215. Bro. tit. *Barre*. See *PLEA*.

BAR of Dower. See *DOWER*.

BAR, Trial at. See *TRIAL*.

BAR, in the *Manege*, denotes the ridge or upper part of the gums, between the tushes and grinders of a horse; the under and outward sides retaining the name gums.

The bars should be sharp-ridged and lean; for since all the subjection a horse suffers, proceeds from those parts, if they have not these qualities, they will be very little, or not at all sensible; so that the horse can never have a good mouth; for if the bars be flat, round, and insensible, the bit will not have its effect; and, consequently, such a horse can be no more governed by his bridle, than if one took hold of his tail. These ridges are always more prominent in young horses than in those that are old. See *LAMPAS*.

BAR, in *Music*, denotes strokes drawn perpendicularly across the lines of a piece of music, including between each two, a certain quantity or measure of time, which is various as the time is triple or common.

The use of bars in music is a modern invention. They cannot be traced higher than the year 1574, and seem not to have been in general use till about the middle of the 17th century. It is not easy to imagine how music in many parts could be composed without bars, or how the maxima, or large, equal to eight semibreves, could be divided into bars of one or two semibreves in each. See *BATTUTA*, and *TIME-TABLE*. A double bar implies the end of a strain. When double bars are dotted on both sides, thus,



the dots imply a repetition of each strain; but if

dotted only on one side, that strain only which precedes or follows the dots, is to be repeated.

BAR-Master, in *Mining*, he who keeps the gage or dish, to measure all miners ore; he, or his servant, being always to be present when it is measured.

BAR, among *Printers*, denotes a piece of iron with a wooden handle, whereby the screw of the press is turned in printing.

BARA, in *Ancient Geography*, an island of Italy, in the vicinity of Brundisium. Festus says, that the inhabitants of this island build the town of Barium.—Also, a port of Asiatic Sarmatia.

BARA, in *Geography*. See *BARRA*.

BARABA, in *Ancient Geography*, the name of a metropolitan city of Arabia Felix, according to some copies of Ptolemy and Ammianus Marcellinus.

BARABA, in *Geography*, a steppe or moor in the Russian empire, occupies the space between the Irtysh and the Oby, southward of the mountain, northward to the farther side of the Tara, and beyond the river Tuy. This extensive region, in length from north to south exceeding six hundred versts, and full four hundred in breadth from west to east, is one continued flat, scarcely interrupted by a single hill, though containing many fresh water lakes, with some of bitter, and a few of common salt. This plain is for the most part of a good black soil, having the face of it enlivened by a number of pleasant forests of birch. All serving to shew, says Mr. Palk, that the Baraba must have formerly been one general bed of waters, and since more morassy and replete with lakes than it is at present. Even within the memory of man, according to the affirmation of the Barabinses, the diminution of the lakes, and the exsiccation of the pools,

reed plots, and marshes, have been very observable, as well as the acquisitions thus made by the firm land. See Tooke's View of the Russian empire, vol. i. p. 149.

BARABALEMO, a river on the coast of Africa, six leagues east from the river of St. Barbara, east from cape Fermosa.

BARABENSIS, in *Entomology*, a species of *GRYLLUS* (*Locusta*) found about the pine trees in the sandy deserts of Baraba. The wing-cases are pale and sprinkled with brown dots; wings transparent and pale yellow; veins and dots at the margin, and tip brown. Pallas. Size of gryllus tibialis.

BARABIACO, in *Geography*, a town of Italy, in the Milanese, situate on the Colona, 12 miles west of Milan.

BARABIELLO SAND, lies at the bottom of Bengal bay, within the river of Hugly.

BARABINIANS, a nation of the Russian empire. On entering the vast region of Siberia by the west, the first country we come to is that of the Barabinians. The large steppe, inclosed between the Oby and the Irtysh, and reaching as far as the Altay mountains, is called Barama; this appellation the Russians have corrupted into Baraba, and the people who occupy that desert they call Barabintzi, or Barabinians. The Barabinians, at the time of the conquest of Siberia, had already suffered too much from the turbulence and ferocity of their neighbours, for being able to raise themselves to a numerous population; and, remembering nothing but their misfortunes, they have forgotten whether they ever were governed by sovereigns of their own. At length, successively oppressed by the Kirghises and the Soongares, they at present enjoy tranquillity under the protection of Russia, who, in consideration of an easy tribute, takes charge of their defence. A mixture of several nations is discernible among them. They have, in general, the Tartarian physiognomy: but a flat face; the long eyes and little opened, and the hanging ears, are testimonies that some of them are of Mongolian race. The Soongares, their conquerors, at different times lived among, and probably are the progenitors of the Barabinians with Kalmuc countenances. The idiom of the Barabinians is a dialect of the Tartar language, and bears witness to their primeval origin. It is corrupted, but less than that of the Bashkirs. They live, however, in equal ignorance, and scarcely any of them know how to read. The humid vapours that arise in their steppe, and give a density to the atmosphere, render the inhabitants fallow and phlegmatic; their indifference and their apathy border on stupidity. In respect to them we might be tempted to adopt the expression of le Cat, and regard them, not so much as men animated by the heat of the blood, and the spirituous fluid of the nerves, but as hydraulic machines. This machinal state corresponds with their misery, and enables them to endure it without pain. Temperate alike in their amours and in their diet, with desires so feeble and so confined as to be easily gratified, they know nothing of robbery or theft; they are even ignorant of lying, having no use for it except for covering a slight fault, in order to gain time for repairing it. They have stationary habitations for the winter; and sow a little barley or oats, sometimes a small matter of hemp; but their culture is always of scanty production; their steppe, poor in game, but ill requires the fatigues of the hunter. They derive a slender profit from their flocks and herds, and a great number of fishermen owe their subsistence to the lakes. It is not uncommon in winter for the snow to envelope their huts in such manner that they could not get out were they to neglect to make a passage through the roof. Their summer dwellings are covered only with mats. Their herds, by no means numerous, though forming their principal wealth, consist of horses and horned cattle; the humidity of the soil hardly allows

allows them to rear a few sheep. A great number of them possess not a single head of cattle; and a man passes for opulent who has from five to twenty horses, with still fewer horned cattle. It is not long since the richest man of the nation possessed seventy horses. It should seem that their droves would increase since they have no longer to dread the ravages of the Kirghises; but a mortality among their cattle filled up the measure of their wretchedness, when they thought it drawing near to its end. Exempted from other cares than those of the pastoral life, all have leisure to follow the fishery; they preserve the fish without salting, by letting it dry on the ground. Awkward in the use of the bow, they are obliged to take the game in snares, in nets, or by the aid of their dogs. These animals are excellent coursers, and their masters would not truck a good dog against a horse.

The women dress the skins of the birds that frequent the lakes, making them into pelisses, which they sell. These pelisses are very warm, last a long time, and are impenetrable to moisture. Every village has a chief, and each district its yaouta, who is a sort of prince. The nation grants them no revenue; all they get by their elevation is the pleasure of being respected, and of seeming to be obeyed. Consulted less as judges than as arbitrators, it is easy for them to settle disputes between pleaders, to whom it is almost the same thing to gain or to lose their cause, and they are scarcely capable of conceiving a desire.

It has been said, that the Mohammedans never attempt to make proselytes; this seems to be a mistake. Towards the middle of the late century, the Barabians were still devoted to Shamanism, when they were converted to Mohammedanism by the zeal of some neighbouring Moulahs, who came and preached in their steppes. At present they have several huts which they call mosques, some men who cannot read, whom they call priests, and by changing their faith they have only acquired a few additional superstitions.

BARACE, a town of France, in the department of the Mayne and Loire, and chief place of a canton in the district of Chateauneuf, four leagues N.N.E. of Angers, and two E.S.E. of Chateauneuf.

BARACE, or *Becare*, in *Ancient Geography*, a town of India on this side of the Ganges, in the gulf of Canthi, according to Ptolemy. It was situated at the mouth of the river, which passed to Nelconda, according to the author of the *Periplus of the Erythraean sea*. It was a more commodious port, and better stored with merchandise than Muziris, from which it was not far distant; and as the pepper of Cottonara was brought to this place in small boats, it may be concluded that Barace was within, or near to the country of Canara, which produces the best pepper in those parts at the present day. Major Rennell says, that after much investigation, he cannot apply to any particular spot these ports of Muziris and Barace; for the Malabar coast abounds with ports of similar description; however, from the lights furnished by Pliny and Ptolemy, he conceives they were situated between Goa and Tellicherry, and that the modern Meerzaw or Merjee is the Muziris of the ancients, and Barcelore or Bassinore, which is one of the principal pepper factories at present, their Barace. M. d'Anville supposes Barace to be Nelcynda, which Rennell takes to be Nelisaram. Rennell's Mem. Introd. p. 38.

BARACK, or **BARRACK**, **BARAQUE**, a hut or little lodge for soldiers in a camp.

The word comes from the Spanish *barracas*, little cabins, which fishermen make on the sea-shore.

Those for the horse were formerly called baracks; and those for the foot, huts: but barack is now used indifferently for both.

Baracks are generally made by fixing four forked poles in the ground, and laying four others across them; afterwards they build up the walls with fods, wattles, or what the place affords; and the top is planked, thatched, or covered with turf, as they have convenience.

When the army is in winter quarters, the soldiers usually build baracks; in the summer they are content with their tents.

BARACKS is also more generally applied to buildings to lodge soldiers in fortified towns, or others. Thus we say the baracks of the Savoy, of Dublin, &c.

Baracks, when damp, are greatly prejudicial to the health of the soldiers lodged in them; occasioning dysenteries, intermitting fevers, coughs, rheumatic pains, &c. For which reason quarter-masters ought to be careful in examining every barack offered by the magistrates of a place; rejecting all ground-floors in houses that have either been uninhabited, or have any signs of moisture. See **CASERNS**.

BARACK-ALLOWANCE, a specific allowance of bread, beer, coals, &c. to the regiments stationed in baracks.

BARACK-GUARD, the principal guard of a regiment in baracks; the officer of which is responsible for the regularity of the men, and for all prisoners duly committed to his charge while on that duty.

BARACK-MASTER-GENERAL, a staff-officer at the head of the barack-department, who has a number of barack-masters and deputies under him, that are stationed at the different baracks. He has an office and clerks for the dispatch of business; and to this office all reports, &c. respecting the barack-department are made.

BARACOA, in *Geography*, a sea-port town at the north-east end of the island of Cuba, having a good harbour for small vessels, but not for large ships; distant about seven-teen leagues north-east from St. Jago. N. lat. 21° 4'. W. long. 76° 10'.

BARACUM, in *Ancient Geography*, a town of the interior part of Africa, which Pliny mentions among the conquests of Cornelius Balbus.

BARACURA, a commercial town of India, on the other side of the Ganges. Ptolemy.

BARACUS, a river of India, in the southern part of the island of Taprobana. Ptolemy.

BARAD, a town of Palestine, in the southern part of the tribe of Juda, according to the book of Numbers.

BARADÆUS, or **ZANZALUS**, **JACOBUS**, in *Biography*, an obscure monk of the sixth century, who revived the sect of the Monophysites, when it was just expiring, to its former prosperity and lustre. For this purpose, after having been ordained to the episcopal office by a few captive bishops, he travelled on foot through the whole east, established bishops and presbyters every where, revived the drooping spirits of the Monophysites, and produced such an astonishing change in their affairs by the power of his eloquence, and by his incredible diligence and activity, that when he died bishop of Edessa, A. D. 588, he left his sect in a most flourishing state in Syria, Mesopotamia, Armenia, Egypt, Nubia, Abyssinia, and other countries. This poor monk had the wisdom to concert the means of success, as well as activity to put them in execution; for he almost totally extinguished all the animosities, and reconciled all the factions, that had divided the Monophysites; and when their churches became so numerous in the east, that they could not all be comprehended under the sole jurisdiction of the patriarch of Antioch, he appointed as his assistant, the primate of the east, whose residence was at Tagritis, on the borders of Armenia. The laborious efforts of Jacob were seconded in Egypt and the adjacent countries by Theodosius, bishop of Alexandria; and he became so famous, that all the Monophysites of the east considered

considered him as their second parent and founder; and they are to this day called Jacobites, in honour of their new chief. Mosheim Eccl. Hist. vol. ii. p. 145. See MONOPHYTES, and JACOBITES.

BARADERES, in *Geography*, a small bay on the north coast of the peninsula at the west end of the island of St. Domingo, or Hispaniola. It is almost land-locked, having a small island near the bottom in the south-east corner. N. lat. $18^{\circ} 32'$. W. long. $73^{\circ} 37'$.

BARADY, **BARRADY**, or *Barrada*, a river of Syria, called by the ancients Chrysochoras, or the golden river; and by the Syrians, Pharpar; which, rushing from Antilibanus, descends to Damascus, and is there divided into endless streams, for the supply and decoration of that city; but uniting again at some distance from it, they lose themselves in a morass. The rivers Abana and Pharpar, the names of which are lost among the Arabian geographers, Maundrell supposes must have been branches of this river Barady, which issues out of the rock.

BARÆ, in *Ancient Geography*, a people of India, placed by Ptolemy near the Ganges.

BARAFAT, in *Geography*, a town of Africa, in the kingdom of Fonia, seated on a peninsula formed by the river Gambia and two other rivers.

BARAGAZA, a town of Ethiopia, on the Red Sea, mentioned by Pliny.

BARALIPTON, a term in *Logic*, denoting the first indirect Mode of the first Figure of syllogisms.

A syllogism in baralipson is when the two first propositions thereof are universal affirmatives, and the third a particular affirmative; the middle term being the subject of the first, and the attribute of the second.—For example:

“BA Every evil ought to be feared:

RA Every violent passion is an evil:

LIP Therefore something that ought to be feared is a violent passion.”

See letters A and I, and SYLLOGISM.

BARALLOTS, **BARALOTTI**, the name of a sect at Bologna in Italy, who had all things in common, even their wives and children. They gave, it is said, into all manner of debauchery, and were also termed *compliers*.

BARAMATIS, in *Ancient Geography*, a town of India, on this side of the Ganges. Ptolemy.

BARA-MAREKA, in *Botany*. See **DOLICHOS**.

BARAN, in *Geography*, a river of Hindoostan, in the province of Cabul, which is joined by the rivers Chuganferai, Alisung, and Alikar, in the district of Kameh, and then runs eastward or south-eastward. But it is not absolutely certain whether these confluent rivers join the river of Cabul above Paishawur, or whether they form a separate river, and pass by Bijore and Sewad.

Major Rennell thinks the former to be the most probable, and that the confluent river receives the name of Kameh, from the district in which the junction takes place, and then communicates it to the Cabul river, during the remainder of its course. Rennell's Mem. p. 156.

BARANCA, or **St. JACO**, in *Geography*, a river belonging to Mexico, in North America, which directs its course to the west coast, and falls into the Pacific ocean about ten leagues west by north from Xatisco bay.

BARANCA del Malambo, a sea-port town of South America, in the country of New Castile or Terra Firma, on the east side of the Rio Grande, at the mouth of the river Magdelana, with a good harbour. This is a place of considerable commerce; as the merchandize of New Granada is brought down thither by boats, and conveyed to the bay about 40 miles below the town, or else directly to Santa Martha, by a branch of the great river; the chief article is

salt, which is produced in the neighbourhood of the town. It is distant 25 miles north-east from Carthagena. N. lat. $41^{\circ} 40'$. W. long. $75^{\circ} 30'$.

BARANCAS, **LAS**, a town of North America, in the province of New Mexico, 45 miles S.S.E. of Santa Fé.

BARANEI-STANITZ, a town or settlement in Siberia, on the Lena, 52 miles north-east of Vitimskoi. N. lat. $54^{\circ} 50'$. E. long. $113^{\circ} 14'$.

BARANGE, in *Ancient Geography*, a town of Asia, in Hyrcania. Ptolemy.

BARANGI, officers among the Greeks of the lower empire, whose business it was to keep the keys of the city-gates where the emperor resided.

Codinus says, that the barangi were those who stood guard at the door of the emperor's bed-chamber and dining-room.

Codinus and Curopalata observe, that the name is English, formed from *bar*, to *shut*; and that the barangi were Englishmen by country; Anglo-Danes, who, being driven out of England, were received into the service of the emperor of Constantinople, and made guards or protectors of his person. Whence they are called in Latin, by Cujaccius, *protectors*; by others, *securigeri*, as being armed with a battle-ax, *securis*. Codinus adds, that they still spoke the English tongue. Anna Comnena says, the barangi came from the island Thule, by which is doubtless meant our island. Yet Nicetas makes them Germans; a mistake easy to be made at that distance, considering the relation the Anglo-Saxons bore to Germany. There were barangi as early as the emperor Michael Paphlagonius, in the year 1035, as appears from Cedrenus; but they were then only common soldiers, not a life-guard.

Their commander was called *απολεβθ*, as importing a person who always followed the emperor.

BARANI, &c. Steller Kamts. *Stepnie Baranni*, J. G. Gmel. it. Sibir. &c. in *Zoology*, names given to the *Ovis Ammon*, Gmel.; and *Capra Ammon*, Linn.

BARANILLO, in *Geography*, a town of Italy, in the kingdom of Naples, and count of Molise, nine miles S.S.E. of Molise.

BARANOW, a town of Poland, in the palatinate of Sandomir, sixteen miles south of Sandomir.

BARANOWKA, a town of Poland, in the palatinate of Volhynia; 40 miles N.N.E. of Constantinow.

BARANZANO, **REDEMPtus**, in *Biography*, a Barnabite friar, was born in 1590, at Saraville, a town of Verceil, in Piedmont, and obtained eminence at the commencement of the seventeenth century, by daring to abandon the Aristotelian method of philosophy. That he coincided in his ideas with those of the illustrious lord Bacon, appears from a letter written to him on this subject, by this restorer of philosophy, in June 1622, and preserved in the third volume of “Niceron's Memoirs.” Having taught mathematics and philosophy at Anneç, he went to Paris, and formed an intimate friendship with La Mothe le Vayer, who speaks of him (Oeuvr. 12mo. tom. iv. p. 172.) as one of the first wits of the age. He adds, that this honest Barnabite had several times assured him, but always with submission to the good pleasure of God, that he would appear to him, if he should depart first out of this world. However his promise was not fulfilled, and he verified the sentence of a Latin poet, Catullus, Epigr. iii.

“Qui nunc it per iter tenebricosum

Illuc, unde negant redire quanquam.”

“He passed the dark and dreary way

From whence there's no return to the bright genial day.”

He died at Montargis in 1622. His works are “*Urano-scopia*,”

scopia," or the universal doctrine of the heavens, printed in folio, in 1617; "Campus Philosophicus," the first part of his Summary of Philosophy, as taught at Anneci, printed at Lyons, in 8vo. in 1619; and "De Novis Opinionibus Physicis," printed at Lyons, in the same year. Gen. Dict.

BARAO, in *Geography*, a town of Spain, in Arragon, two leagues from Jaca.

BARA-PICKLET, bread made of fine flour kneaded with barn, which makes it very light and spongy: *bara* being the Welch for bread.

BARAQUICIMITO, in *Geography*, a town in Terra Firma, South America, in the province of Caracas, and in the head waters of Oronoko river, about 80 miles south from Valencia, and 175 north-west from Calabeza. N. lat. 8° 55'. W. long. 66° 55'.

BARASA, in *Ancient Geography*, a town of Palestine, according to Josephus.

BARASZE, in *Geography*, a town of Poland, in the palatinate of Volhynia, 36 miles N.N.W. of Zytomiers.

BARATHIER, BARTHELEMY, in *Biography*, an Italian lawyer of the 15th century, was born in Placentia, and taught the Roman feudal law at Pavia and Ferrara, which he ranged anew, and then formed a text book for the school. The work was printed at Paris in 1611, under the title "De Feudis Liber Singularis;" and in 1695, by Schilter, under its true title "Libellus Feudorum reformatus." Moreri.

BARATHRUM, from βαράθρον, signifying the same, among the *Ancient Athenians*, a deep pit belonging to the tribe Hippothoontis, into which condemned criminals were cast headlong.

The barathrum was a dark noisome hole, having sharp spikes at the top, to prevent any escape, and others at the bottom to pierce and lacerate the offender.

From its depth and capaciousness, the name came to be used proverbially for a miser, or a glutton, always craving. In which sense, the word *barathrum* is used among the Latin poets. Thus Horace, *Epist. l. i. ep. 15. v. 631.*

"Pernicies, et tempestas, barathrumque Macelli,

Quicquid quaerierat, ventri donaret avaro."

It is also used for a common prostitute, by Plautus (*Bacchid. i. 2. 44.*), thus:

"O barathrum, ubi nunc es? ut ego te usurpem libens!"

BARATHRUM is also used, in *Physiology*, to denote certain baleful caverns, inaccessible on account of their fetid or poisonous fumes.

These amount to the same with what others call *fossae charoniae*.

BARATIER, JOHN PHILIP, in *Biography*, a learned German, was born in 1721, at Schwobach near Nuremberg. Under the instruction of his father he is said to have understood the Greek, Latin, German, and French languages, when he was five years old; and he acquired also the knowledge of the Hebrew in one year, so as to be able to read the historical books of the bible: and at the age of nine years, he could not only translate the Hebrew text into Latin or French, but also re-translate these versions into Hebrew. At this age he could also repeat memoriter the Hebrew psalter, in consequence of merely reading it with his father. Before he had completed his tenth year, he composed a Hebrew lexicon of rare and difficult words, with curious critical remarks. In 1731, he was matriculated in the university of Altdorf; and in this year he wrote a French "letter to M. le Maitre, minister of the French church at Schwobach, on a new edition of the bible, Hebrew, Chaldaic, and Rabbinical," which letter is preserved in the twenty-sixth volume of the "Bibliothèque Germa-

nique." In 1734, the margrave of Anspach granted him a pension of fifty florins a year, and allowed him the free use of books from the library at Anspach. As the fruits of his application to study, his translation from the Hebrew, with historical and critical notes and dissertations, of "The Rabbi Benjamin's Travels in Europe, Asia, and Africa, containing an account of the state of the Jews in the twelfth century," was published, in two volumes 8vo. at Amsterdam, in 1734; the author being at this time in his thirteenth year: and the whole work is said to have been finished in four months. Notwithstanding the extent of his philosophical pursuits, this astonishing youth applied to the study of mathematics and philosophy with such success, that he devised a method of finding the longitude at sea, which was laid before the Royal Academy of Sciences at Berlin, in a long letter, dated Jan. 21, 1735, the day in which he completed his fourteenth year. His letter being well received, he determined to visit Berlin, with a view of enforcing his project: but in his way thither he passed through Hall, where Ludewig, the chancellor of the university, offered to confer upon him the honorary degree of master of arts. Flattered by this proposal, Baratier immediately, in the presence of many professors, drew up fourteen theses in philology, ecclesiastical history, and philosophy, which were printed the same night, and which he supported for three hours the next day with great applause; upon which he was admitted master of arts in philosophy. He then pursued his journey to Berlin; and, in the presence of the mathematical class, replied in French to some objections that were urged by M. de Vignoles, the rector, against his scheme; and he then proposed, in Latin, the plan of an astronomical instrument, which he offered to execute. M. Jablonski, the president, reported, that he had examined Baratier, in the king's presence, and that he had found him well acquainted with rabbinical learning, the oriental languages, and ecclesiastical history; and he was then, with the usual form, admitted a member of the society. Upon his return to Hall with his father, he directed his attention to theology, and wrote an answer in Latin to Crellius, who, under the assumed name of Artemonius, had published a Socinian interpretation of the introduction to the gospel of St. John. This was intitled "Anti-Artemonius," and published at Nuremberg, in 8vo. in 1735. It was accompanied with a "Dissertation on the three dialogues, commonly attributed to Theodoret," intended to invalidate their authenticity. In 1737, he defended this piece against the strictures of the journalists of Trevoux, in another dissertation, which was printed in the forty-eighth volume of the "Bibliothèque Germanique." In the fortieth volume of the same journal, there is another dissertation of Baratier "On two works attributed to Athanasius." Baratier being obliged to confess his ignorance of the public law, in reply to the inquiry proposed to him by the king of Prussia, was commanded by the king to go and study it, before he called himself a learned man. Such was his literary ambition, that he applied immediately to the study of it, and after fifteen months he supported a thesis on the subject with great credit. The uninterrupted exertion of his faculties soon impaired his constitution, which was naturally delicate and feeble; and after languishing in a decline for several months, Baratier died at the age of nineteen years eight months and seven days. His attainments were surprising; and yet it is said that, before he was ten years of age, he was accustomed to lie in bed twelve hours, and ten hours from that time to his death. The facts above adduced may seem truly astonishing; but they are founded upon unquestionable testimony. Some few ex-

amples of a similar kind have occurred; however they should by no means be contemplated as patterns of imitation or as models of perfection. "The poplar, which soon becomes a lofty tree, will soon decay: the strong and sturdy oak, whose majestic trunk stands unimpaired through centuries, requires a century to bring it to maturity." *Formey's Life of Baratier*. *Nouv. Dict. Hist.*

BARATO, CAPE, in *Geography*, lies on the coast of Italy, on the north side of the peninsula of Piombin, and about S.S.E. from Leghorn. It has a small bay on the S.W. before which is anchorage.

BARATRUM, in *Antiquity*, denotes, according to Hesychius, sacred games, celebrated at Thebes, in which the most robust of the combatants was crowned.

BARATRY, BARETRY, or BARRETRY, in *Law*, signifies the moving and maintaining of suits in disturbance of the peace; and the taking and detaining of houses, lands, &c. by false inventions. 8 Rep. 37. 1 Hawk. P. C. 243. The word *baratterre*, in French, signifies *misdeemeanor, fraud, deceit*: it is derived from the old word *barat*, which signifies any imposition; whence also they said *baratter*, to impose on any one.

The punishment for this offence, in a common person, is by fine and imprisonment; but if the offender belongs to the profession of the law, a barretor who is thus able as well as willing to do mischief, ought also to be disabled from practising for the future. However it seems clear that no general indictment, charging the defendant with being a common oppressor and disturber of the peace, and stirrer up of strife among neighbours, is good without adding the words "Common Barretor," which is a term of art appropriated by law to this purpose. 1 Mod. 288. 1 Sid. 282. Cro. Jac. 526. 1 Hawk. P. C. c. 81. § 9. No man can be a barretor in respect of one act only; and it hath been holden, that a man shall not be adjudged a barretor for bringing any number of suits in his own right, though they are vexatious, especially if there be any colour for them; for if they prove false, he shall pay the defendant costs. 1 Rol. Abr. 355. 3 Mod. 98. A common solicitor who solicits suits, is a common barretor, and may be indicted thereof, because it is no profession in law. 1 Danv. Abr. 725. It is enacted by statute 12 George I. c. 29. that if any one, who has been convicted of forgery, perjury, subornation of perjury, or common barretory, shall practise as an attorney, solicitor, or agent, in any suit, the court upon complaint, shall examine it in a summary way; and, if proved, shall direct the offender to be transported for seven years. To this head may also be referred another offence of equal malignity and audaciousness; that of suing another in the name of a fictitious plaintiff; either one not in being at all, or one who is ignorant of the suit. This offence, if committed in any of the king's superior courts, is left, as a high contempt, to be punished at their discretion. But in courts of a lower degree, where the crime is equally pernicious, but the authority of the judges not equally extensive, it is directed by statute 8 Eliz. c. 2. to be punished by six months imprisonment, and treble damages to the party injured. Black. Com. v. iv. p. 134.

BARATRY, in a *Marine Sense*, is the master of a ship, or the mariners, cheating the owners or insurers, whether it be done by running away with the ship, sinking her, deserting her, or embezzling the cargo.

Baratry of mariners is so epidemical on ship-board, that it is rare if the master, be his industry ever so great, can prevent it, by reason of the encouragement one knavish sailor gives another; yet the law, in such cases, imputes the offences of the mariners to the negligence of the master, and from him the merchant is to seek for remedy for all

goods or merchandise lost, embezzled, or otherwise damaged.

By the French ordinances, insurers are not obliged to make good the loss or damage accruing to a vessel, or its lading, by the fault of the master or crew, unless by the forms of the policy, they may be made accountable for the *baratry* of the patron. A master who, without necessity, takes up money on the body, provision, or tackling of a ship, or sells the effects on board, or, in his account of average, sets down fictitious expences, shall pay the value, be declared unworthy of being master, and banished the port where he ordinarily resided. In some cases, he is also subject to corporal punishment, and even to death, where it appears he willingly threw away the ship.

BARATRY is also used for bribery or corruption in a judge, giving a false sentence for money.

BARATRY is also used in *Middle Age Writers*, for fraud or deceit in making of contracts, sales, or the like.

BARATTA, or BARATTHA, in *Ancient Geography*, a town of Lycaonia, mentioned by Ptolemy.

BARAVEL, ST., in *Geography*, one of the Ladrone islands, lies south of the island of Guam, and was one of those discovered by Magellan, and described by Pigafetta. Besides this, there are also between 10° and 13° N. lat. the islands of Ban and Bota, and the shoals of Santa Rosa. N. lat. 12° 44'. E. long. 142° 28'. See LADRONES.

BARAVOE, a bay and village, on the north-east coast of the island of Shetland.

BARAWNAY, a town of Hindoostan, in the country of Candish, forty miles N.E. of Burlampour, and seventy-four S.S.E. of Indore.

BARAZA, in *Ancient Geography*, a town of Armenia Major. Ptolemy.

BARB, ST., in *Geography*. See ST. BARBARA.

BARB, in *Ornithology*, is used for the *Barbary pigeon*, the COLUMBA NUMIDICA of Moore.

BARBA, in *Ancient Geography*, a town of Spain, in Betica, placed in the Itin. of Antonin, twenty miles from Ostippo, and twenty-four miles from Antiquaria.

BARBA, in *Geography*, a town of North America, in the country of Mexico, and province of Costa Rica, twenty-two miles S.S.W. of Cartago.

BARBA Aron, in *Botany*, a name given by some authors to the common great house-leek.

BARBA Capre. See SPIRÆA.

BARBA Jovis. See AMORPHA, ANTHYLLIS, CYTISUS, EBENUS, and PSORALEA.

BARBACAN, or BARBICAN, in the *History of our Ancient Fortifications*, was a sort of advanced work which frequently covered the drawbridge at the entrance of a castle.

In which sense, barbican amounts to the same with what is otherwise called, *antemurale, promurale, murus exterior*, or *outer wall*. In towns and large fortresses the barbicans were large and strong, frequently having a ditch and drawbridge of their own. (See Grose's Hist. Eng. Army, II. 2.) The term is still preserved in the ruins of several of our castles; a small stone work covering the gate of Bodiham castle in Suffex, is still called the barbican; and some work of a similar kind undoubtedly gave its name to one of the streets at the north-west end of ancient London. Barbicans are also mentioned in Framlingham and Canterbury castles. For the repairing of this work, a tax called barbicanage was levied on certain lands. Grose Antiq. Pref. i. 5.

BARBACAN is also used for a fort at the entrance of a bridge, or in the outlet of a city, having a double wall with towers. Such is that at one end of the wooden bridge at Rouen, which is still called by some *Barbacana*.

BARBACAN

BARBACAN is also used for an aperture in the walls of a city, through which to fire with muskets on the enemy. See **EMBRASURE**.

BARBACAN, in *Architecture*, denotes a long narrow canal or opening left in the walls for water to come in and go out at, when edifices are raised in places liable to be overflowed; or to drain off the water from a terrace, or the like.

BARBACE POINT, in *Geography*, the east point of St. Pedro's channel, at the south-east end of the island on which the city of Cadiz is situated.

BARBACOS, a river on the coast of America, in the Pacific ocean, nearly east of the island of Gallo. Barbacos point is situated ten leagues from the river Tellem-bier, in N. lat. 2° 45'. W. long. 78° 55'.

BARBADENSIS, in *Conchology*, a species of *Voluta* that inhabits the American ocean. The length of this shell is an inch and a half; shape tapering; colour reddish, with very fine transverse striae; aperture oblong-oval; spire obtuse. Figured only by Lister, t. 819. f. 33. Gmelin.

BARBADENSIS, in *Ornithology*, a species of *Psittacus*, the *ash-fronted parrot* of Latham. This bird is about the size of a pigeon, and inhabits Barbadoes; the general colour is green; orbits and front cinereous; crown, chin, cheeks, throat, and lesser wing-coverts yellow; greater ones blue; many of the primary quill-feathers violet on the outside, the rest red from the base, and the rest blue. Gmelin. The legs are ash; claws black.

BARBADOES, in *Geography*, one of the most important of the Caribbee islands in the West Indies, standing somewhat detached from the rest, about thirty-five degrees from the African islands of cape Verd. This island was probably first discovered by the Portuguese in their voyages from Brazil, and from them received its present name. It had then neither occupants nor claimants; the Charaibes or Caribbees having deserted it. The Portuguese thought it not of sufficient importance for a settlement; and having furnished it with a breed of swine for the use of future navigators, they left it as they found it. The English, in 1605, finding it without inhabitants, took possession of the country by fixing a cross on the spot where James-town was afterwards built, with this inscription: "James king of England and this island;" but they formed no settlement. At this time it was overgrown with woods; but yet it furnished them with a supply of fresh provisions. They found here pigs, pigeons, and parrots; and the sea abounded with fish. Some years after this, a favourable report having been made of its beauty and fertility by the master and seamen of a ship of sir William Courteen, lord Ley, afterwards earl of Marlborough, obtained from king James I. a grant of the island to himself and his heirs in perpetuity. Accordingly Courteen, probably under the patronage of Marlborough, projected the establishment of a colony, and sent about 30 settlers to plant and fortify the island, who, in 1624, laid the foundation of James-town; and this was the first English settlement on the island. About this time, James Hay, earl of Carlisle, established a colony in the island of St. Christopher, and obtained from Charles I. a grant of all the Charibean or Caribbee islands, including Barbadoes. This grant was contested by earl Marlborough; but at length a compromise took place; and on the earl of Carlisle's undertaking to pay the annual sum of 300l. to the earl of Marlborough and his heirs for ever, the latter waved his claims; and in 1627 the patent of the former passed the great seal, and he became the sole proprietor. However the earl of Pembroke obtained a revocation of Carlisle's patent, and a grant to himself in trust for Courteen, who had projected the first settlement in the island. This grant was afterwards annulled, and the earl of

Carlisle was restored to the possession and privileges of which he had been for a short time deprived. Accordingly he proceeded to distribute lands to such persons as chose to comply with his laws; and a society of London merchants accepted 10,000 acres, on conditions which promised great benefit to the proprietors. These merchants sent over 64 persons, each of whom was authorized to take up 100 acres of land; and thus, in 1628, they established a new colony, which soon overpowered the settlement, and annihilated the interest of Courteen. In 1629, sir William Tufton was sent out by lord Carlisle as chief governor, and he distributed land, amounting to 15,872 acres, into 140 grants; and in 1630, passed several laws; among which was one for dividing the island into six parishes. During the civil war, the emigrations from the mother country was so great, that in 1650 it was computed there were 20,000 white men in Barbadoes, half of them able to bear arms, and furnishing a regiment of horse to the number of 1000. It seems that about this time the existing governor granted lands to all who applied, on receiving a gratuity for himself; and the claim of the proprietor, whether disputed in the island, or disregarded amidst the confusions at home, was at length tacitly relinquished.

The colony, enjoying an unlimited freedom of trade, flourished in a singular manner by its own efforts. In 1646, the son and heir of the earl of Carlisle, the original patentee, revived his claims as hereditary proprietor, and by treaty with lord Willughby of Parham, conveyed to him all his rights by a lease of 21 years, on condition of receiving one-half of the profits. Lord Willughby obtained a commission as chief governor; and was received by the inhabitants, who were warmly attached to the king's interest, with respect and obedience. But soon after his arrival, the regal authority in England was abolished.

Barbadoes, in 1651, was reduced to the obedience of the new republic, who appointed another governor. Upon the restoration of Charles II., lord Willughby applied for leave to return to his government of Barbadoes; against which the inhabitants, now apprized of his connection and contract with the earl of Carlisle, and apprehending that they were regarded by these lords as mere tenants at will of their possessions, remonstrated. They pleaded that they were the king's subjects, and solicited his majesty's support and protection. They objected to the claims of the earl of Carlisle, and insisted that the charter granted to him was void in law. The several allegations and claims of the parties concerned were referred to a committee of the privy-council; and it was finally ordered, that lord Willughby should repair to his government, and demand the grant and establishment by the assembly of a permanent and irrevocable revenue of 4½ per cent to be paid in specie, on all dead commodities, the growth of the island, shipped to any part of the world; and the money arising from this revenue was to be applied towards making provision for the earl of Kinnoul, the legal representative of lord Carlisle with respect to his rights in the West Indies, who had on this condition promised to surrender the Carlisle patent to the crown, towards paying the annuity of the earl of Marlborough, and towards the discharge of the creditors of both these noblemen. After the extinction of these incumbrances, it was stipulated, that the revenue, subject to the charge of 1200l. per annum to the governor, should be at the disposal of the crown. With these instructions, lord Willughby returned to his government in 1663. The planters were dissatisfied, and preferred complaints, which, however, were unavailing. At length, finding resistance vain, the assembly passed an act for the purposes that were required, dated Sept. 12, 1663. Thus the proprietary govern-

government was dissolved, and the legislation of the island vested in the crown.

The island of Barbadoes is about 21 miles in length and 14 in breadth, and contains 106,470 acres of land, most of which is under cultivation. The soil in the low lands is black, somewhat reddish in the shallow parts; on the hills of a chalky marl, and near the sea generally sandy. Of this variety of soil, the black mould is best suited for the cultivation of the cane, and, with the aid of manure, has produced as great returns of sugar, in favourable seasons, as any in the West Indies, the prime lands of St. Kitt's excepted. About the year 1670, we are assured that Barbadoes could boast of 50,000 whites, and upwards of 100,000 black inhabitants, whose labours are said to have given employment to 60,000 tons of shipping. This account may probably have been exaggerated; but it is certain that the inhabitants of this island have decreased with a rapidity seldom known in any other country. It appears by authentic returns, that the number of its whites, in 1724, amounted to no more than 18,295, and that of its negroes in 1753 was no more than 69,870. In 1786, the numbers were 16,167 whites, 838 free people of colour, and 62,115 negroes. It appears also that the annual produce of this island, particularly of sugar, has decreased in much greater proportion than in any other of the West Indian colonies. Pofflethwayte states the crop of sugar, in 1736, at 22,769 hogheads of 13 cwt. which is equal to 19,800 of 15 cwt.; and the author of the "European Settlements," published in 1761, calculates the average crop at 25,000 hogheads. If this statement be just, the island has fallen off nearly one-half in the annual growth of its principal staple. In an average of eight years, from 1740 to 1748, the exports were 13,948 hogheads of sugar of 15 cwt.; 12,884 puncheons of rum of 100 gallons; 60 hogheads of melasses; 4,667 bags of ginger; 600 bags of cotton; and 327 gourds of aloes. The exports on an average of 1784, 1785, and 1786, had fallen to 9,554 hogheads of sugar; 5,448 puncheons of rum; 6,320 bags of ginger; 8,331 bags of cotton; exclusively of some smaller articles, as aloes, sweetmeats, &c. of which the quantities are not ascertained. The dreadful succession of hurricanes, which had occurred within the last twelve years, has, without doubt, contributed to this great defalcation. The capital of this island was scarcely risen from the ashes to which it had been reduced by two dreadful fires, when it was torn from its foundations, and the whole country made a scene of desolation by the storm of the 10th of October in 1780; in which 4,326 of the inhabitants, blacks and whites, miserably perished; and the damage to the country estimated at 1,320,564l. 15s. sterling. In the year 1792, the produce of sugar was 11,073 hogheads, 125 tierces, 2,698 barrels; of melasses 188 hogheads; of rum 5,064 hogheads, 512 barrels; of ginger 3,046 bags and barrels; of aloes 515 gourds; and of cotton 974,178 pounds. From the great increase in the export of sugar in this year compared with several of the preceding years, and decrease in that of the minor staples, it seems probable that the advanced price of that article in Europe has encouraged the cultivation of it in plantations which had been formerly abandoned or appropriated to a different kind of culture. The average of the number of negro slaves in Barbadoes for seven years, from 1786 to 1793, was 63,271, of slaves imported 4363, and the average amount of taxes, during the same period, was 9,530l. 14s. 1d. The taxes consist of a capitation tax on negroes; a tax on sugar-mills, dwelling-houses, and carriages, together with an excise, &c. on wines imported. Besides which there is a parochial tax on land, amounting on an average throughout the island to about two shillings per

acre, and an assessment in labour for the repair of the high-ways. The whole is altogether exclusive of the heavy duty of $4\frac{1}{2}$ per cent to the crown.

Barbadoes is divided into 5 districts and 11 parishes; and contains 4 towns: viz. Bridgetown, Orlins or Charles-town, St James's formerly called the Hole, and Speight's-town. Bridgetown is the capital, and the residence of the governor, whose annual salary is 2000l. per annum, paid out of the exchequer, and charged to the account of the $4\frac{1}{2}$ per cent, duty. The form of the government of this island resembles that of Jamaica, except that the council is composed of 12 members, and the assembly of 22. The most important variation respects the court of chancery, which in Barbadoes is constituted of the governor and council, whereas in Jamaica the governor is sole chancellor. On the other hand, in Barbadoes, the governor sits in council, even when the latter are acting in a legislative capacity, which would be considered, in Jamaica, as improper and unconstitutional. It may also be observed, that the courts of grand sessions, common pleas, and exchequer, in Barbadoes, are distinct from each other; and not, as in Jamaica, united and blended in one supreme court of judicature. The heat of the climate is moderated by the trade-winds, and the air is pure. Its products, besides what we have already mentioned, are the palm, tamarinds, figs, bananas, cedar, mastich, cacao, papas, guavas, and palmettoes. Barbadoes is situated in N. lat. $13^{\circ} 10'$. W. long. 59° . See Edwards's History of the West Indies, vol. i. p. 321—350.

BARBADOES *Bassard-Cedar*, in Botany. See CEDRELA.

BARBADOES *Cherry*. See MALPIGIA.

BARBADOES *Flower-fence*. See POINCIANA.

BARBADOES *Gooseberry*. See CACTUS *Pereiskia*.

BARBADOES *Wild-Olive*. See BONTIA.

BARBADOES *Tar*, in the *Materia Medica*. See PETROLEUM *Barbadense*.

BARBADOR, BARBADERA, or Cape BARBA, in Geography. See Cape BARA.

BARBALIS, in Entomology, a species of PHALÆNA, that feeds on the *trifolium pratense*. The antennæ pectinated; feelers shorter; anterior thighs with a projecting beard. Fabricius.

BARBALISSUS, in Ancient Geography, Beles, a considerable town of Asia, in Syria, near the Euphrates, E.S.E. of Hierapolis. This is the *Barbarissus* of Ptolemy, according to M. D'Anville.

BARBANA, or BARBENNA, a river of Illyrium, which sprang from the Labeatid Marsh, according to Livy.

BARBANA, in Geography, a town of Itria, seven miles N.N.E. of Pola.

BARBANO, a small island in the northern part of the Adriatic, near the coast of Friuli. N. lat. $45^{\circ} 45'$. E. long. $13^{\circ} 28'$.

BARBALONA, CAPE, is the south of Smyrna gulf, on the coast of Asia, at the east extremity of the Mediterranean, and nine leagues S. by W. from Porto Gero.

BARBAR, a province of Abyssinia, separated from Atbara by the river Tacazzé; the capital of which is Gooz, which see.

BARBARA, in Conchology, a species of HELIX, with an oblong, coarse, imperforated shell, with eight wreaths, and a subrotund lunated aperture. This kind inhabits Algira. Somewhat resembles *helix pupa*, but is not above half the size, being usually about the bigness of a barley-corn. Gmel. &c.

BARBARA, in Entomology, a species of FORMICA that inhabits Africa, and is as large as *F. herculanea*. It is black, with the head, antennæ, and extremity of the legs ferruginous.

ginous; petiole with two tubercles. Fabricius, &c. The head is large; first joint of the antennæ large and black.

BARBARA, *Bay of St.* in *Geography*, lies on the south-west coast of Terra del Fuego in South America, where at two leagues S. by E. from cape Noir, are two rocky islets; but no land is seen at E.N.E. from the Cape, where is probably the channel of St. Barbara; which opens into the straits of Magellan. Cape Desolation lies to the S.E., the entrance is open, and it will admit a large fleet of ships.

BARBARA, *St. Channel of*, lies on the south shore of the straits of Magellan, between bay de Choiseul and Cascade bay. It is supposed to communicate with the bay of St. Barbara; its entrance on that side being opposite to James's island. It has been thought of importance to explore this supposed channel from the strait; because it would afford, if found good, a quick and safe passage into the Southern Pacific ocean.

BARBARA, *St. Island*, the southernmost of two islands bearing north and south on the east side of the canal grande, or principal channel, from cape Frio, on the coast of Brasil, to the bay of All Saints. It has two good roads; one on the south-west, and another on the north-east.

BARBARA, *St.* the chief town of New Biscay, in the audience of Galicia, in New Spain, in North America.

BARBARA, *St. River*, lies on the coast of Africa, to the east from cape Fermosa, and six leagues west from Barabalemo.

BARBARA, *St. Canal of*, lies on the north-west of America, near the coast of New Albion; the north-west point of entrance into which is called point Conception; in N. lat. $34^{\circ} 32'$ E. long. $239^{\circ} 54'$. The westernmost, or first island, forming this canal, is called in one Spanish chart St. Miguel, in another St. Barnardo; the next is called in one chart Santa Rosa, in the other St. Miguel; and nearer the canal is a third island, upon which is a high hill called in the Spanish charts Santa Cruz. The coast continues in an easterly direction about 23 miles from point Conception to a point where it takes a southerly turn, from whence the country gradually rises to mountains of different heights. In the vicinity of the shores, which are composed of low cliffs or sandy beaches, are produced some stunted trees and groveling shrubs; and, notwithstanding the dreary appearance of the coast, it seems to be well inhabited, as several villages may be perceived at no great distance from one another, in the small bays or coves that form the coast. The inhabitants use canoes of wood, decorated with shells, and traffic with their fish and ornaments for spoons, beads, and scissars. They seemed, says Vancouver, to possess great sensibility and vivacity, and yet conducted themselves with the most perfect decorum. Their native dialect was unknown. The Spanish mission of Santa Barbara, and also that of Bueno Ventura, are situated at a small distance from the canal of Santa Barbara. The shores of the bay or roadstead of Santa Barbara are for the most part low, and terminate in sandy beaches, with the exception of the western point, which is a steep cliff of moderate elevation, and which was denominated by Vancouver *Point Felipe*. At Santa Barbara the latitude was $32^{\circ} 24'$, the variation $10^{\circ} 15'$ E. and the longitude $240^{\circ} 43'$. The tide regularly ebbed and flowed every six hours, its rise and fall being about three or four feet; and it is high water about eight hours after the moon passes the meridian. Vancouver's Voyage, vol. ii. p. 456.

BARBARA, in *Logic*, the first mode of the first figure of syllogisms.

A syllogism in barbara is that whereof all the propositions are universal and affirmative; the middle term being the sub-

ject in the first proposition, and attribute or predicate in the second.—For example:

“BAR Whoever suffers a man to starve, whom he ought to sustain, is a murderer:

BA Whoever is rich, and refuses to give alms, suffers those to starve whom he ought to sustain.

RA Therefore, whoever is rich, and refuses to give alms, is a murderer.”

BARBARATA *Islands*, in *Geography*, are situated three leagues west from the river Turiano; the bay of Trifto lies W.S.W. from them, on the Spanish main; and these islands are between the main and Venezuela, nearly west from the latter.

BARBAREEN. See *CALTURA*.

BARBARESQUE, in *Zoology*, the name given by Buffon to the Barbary squirrel; *sciurus getulus* of Schreber and Gmelin.

BARBARIA, in *Ancient Geography*, the name given in the Periplus of the Erythrean sea to the kingdom of Abyssinia, now called ADEL, the coast of which extends from the straits of Babelmandel to cape Gardesfan, about 450 geographical miles, and contains, according to the Periplus, four principal ports or anchorages, called by the general name of Tapera, the precise situation of which is not ascertained. Abalites was situated near the straits, Malao may be fixed at Delaqua, and Mundus at Zeyla; but the principal port was Mosullon, seated on a promontory, a whole degree north of Mundus; and this suits no other point on the coast but Barbara, a town on an island close to the shore, adjoining to a narrow cape of considerable extent.

BARBARIAN, in *Antiquity*, a name given by the ancient Greeks to all those who were not of their own country, or who did not speak the Greek language, or who did not speak it so well as themselves. In which sense the word signified with them no more than *foreigner*, and did not carry that odium with it which it does now. Strabo derives the word βαρβαρος from βαρβαρίζω, *balbutire*, because foreigners coming to Athens used to stammer, or speak coarsely; others derive it from βαρβας, a word that foreigners frequently stumbled on, which yet had no meaning.

The Greeks had such an high opinion of the pre-eminence to which they were raised by civilization and science, that they seem hardly to have acknowledged the rest of mankind to be of the same species with themselves. To every other people they gave the degrading appellation of Barbarians; and, in consequence of their own boasted superiority, they asserted a right of dominion over them, in the same manner, to use their own expression, as the soul has over the body, and men have over irrational animals. Extravagant as this pretension may now appear, it found admission, to the disgrace of ancient philosophy, into all the schools. Aristotle, full of this opinion, in support of which he employs arguments more subtle than solid (*Polit. i. c. 3—7.*) advised Alexander to govern the Greeks like subjects, and the Barbarians as slaves; to consider the former as companions, and the latter as creatures of an inferior nature. But the sentiments of the pupil were more enlarged than those of his master; and his experience in governing men taught the monarch what the speculative science of the philosopher did not discover. See *Plut. de Fortun. Alex. Orat. i.* Strabo, lib. i. p. 116. A.

The Greeks gave the denomination of Barbarians in a peculiar manner, and with a contempt blended with animosity, to the Phrygians, on account of the enmity that had subsisted between them since the wars of Troy. This appears in the “*Orestes*” of Euripides, and in the scholia upon the “*Ajax Mastigophorus*” of Sophocles. The Ro-

mans also, in imitation of the Greeks, called all other people, the Greeks excepted, barbarian; and the compliment was returned to them by the inhabitants of other nations. Thus Ovid, who was considered at Rome as a polished courtier, was treated in his exile as a barbarian by the Getæ, who did not understand his language, which was the idiom of Rome. Trist. l. v. el. 10. v. 37.

"Barbarus hic ego sum; quia non intelligor ulli:
Et rident stolidi verba Latina Getæ."

Under the lower empire, the appellation of barbarian became almost synonymous with that of stranger or foreigner. The Burgundians and Franks, who were established in Gaul, were there called barbarians; and in Italy this name was given to the Goths. The term was also applied by the 52d canon of the African church to the inhabitants of those provinces which had not submitted to the Roman empire; and the denomination is frequently extended by Gregory of Tours, and also by other writers, to Pagans as contradistinguished from Christians.

BARBARIANA, in *Ancient Geography*, a town of Spain, placed in the Anton. Itin. between Atiliana and Graccuris.

BARBARIC PHILOSOPHY, comprehends that of all ancient nations among whom the Greek language was not spoken. It has long been a subject of dispute, whether philosophy first appeared among the Barbarians or among the Greeks. The inhabitants of Greece, who were at an early period remarkable for literary and philosophical vanity, and who soon acquired the use of an artificial method of philosophizing, were unwilling to allow that philosophy had any existence in other countries, except where it had been borrowed from them. They could not persuade themselves, that the mere communication of precepts of wisdom in the simple form of tradition, and in languages harsh and dissonant compared with their own, could deserve to be called philosophizing. On the other hand, the barbaric nations in their turn treated the Greeks as barbarians, and looked upon them as children in philosophy. Plato, in his *Timæus*, introduces a barbarian as instructing the wise Solon, and saying, "You Greeks are always children; there is not an old man amongst you; you have no such thing as grey-headed wisdom." In this persuasion they were the more confirmed, when they understood that the most learned men, and the most ancient philosophers among the Greeks, had either been Barbarians by birth, or instructed by Barbarians (see Clemens Alex. Stromata, l. i. p. 302, 303.); that Pythagoras, for example, was a Tuscan, Antisthenes a Phrygian, Orpheus a Thracian, Thales a Phœnician; and that Thales, Pythagoras, Plato, and others, had derived their knowledge from Chaldean and Egyptian priests. Many of the Christian fathers espoused, in this dispute, the cause of the Barbarians, and maintained, with great vehemence, and with all the learning they could command, that the Barbaric philosophy was the fountain of all the wisdom which had appeared among the Greeks, except so far as they had been indebted, in the way of tradition, to divine revelation. This dispute, however, was owing to the want of distinct ideas, and an accurate use of terms; and can in reality be considered as nothing more than a logomachy. For no one can assert that the barbaric nations were wholly inattentive to wisdom, or strangers to every kind of knowledge, human or divine: and, on the other side, it cannot be questioned, that they acquired their knowledge rather by simple reflection than by scientific investigation, and that they transmitted it to posterity rather by tradition than by demonstration. Whereas the Greeks, as soon as they began to be civilized, discovered a general propensity to inquiry, and adopted scientific rules and methods of reasoning. Hence it is easy to

perceive, that though the improvement of philosophy is to be ascribed to the Greeks, its origin is to be sought for among the Barbaric nations. Tatian, in Proem. Clem. Alex. Strom. l. i. p. 302. Origen adv. Celsum, l. i. Beaufobre Hist. du Manich. p. 2. l. i. c. 2. Scaliger Exerc. ii. contra Cardan. p. 188. Bos Animadv. ad Script. c. ii. p. 12. Heuman. Act. Phil. v. ii. p. 204. Heurnii Ant. Phil. Barb. ed. Lugd. Bat. 1600.

The Barbaric philosophy, in the most extensive sense of the term, and in its reference to the state of philosophy, from the earliest times to the decline of the Roman republic, comprehends that of the eastern nations, including the Hebrews, Chaldeans, Persians, Indians, Arabians, and Phœnicians; that of the southern nations, or Egyptians and Ethiopians; that of the western nations, to which we may refer the Celts, the Etrurians, and the Romans; and that of the northern nations, including the northern Scythians, Thracians, Getæ, &c. among whom Abaris, Anacharsis, Toxaris, and Zamolxis, obtained the praise of wisdom. See Brucker's Hist. of Philosophy by Enfield, vol. i. Introduction.

BARBARICA, in *Entomology*, a species of BUPRESTIS, found in Barbary. It is a small insect; colour above brassy, beneath coppery; wing-cases very entire and slightly striated. Fabricius.

BARBARICA, a species of CHRYSOMELA, of a brassy-green, with five red lines on the wing-cases; wings sanguineous. Inhabits Barbary. Sulzer. Gmelin.

BARBARICARII, in *Antiquity*, a kind of artists, who, with threads of divers colours, expressed the figures of men, animals, and other things; or, as others describe them, those whose business was to gild and decorate shields and helmets with gold and silver.

The barbaricarii were so called, because they learned this kind of painting from the Phrygians, who were particularly denominated *barbarians*, in regard of their opposition to the Greeks; though the name is sometimes also written *branbaricarii*.

BARBARICARII seem also to have been used for soldiers or officers, who wore masks and vizards thus adorned with gold and silver.

BARBARICUM, in *Ancient Writers*, is used for a military shout, raised by the soldiers on point of engagement. This is called barbaricum from the barbarians, in whose armies this method of shouting much obtained. The same appellation was given to a war or expedition undertaken against the barbarians.—"*Quousque ad ipsum tempus quo barbaricum extortum est inter nos & vos.*"

BARBARICUM was also used for an armoury, or magazine, wherein the Greek emperors kept the spoils and donaries taken from the barbarians in the time of war or peace.

BARBARICUM, in the *Materia Medica*, is also an appellation given by the modern Greeks to rhubarb. It is thus called from the *Sinus Barbaricus*, by the way of which this root was first brought to them.

BARBARICUS, in *Entomology*, a species of CIMEX (*Reduvius*), of a black colour; thorax and wing-cases obscure ferruginous, and a little white line on the middle of the scutellum. A native of Barbary. Gmelin.

BARBARICUS, in *Ornithology*, a species of RALLUS that inhabits Barbary. It is ferruginous, with a black bill; wings spotted with white; rump white, streaked with black; white below; legs obscure brown. Gmelin. This is the *Barbary rail* of Latham.

BARBARICUS, a species of TURDUS, of a green colour, with the breast spotted with white; rump and tip of the tail

tail yellow. Gmelin. This is the *Barbary thrush* of Latham, and *grive bassette de Barbarie* of Buffon. Inhabits Barbary; and is about the size of the missel thrush.

BARBARISM, in *Grammar*, denotes an offence against the purity of style or language.

A barbarism differs, according to Isidore, from a *barbarous term*, as the former, for instance, is Latin, though corrupt or misused; whereas the latter, which this writer calls *barborologia*, is a word merely foreign intruded into Latin speech.

In general, under barbarisms are comprehended things written, spoken, declined, or conjugated wrong; or used in a wrong quantity, or in an unusual sense; as when a word is used which is foreign to the language, and not received by the better and purer sort of writers therein. Such are *lipe* for *liber*, *syllaba* for *syllāba*, *patri* for *patris*, *lexi* for *legi*, *bannus* for *proscriptio*, &c.

Barbarism is often charged, with great justice, on modern writers in the learned languages. The Latin books of late ages are full of Anglicisms, Gallicisms, Germanicisms, &c. according to the country of the author. But what shall we say to Casp. Scioppius, who accuses Cicero himself of barbarisms in his own language?

There are great disputes among critics concerning barbarisms in the New Testament.

Divers pious persons are startled at the apprehension of any thing like a barbarism in the inspired books, as supposing it an objection to the inspiration of them; yet this does not hinder but many of the Jews, after Abarbanel and others, still maintain barbarisms in the Old Testament; in which they are seconded by M. Simon, Le Clerc, and others. The latter of these writings abound with Chaldaisms; and the books of Moses are not free from Egyptian words.

If we consider that among native Greeks a barbarous idiom could only mean such as was not conformable to the rules of their grammarians and rhetoricians, and to the practice of their writers of reputation, it may be conceded that the style of the New Testament is of this kind, without derogating from the character of the apostles and evangelists; without impeaching their inspiration, and without injuring the authenticity of their writings. This concession, the most learned and oratorical of the Greek fathers, as for instance Origen and Chrysostom, did not scruple to make; and, in such cases, it must be acknowledged that a native of common sense is a much better judge than any learned foreigner. Nevertheless many have contended that the Greek of the New Testament is as purely classical as that of the Attic writers, and they have even condemned as impious heretics those who have dared to dissent. It has been asserted, that the contrary implies an imperfection inconsistent with divine inspiration, and that men capable of such a doctrine were not only impious, but were guilty of the sin against the Holy Ghost. And yet this doctrine was maintained by Erasmus, Luther, Melancthon, Camerarius, Beza, Drusius, Casaubon, Glassius, Gataker, Solanus, Olearius, and Vorstius; though it has been denied by Pfochenius, Stolberg, Schmid, Georgi, and Blackwall. See *Ernesti Institutio Interpretis N. T.* p. 41. ed. 3tia. Lipsiæ, 1775. But the advocates for this divine purity have not only betrayed their ignorance of the Greek language, but a high degree of pedantry in estimating the accuracy of language beyond its proper value. This last mistake has happened not only to the warm and partial friends, but likewise to the enemies of Christianity, who, from the time of Celsus to the 18th century, have maintained, that a book written in such language is neither divinely inspired, nor deserving attention and respect. Both parties have carried their zeal and their sentiments

to too great a length; and they would hardly consider an absolute purity of style, and a total absence of foreign words, of such importance as to make the contrary a crime, if they would condescend to quit the language of the schools for that of common life, or turn their attention from the language of the classics to those that are in common use. All foreign idioms, such as Hebraisms in Greek, Grecisms in Hebrew, or Latinisms in either, may be comprehended within the definition of barbarism, and sometimes even of solecism; but these words, it should be recollected, have always something relative in their signification; that turn of expression being a barbarism or solecism in one language, which is strictly proper in another, and to one class of hearers which is not so to another. The apostle Paul does not hesitate, by implication, to call every tongue barbarous to those who do not understand it. 1 Cor. xiv. 11. Nor does it make any difference, as appears from the whole of the apostle's argument, even if what is spoken be spoken by the spirit. With equal reason we may say of those foreign idioms in any tongue, which render what is said unintelligible or even obscure to the natives, that in respect of them they are barbarisms. Nor will any judicious person deny, that there are some idiomatical expressions in the New Testament, which must have puzzled those who were absolute strangers to the language of holy writ. Such idioms the writers of the New Testament would naturally adopt. They occurred in the Septuagint, which they were in the habit of using; and these would co-operate towards infecting their style with the tendency, which, as natives of Palestine, they would derive from conversation, to intermix Hebraisms and Chaldaisms in their writings. If we would enter thoroughly into the idiom of the New Testament, we must familiarize ourselves with that of the LXX; and if we would enter thoroughly into the idiom of the LXX, we must accustom ourselves to the study, not only of the original of the Old Testament, but of the dialect spoken in Palestine between the return of the Jews from the Babylonish captivity and the destruction of Jerusalem by the Romans; for this last, as well as the Hebrew, has affected the language both of the old Greek translation and of the New Testament.

Besides, it is proper to consider in relation to this subject, that vulgarisms and foreign idioms, which may obtain among strangers, and those of the lower ranks, have no more natural unfitness to convey the sense which they that use them intend to convey by them, than the terms and phrases which, in consequence of the preference given by their superiors, may be regarded as elegancies. It may be as reasonably objected against our religion, that the persons by whom it was propagated were chosen from a class which men in high life account the dregs of the people, as that the Holy Spirit should accommodate himself to the language of those who were actually chosen. Nay, language as well as dregs being in fact no more than a species of mode, it may with as good reason be maintained that the ambassadors whom Christ deputed to promulgate his doctrine, should have been habited like gentlemen and men of fashion, as that they should have spoken the dialect of such. Should it be asked, why did the Holy Spirit chuse to deliver such important truths in the barbarous idiom of a few obscure Galileans, and not in the polite and more harmonious strains of Grecian eloquence? The answer is obvious:—That it might appear beyond contradiction, that the excellency of the power was of God, and not of man. Moreover, the writings of the New Testament carry, in the very expression and idiom, an intrinsic and irresistible evidence of their authenticity. They are such as, in respect of style, could not have been written but

by Jews, and hardly even by Jews superior in rank and education to those whose names they bear; and the argument is strengthened by considering that under their homely garb we find the most exalted sentiments, the closest reasoning, the purest morality, and the soundest doctrine. In the discussion of this subject, we should likewise consider the situation and character of the persons for whose use the New Testament was more immediately written. They were partly either native Jews, or pious persons who were proselytes to the doctrine of Moses, and who, by continual intercourse with native Jews, and the constant reading of the LXX, were accustomed to Jewish Greek. It is highly probable therefore, that if the New Testament had been written with Attic purity, it would have been unintelligible to many of its earliest readers, who had never read the doctrines of religion in any other dialect than Jewish Greek. We shall only observe further in this place, that a classical or unclassical style has no more influence on the divinity of the New Testament, than the elegance or inelegance of the hand in which it is written, and the accuracy or inaccuracy of the pronunciation with which it is uttered. Whoever is accustomed to write a bad hand would certainly not improve it by inspiration; but admitting the fact, it would have this unfortunate consequence, that no one accustomed to the hand would in its improved state believe it to be genuine. There is no reason to believe, that inspiration would amend a faulty pronunciation; and the writers of the different parts of the Bible have undoubtedly spoken in the same manner, both before and after the effusions of the Holy Ghost. If these failings then are consistent with supernatural endowments, "I can see no reason," says Michaelis, "for drawing an argument against the divinity of the New Testament from its vulgarisms, or even from its grammatical errors." A particular account of the writings of those authors, who have engaged in the controversy relating to the purity of the language of the New Testament, may be seen in Walchii Bibliotheca Theologica, t. iv. p. 276—289, See also Fabr. Bib. Græc. t. iv. p. 224—227. Michaelis's Intro. to the New Testament by Marsh, vol. i. ch. 4. § 4. p. 116, &c. Campbell on the Four Gospels. Prelimin. Diff. vol. i. p. 13, &c. See more on this subject under the articles INSPIRATION, and *Language of the New Testament*.

BARBARISM, *Barbaries*, is also used for that rudeness of mind, wherein the understanding is neither furnished with useful principles, nor the will with good inclinations.

BARBARISSOS, in *Ancient Geography*, a town of Asia, in Syria, in the Chalybonitide country. Ptolemy.

BARBARIUM *Promontorium*, a promontory of Lusitania, placed by Ptolemy south of the city of Olios-Hippon, or Oliosipon, Olesipo, or Lisbon, in 39° 45' N. latitude.

BARBARO, FRANCIS, in *Biography*, a noble and learned Venetian, was born in 1398, and distinguished by his love of literature, and his talents for public business. Under the learned Grecian Chrysoloras, he acquired that profound knowledge both of the Greek and Latin languages, of which he gave specimens in his translations of Plutarch's lives, of Aristides, and Cato, and in his elegant moral work, written in Latin, intitled "De Re Uxor," and first published without his name, in 4to. at Paris, in 1515. This work furnishes useful instructions with regard to the choice of a wife, and the duties of wives and mothers. He was also the author of some orations and letters, which manifest good taste and an amiable temper. In all the public offices which Barbaro sustained, he displayed eminent virtues. Whilst he was governor of Brescia, he had occasion for the exercise both of courage and discretion. The

city was divided into two violent factions, which he prevailed upon to unite, and to act in concert for the public good; and though at the same time it was besieged by the Milanese forces under the great commander Piccinino, and suffered much by famine and disease, he at length, after a protracted siege of three years, obliged the enemy to retire. He died much regretted by his countrymen, in 1454, at the age of fifty-six years. His letters were collected and printed at Brescia in 1743. Gen. Dict.

BARBARO, ERMOLAO, the elder, was the nephew of the preceding, and distinguished by his early acquaintance with the Greek language, inasmuch that at twelve years of age he translated many of Æsop's fables into Latin. He was advanced, at the age of thirty years, by pope Eugenius, to the episcopal see of Trevigi; and ten years afterwards he was translated to that of Verona, where he died in 1470, aged sixty years. He left translations of Greek authors.

BARBARO, ERMOLAO, or HERMOLAUS BARBARUS, the younger, was the grandson of Francis Barbaro, and born at Venice, in the year 1454. In very early life he was eminently distinguished by his genius, application, and proficiency; and at the age of fourteen years he received from the hand of the emperor Frederic the poetic crown. At sixteen, he undertook the translation of Themistius, which was published seven years afterwards. Having graduated in the school of Padua in jurisprudence and philosophy, he returned to Venice, and devoted himself entirely to affairs of state. However, after an interval of twelve years, he resumed his studies with fresh ardour; and, particularly attached to the Greek language, he read lectures without gratuity, in his own house, upon Demosthenes, Theocritus, and Aristotle, which were very numerously attended. At the age of thirty-two years, he was sent ambassador to the emperor Frederic, who conferred upon him the honour of knighthood; and in consequence of a subsequent embassy to pope Innocent VIII. that pontiff created him patriarch of Aquileia. This office he accepted, though the laws of Venice had prohibited its ministers from accepting any dignity from any foreign prince, without the consent of the republic; and for his opposition to this order, the Venetians pronounced upon him a sentence of perpetual exile. For preventing its execution he wished to relinquish the patriarchate; but the pope refused to accept the renunciation. From this time, he resided at Rome; but upon the access of the plague, he removed into the country, which, however, afforded him no asylum; for he was seized with this malady, and died in the year 1493.

Besides the translation of Themistius, Hermolaus published versions of Dioscorides, and of the rhetoric of Aristotle; an abridgement of the moral and physical doctrine of that philosopher; two large works upon Pliny, one intitled "Constitutiones Plinianæ," the other "Constitutiones Secundæ;" "Corrections of Pomponius Mela;" and an "Explanation of the more difficult words in Pliny." He boasted that he had corrected 5000 errors in the text of Pliny, and 300 in that of Mela. Although he is charged with having been too free in his conjectural emendations, he exercised great ingenuity and industry in these labours. The illustrious Lorenzo de' Medici treated him with great respect, and when he was at Florence on an embassy from the republic of Venice, entertained him very liberally and offered him the use of his villa and library for the prosecution of his studies. "Hermolaus is certainly entitled to rank in the first class of learned men, at a period when classical learning was the first and almost the sole object of attention: nor is it any depreciation of his merit as a scholar, whatever it may be of his character as a philosopher,

pher, if the whimsical story be true, that, being exceedingly perplexed concerning the meaning of Aristotle's *Εὐσεβεία*, a term which has perhaps never been understood, he endeavoured, or pretended to consult the devil upon the subject." Gesner in *Bibliothec. Gen. Dict.*

BARBAROSSA, so called from the red colour of their beard, *Aruc* or *Horuc*, and *Hayradin*, were the sons of a potter of the island of Lesbos, or as some say, of a Sicilian renegado; who, prompted by a restless and enterprising spirit, forsook their father's trade, and joined a crew of pirates. They soon distinguished themselves by their valour and activity, and becoming masters of a small brigantine, carried on their infamous trade with such conduct and success, that they assembled a fleet of twelve galleys, besides many vessels of smaller force. Of this fleet, Horuc, the elder brother, was admiral, and Hayradin second in command, but with almost equal authority. They called themselves the friends of the sea, and the enemies of all who sail upon it; and their names soon became terrible from the straits of the Dardanelles to those of Gibraltar. Whilst they were acting as Corsairs, they adopted the ideas and acquired the talents of conquerors. They often carried the prizes which they took on the coasts of Spain and Italy, to which they extended their depredations about the year 1504, into the ports of Barbary; and enriching the inhabitants by the sale of their booty, and the thoughtless prodigality of their crews, they were welcome guests in every place at which they touched. The convenient situation of these harbours, lying so near the greatest commercial states at that time in Christendom, made the brothers wish for an establishment in that country. An opportunity occurred for this purpose, which they eagerly seized and improved to their own advantage. Eutemi, king of Algiers, having made several unsuccessful attempts for taking a fort which the Spanish governors of Oran had built not far from his capital, sought the assistance of Horuc, whose valour the Africans considered as irresistible. The active corsair gladly accepted the invitation, and leaving his brother Hayradin with the fleet, marched at the head of 5000 men to Algiers, where, in the year 1516, he was received as their deliverer. Such a force gave him the command of the town. The ambitious conqueror, having secretly murdered the monarch whom he came to assist, caused himself to be proclaimed king of Algiers in his stead. He then proceeded to establish the authority which he had usurped, by arts suited to the genius of the people whom he had to govern; by unbounded liberality to those who favoured his promotion; and by cruelty as unbounded towards all whom he had any reason to distrust. Having detected and defeated a conspiracy formed against him by the Arabs, and obliged the king of Tunis, who marched to their succour with a powerful army into the territory of Algiers, to seek refuge in the mountains; Barbarossa laid siege to Tunis, made himself master of it, and was acknowledged as sovereign. He then attacked the neighbouring king of Tremecen, vanquished him in battle, and added his dominions to those of Algiers. At the same time he continued his depredations on the coast of Spain and Italy; and the devastations which he committed obliged Charles V., at the beginning of his reign, to furnish the marquis de Comares, governor of Oran, with troops sufficient to attack him. That officer, assisted by the dethroned king of Tremecen, executed the commission with such spirit and success, that Barbarossa's troops being defeated in several encounters, he himself was shut up in the citadel of Tremecen. After defending it to

the last extremity, he was reduced by the apprehensions of famine to the necessity of attempting an escape by a subterraneous passage; and in order to delay the pursuit, he scattered his treasures upon the road. At length the Spaniards overtook him on the banks of the Huexda, eight leagues from Tremecen; and here Barbarossa with his Turkish followers fought for some time with an obstinate valour, but they were at last totally defeated, and the conqueror himself was slain, in the forty-fourth year of his age, A.D. 1518.

His brother Hayradin, known likewise by the name of Barbarossa, assumed the sceptre of Algiers with the same ambition and abilities, but with better fortune. His reign being undisturbed by the Spaniards, who were fully employed in the wars among the European powers, he regulated with admirable prudence the interior police of his kingdom, carried on his naval operations with great vigour, and extended his conquests on the continent of Africa. For his greater security, he put his dominions under the protection of the Grand Signior, and received from him a body of Turkish soldiers sufficient for his defence against domestic as well as foreign enemies. Solymán at length A.D. 1533, offered him the command of the Turkish fleet in opposition to Andrew Doria, who was the greatest sea-officer of that age. Barbarossa, proud of this distinction, repaired to Constantinople, and with a wonderful versatility of mind, combined the address of a courtier with the boldness of a corsair, and thus gained the entire confidence of the sultan and his vizier. To them he communicated a scheme which he had formed of making himself master of Tunis, the most flourishing kingdom, at that time, on the coast of Africa; and as they approved the scheme, they furnished him with every thing he demanded for carrying it into execution. Availing himself of the intestine divisions of the kingdom, and making perfidious use of the name and interest of Abraschid, an exiled prince, whom he deceived and imprisoned, he was supported by a powerful fleet and a numerous army. His fleet consisted of 250 vessels, with which he sailed towards Africa; and after ravaging the coasts of Italy, he appeared before Tunis. Having landed his men, he announced his intention of asserting the right of Abraschid, whom he pretended to have left sick on board of the admiral galley, but who was in reality confined in the seraglio at Constantinople, and who was never heard of more. The fort of Goletta, which guards the bay, soon submitted, and the inhabitants of Tunis declared unanimously in favour of Abraschid; so that the gates were open to Barbarossa, whom they considered as the restorer of their lawful sovereign. But as Abraschid did not appear, they soon began to suspect their corsair's treachery; and with arms in their hands, surrounded the citadel into which Barbarossa had led his troops. Their attack, however ardent and impetuous, was of no avail; and they were forced to acknowledge Solymán as their sovereign, and to submit to himself as his viceroy. Having put the kingdom into a proper posture of defence, he extended his depredations to the Christian states, so that complaints of his outrages were conveyed to the emperor Charles by his subjects both in Spain and Italy. The emperor concluded a treaty with Muley-Hascen, the exiled king of Tunis, who implored his assistance; and made preparations for invading Tunis. His fleet consisted of nearly 500 vessels, and they had on board above 30,000 regular troops. The armament sailed from Cagliari, and after a prosperous navigation, landed within sight of Tunis. Barbarossa assembled at Tunis for opposing the imperial

army, a force composed of 20,000 horse, together with a vast body of foot. By the reduction of the Goletta, after an obstinate defence by 6000 Turkish soldiers under the command of Sinan, a renegade Jew, the bravest and most experienced of all Barbarossa's corsairs, the emperor became master of the fleet, consisting of eighty-seven galleys and galliots, together with the arsenal, and 300 cannon mostly of brass, that were planted on the ramparts. In these circumstances, however, Barbarossa neither lost his courage, nor abandoned the defence of Tunis. But as the walls were extremely weak as well as extensive, he determined to advance with his army, amounting to 50,000 men, towards the imperial camp, and to decide the fate of his kingdom by the issue of a battle. Having communicated his resolution to his principal officers, he proposed to provide against the danger of a mutiny among the Christian slaves, during the absence of the army, by massacring 10,000 of them before he began his march. The barbarity of the proposal filled his officers with horror; and Barbarossa, dreading their resentment, consented to spare the lives of the slaves. The emperor's army which suffered inconceivable hardships in their march over burning sands, soon came up with the Moors and Arabs under the command of Barbarossa, who were so completely routed, that, notwithstanding all his efforts to rally them, he was hurried along with them in their flight back to the city. This was found a scene of confusion; some of the inhabitants were flying with their families and effects; others were opening the gates to the conquerors; the Turkish soldiers were retreating; and the citadel was in possession of the Christian slaves. Barbarossa, disappointed and enraged, fled precipitately to Bona; and Tunis surrendered to the victorious army of the emperor. But the lustre of this victory was tarnished by the excesses of the soldiers: who sacrificed more than 30,000 of the innocent inhabitants, and carried away 10,000 of them as slaves. Barbarossa escaped first to Algiers, and then repaired to Constantinople, where he was received again into favour, and sent with a fleet to ravage Calabria. Having persuaded Solyman to make war on the Venetians, he committed great devastations in the isle of Corfu, and afterwards made an expedition to the coast of Arabia Felix, when he reduced all Yemen under the Turkish dominion. In a subsequent war between the Turks and Venetians, he took many islands in the Archipelago. In 1538 he crossed over to Candia, and made an unsuccessful attempt on Canea. From thence he retired to the Ambracian gulf, where he was overtaken by the Christian fleet under the famous Andrew Doria. By his skilful manœuvres he not only avoided the danger that threatened him, but gained some partial advantages, and caused Doria to make a hasty retreat to Corfu. In 1539 he recovered Castel Nuovo from the confederates. In 1543, Barbarossa left Constantinople with a powerful fleet; and proceeding to the Faro of Messina, took Reggio, and sacked the coast of Italy. He then besieged and took Nice; but when Doria approached with his fleet, Barbarossa avoided him; and remaining in those seas during winter, he next spring ravaged the coasts and islands of Italy, and then returned with many prisoners to Constantinople. During the remaining period of his life, he superintended the naval affairs of the grand signior, and pursued that voluptuous course to which he had been habituated, amidst a number of fair captives; and died at the age of eighty years, in 1547, leaving his son Hassan in possession of the viceroyalty of Algiers, and heir to all his property. With the ferocity of a Turk and Corsair, Barbarossa possessed some generous

sentiments, and obtained a character for honour and fidelity to his engagements. *Mod. Un. Hist.* vol. x. p. 66, &c. vol. xv. p. 14, &c. *Robertson's Hist.* of Charles V. vol. iii. p. 97, &c. *Gen. Biog.* See **ALGIERS**.

BARBAROSSA, in *Entomology*, a species of **SCARABÆUS**, described by Fabricius as a native of New Holland. The anterior part of the thorax is scabrous; horns of the head recurved and short.

BARBAROUS, in a general sense, denotes something that partakes of the quality of **BARBARISM**; and in this sense, the term is applied to a nation, age, writer, word, or the like. Barbarous Latin words are innumerable; the schoolmen abound with them; the chemists, physicians, and lawyers can scarcely write intelligibly without them. Du-Cange has given two large volumes in folio of barbarous Latin words, and as many of barbarous Greek words. The modern or vulgar Greek is sometimes called barbarous Greek, "barbaro-Greca," or "Greco-barbara lingua." Langius has published "*Philologia Barbaro-Greca*," "*Grammatica Barbaro-Greca*," or "*Glossarium Barbaro-Grecum*."

BARBARUS, in *Entomology*, a species of **Papilio**. (*Pleb. Rur.*) The wings are without tails, and blueish; beneath spotted all over with brown, and two spots behind. Gmelin.

BARBARUS, a species of **TENEBRIO**, of a black colour, and very glossy; thorax orbiculated; anterior margin of the shield of the head elevated. This is about the middle size: wing-cases joined. Brander, &c.

BARBARUS, a species of **CRYPTOCEPHALUS** that inhabits Barbary. The antennæ are ferrated; body hairy, obscure, brassy. Found on composite flowers. Fabricius.

BARBARUS, in *Ichthyology*, a species of **SYNGNATHUS**, found in European seas. It has neither caudal nor anal fin; body six-sided. Gmelin. In the dorsal fin are about forty-three rays; and in the pectoral fin twelve rays; body olive with faint bluish transverse lines.

BARBARUS, in *Ornithology*, a species of **VULTUR** that inhabits Barbary, and some other parts of Africa. It is of a blackish brown; beneath white, inclining to brown; legs woolly; toes lead colour; claws brown. Gmelin. This is *vultur barbatus*, Briss. Orn. and *bearded vulture* of Edwards and Latham.

BARBARUS, a species of **FALCO**, called by the English writers *Barbary falcon*; the cere and legs are yellowish; body blueish, spotted with brown; breast immaculate; tail banded. Gmelin. The length of the bird is seventeen inches, and, as its name implies, it is a native of Barbary.

BARBARY, in *Geography*, the northern tract of Africa, is one of the three distinct parts of North Africa, according to the distribution of major Rennel, and lying along the Mediterranean. See **AFRICA**.

As to the origin of the name of Barbary, we have a variety of conjectures. Some suppose, that the Romans after they had conquered this large tract, gave it the name by way of contempt or dislike of the rude and barbarous manners of the natives. Marnol deduces it from the Arabic word "Berber," a name given by the Arabs to the ancient inhabitants, and which they retain to this day in many parts of this tract, especially along the ridge of the Great Atlas, where they are very numerous, and which was given to them by their new invaders on account of the barrenness of their country. Leo Africanus says that it was given to these people on account of their strange language, which appeared to them an inarticulate murmur, the Arabic word "barbar," signifying "a murmuring sound or noise."

Others derive it from "bar" twice repeated, which signifies a "desert," which was its ancient state; accordingly, they say that the fugitive king Ifrik, from whom it is pretended the whole African continent derived its name, when closely pursued by his enemies in his flight out of Arabia Felix, and hesitating what course to pursue, was directed by some of his retinue by these words, "Bar, Bar," that is "To the Desert, To the Desert."

The history of the word "Barbar," says Gibbon (Rom. Emp. vol. ix. p. 463:), may be classed under four periods. 1. In the time of Homer, when the Greeks and Asiatics might probably use a common idiom, the imitative sound of "Bar-bar," was applied to the ruder tribes, whose pronunciation was most harsh, whose grammar was most defective. *Καὶς Βαρβαροφωνοῖ* (Iliad. ii. 867. with the Oxford Scholiast, Clarke's Annotation, and Henry Stephens's Greek Thesaurus, tom. i. p. 720.) 2. From the time, at least, of Herodotus, it was extended to *all* the nations who were strangers to the language and manners of the Greeks. 3. In the age of Plautus, the Romans submitted to the insult (Pompeius Festus, l. ii. p. 48. ed. Dacier), and freely gave themselves the name of Barbarians. They insensibly claimed an exemption for Italy, and her subject provinces, and at length removed the disgraceful appellation to the savage or hostile nations beyond the pale of the empire. 4. In every sense, it was due to the Moors; the familiar word was borrowed from the Latin provincials by the Arabian conquerors, and has justly settled as a local denomination (Barbary) along the northern coast of Africa.

Barbary is bounded on the north by the Mediterranean sea, which divides it from Europe, on the east by Egypt, on the south by Sahara, Zaara, or the Desert, and on the west by the Atlantic ocean. Its utmost extent from east to west, that is, from cape Non, on the most western coast of Morocco, to the confines of Egypt, is almost 37 degrees, that is from 10° W. to 26½° E. long. or about 2200 geographical miles. Its breadth from north to south is very unequal; in some parts it is not above 6 or 7 degrees; and where it is widest, as from cape Non to Tangier, not above 10 degrees. Some geographers, however, have given it a much greater extent both in length and breadth, making the former 4000 miles, and the latter 1200, in order to which estimate they have included the creeks and windings, which are too precarious and unknown to be depended upon. Others have made the length from east to west to be only 1200 miles, and the breadth from north to south, which is very variable, 320 miles. It commences on the west at the famous mount Atlas, called by the Arabs Ayduacal, or Al Duacal, and incloses the ancient kingdoms of Suez and Dela, now provinces of Morocco, and extends north-eastward along the Atlantic coast to the pillars of Hercules at cape Finisterre, through the straits of Gibraltar, and so on by an eastern course, along the Mediterranean coast to the city of Alexandria, which is the southern boundary of Egypt, where it joins to this of Barbary. The principal kingdoms into which it is now divided, are those of Morocco, Fez, Algiers, Tunis, and Tripoli; the kingdom of Telenfin or Tremecen having been incorporated with that of Algiers, and that of Barca having been reduced to a dependence on that of Tripoli. (See each of these articles.) Both the coasts of Barbary, whether watered by the Atlantic ocean, or by the Mediterranean, are fertile in corn and pasturage; the former being watered by a multitude of small and large rivers which descend from the great Atlas, and empty themselves into the ocean; and the latter extending along the declivity of a vast ridge of mountains, some of which are considerably high, and spread above

40 leagues into the inland, supplying a number of rivers, which after many windings through pleasant and fertile valleys, discharge themselves into the Mediterranean. Besides, the temperature of the climate contributes to its fertility. However the coast and mountains along the Mediterranean from the straits of Gibraltar to Egypt, are rather cold than hot, and snow falls at certain times of the year; and the tops of some mountains are covered with it through the year. The winter in this country commences about the middle of October, and is often severe; the rains commonly begin about the end of the month, and continue to the end of January; in February the weather becomes milder; and in March the west and north winds begin to blow and to produce universal verdure. During the whole spring season, which begins about the latter end of February, the weather is generally serene and pleasant, except from the latter end of April to that of May, when refreshing showers are abundant; which, with the concurring heat of the sun, bring the productions of the earth to maturity; so that in the latter end of May, they begin to gather ripe figs and cherries in Tunis, Algiers, and some parts of Morocco; in the middle of July, the apples, pears, and plums are ripe, and grapes and other later fruits are completely gathered before the latter end of September. The summer begins, according to their reckoning, on the 28th of May, and lasts till the 29th of August; during which the heats are excessive and dangerous; their autumn commences on the 27th of August, and ends on the 16th of November, when the heat abates; and their winter begins on the 27th of November, and ends on the 16th of February. The greatest cold begins on or about the 12th of December, and the greatest heat about the 12th of June. On mount Atlas, and the higher lands, they reckon but two seasons, namely, winter and summer; the former lasting from October to April, when great quantities of snow fall, and the latter from April to September, when the heat in the vallies is excessive.

The principal quadrupeds of the states of Barbary are the horse, which has of late years very much degenerated, the ass and mule, the kumrah, produced between an ass and a cow, the camel, the black cattle, which are small and slender, the goat, and sheep, of which latter there are two species not known in Europe; the one the broad-tailed sheep, and the other the sheep of Sahara, as tall as our fallow-deer, and resembling them in shape. Each of these kinds of quadrupeds is very numerous and prolific. Several Arabian tribes, who can bring no more than three or four hundred horses into the field, are possessed of more than so many thousand camels, and triple the number of sheep and black cattle. The Arabs seldom diminish their flocks by using them for food, but live chiefly upon bread, milk, butter, dates, or what they receive in exchange for their wool. Among the quadrupeds that are not naturally tame and domesticated, we may reckon the "bekker-el-wash," or wild cattle, which Dr. Shaw supposes to be the bubalus of the ancients or bos Africanus of Bello-nius; and deer, in size betwixt the red and fallow-deer; the fish-tail or lerwee, seeming in size, shape, and other circumstances, to be the tragelaphus of the ancients, or an animal betwixt a goat and a deer; the gazell or antelope, of which there is a species called hidmee, supposed by Shaw to be the strepsiceros or addace of the ancients. Among quadrupeds of a less tameable nature, we may enumerate the lion and panther; the saadli or chamus of Pliny, the lesser panther, and the shibeardou or Spanish ginetta; the dubbah or hyæna; the deeb or jackall; the siyah-gulsh or black-eared cat; the porcupine; the jird, and jerboa. Besides these animals, Barbary also produces the bear or dabl; the ape or sheddy; the

ichneumon or tezerdea; the ferret or nimse; and the weefel or fert-el-heile. The mole, likewise, the rabbit, the hare, and the wild boar, which is the chief prey and food of the lions, are every where numerous. Among the oviparous quadrupeds, Dr. Shaw enumerates the land and water tortoise, the former being very palatable food, but the latter unwholesome; the warral or guaral; the dhab or dab; the zermoumeah; the skink or scincus; and the neije-daimah or booka-shaah. Of the serpentine kind, besides the slow-worm and the snake, which are common, the most remarkable species are the thaibanne, the zurreike or jaculus, the lessah or dipfas. These are the only species of the viper kind which Dr. Shaw discovered; and he adds, that the northern parts of Africa do not produce above five or six distinct species among the many that are described by Lucan and Nicander. Among the birds, he enumerates, besides the eagle kind, the karaburno, about the size of our buzzard, the red-legged crow, or pyrrhocorax; the emseefy or ox bird; the boo-onk or long-neck; the burou-rou, one of the larger species of the horned-owl; the yarourou; the shagarag; the houbaraa or houbary; the rhaad or saf-saf; the kitawiah or African lagopus; the Barbary partridge, or red-legged quail; the green thrush; and the Capia sparrow. The insects of this part of Africa are more numerous than curious. The most curious species of the butterfly kind is the lappet butterfly, about four inches from one tip of the wing to the other, beautifully streaked with murrey and yellow, and having near the tail a spot of a carnation colour. The rarest species of the libellæ or adderbolts is one, $3\frac{1}{2}$ inches long, broad-tailed, of a rusty colour, with bright spotted wings. The least frequent of the beetle kind, is a species with one horn, of the colour and size of a chefnut. In the hotter months of the summer, the cicade, *cicada* or grasshopper, as we falsely translate it, is perpetually stunning the ears with its shrill and ungrateful noise, from mid-day, to the middle of the afternoon. The locusts are very numerous, first appearing towards the latter end of March, and in the middle of April forming large swarms, which even darken the sun, and beginning gradually to disappear in May. Of the ackrab or scorpion there are several species. For other particulars relating to the productions, commerce, customs, &c. of the states of Barbary: See ALGIERS, MOROCCO, &c.

The coast of Barbary was probably first planted by the Egyptians. The Phœnicians afterwards sent colonies thither, and built Utica and Carthage. The Carthaginians soon became powerful and wealthy by trade; and finding the country divided into many little kingdoms and states, either subdued or made the princes on that coast their tributaries, who, being weary of their yoke, availed themselves of the opportunity of assisting the Romans in subduing Carthage. The Romans remained sovereigns of the coast of Barbary, which indeed was almost the whole of their possession, Egypt excepted, on the continent of Africa, until the Vandals in the fifth century reduced it under their dominion. The Roman, or rather the Grecian emperors, having some time after recovered the coast of Barbary from the Vandals, retained the dominion of it till the Saracen caliphs made an entire conquest of the north of Africa in the seventh century, and divided the country among their chiefs, of whom the sovereign of Morocco was the most considerable, possessing the north-west part of that country, which, in the Roman division, obtained the name of Mauritania Tingitania, from Tingis or Tangier the capital; and is now styled the empire of Morocco, comprehending the kingdoms or provinces of Fez and Morocco. In the eighth century, their ancestors made a conquest of the greatest part of Spain; but after the loss of Granada, about the year 1492, they were dispossessed of this

country, and compelled by Ferdinand and Isabella to renounce their religion, or transport themselves to the coast of Africa. The exiles confederated with the Mahometan princes on the coast of Barbary, and fitted out little fleets of cruizers, which made depredations on Spain, brought away many of its inhabitants, and made slaves of them. The Spaniards assembled a fleet of men of war, invaded Barbary, took Oran and other places on the coast of Algiers, and were proceeding to make an entire conquest of the country. In this distress, the African princes besought the assistance of the famous Turkish rover called Barbarossa (see the article BARBAROSSA), against the Christians. When he had repulsed their enemies, he usurped the government of Algiers, and treated the people who called him to their succour as slaves. His brother Hayradin pursued the same measures with regard to the people of Tunis; and a third by similar means obtained the government of Tripoli. In these usurpations they were supported by the grand signior, who claimed the sovereignty of the whole coast, and for some time they were considered as the subjects of Turkey, and governed by Turkish bashaws and viceroys; but each of these states, or rather the military men, at length elected a sovereign out of their own body, and rendered themselves independent of the Turkish empire. The grand signior has not now so much as bashaw or officer at Algiers; but the dey acts as an absolute prince, and is only liable to be deposed by the soldiery that advanced him. At Tunis and Tripoli he has still bashaws, who are some check upon the deys, and receive a small tribute. All of them, however, in case of emergency, claim the protection of the Ottoman court, and they still continue to prey upon the Spaniards, having never been at peace with them since the loss of Granada. They make prize also of all other Christian ships that have Spanish goods or passengers on board, and indeed of all others that are not at peace with them. The Turks of Algiers, Tunis, and Tripoli, are an abandoned race, consisting of pirates, banditti, and the refuse of Turkey, who have been forced to leave their several countries to avoid the punishment of their crimes. See ALGIERS, &c. and also AFRICA.

Barbary is chiefly inhabited by three sorts of people; namely, Moors, who are the original natives; the Arabs, who have overran this country; and the Turks, who have since made themselves masters of some of its best provinces, and the several kingdoms of Tripoli, Tunis, and Algiers, though under a kind of tribute to, or dependence upon the Ottoman porte. The Moors, or natives, are for the most part Mahometans; as there are few who have not been induced or compelled to embrace Mahometanism since their subjection to the Turks. They are even more scrupulous observers of the Mahometan law than the Turks themselves; and as they are generally even more ignorant, they have adopted every absurdity of superstition. Among the customs of Barbary, no charm, or magic spell, no expedient, though ever so senseless, monstrous, and seemingly diabolical, can be invented, to which they will not have recourse, preferably to any of a more rational nature and efficacy, in fights, storms, or other emergencies attending their hazardous profession. Their condition is abject and miserable to the extreme, being crushed with a heavy load of taxes, and treated with the utmost cruelty by their insulting masters, or exposed to the continual inroads of the plundering Arabs. Such is the state of those who live at large in the country upon their agriculture and cattle. As for those who inhabit the sea-ports along the coast, they are allowed to follow a variety of handicraft trades and manufactures, and even to carry on some commerce by land and sea. But they are no less oppressed with taxes and other exactions.

The Arabs of Barbary are like those of other parts of Africa; they follow the same mode of living, are governed by their own despotic cheyks, and all of them, except those of the wandering kind, and such as live under the dominion of the emperors of Morocco and Fez, are in some sort tributary to the Turks, ever since they have made themselves masters of the remainder of the Barbary coast. They are often obliged, by the oppression they suffer, to abandon their habitations, and to seek shelter among the most rocky and inaccessible mountains, whither the Turkish forces cannot pursue them. Such is the condition of those who live in the country, and along the ridge of mount Atlas; but there is another and more civilised class of them, who are, like the Moors, settled in some of the towns and villages, and apply themselves to agriculture, and especially to the breeding of that race of horses so much esteemed, known to us by the name of barbs, for which their country has been famous all over Europe. The wild, or wandering Arabs, who range along the great Atlas and other parts of Barbary, are warlike, bold, and even desperate in all their plundering excursions; especially in their attempts on the large and rich caravans, which go from Morocco into Egypt. The Arabs of each class are addicted to the study of astronomy and astrology, to which they are disposed by their pastoral life, which affords much leisure, their clear sky, and natural superstition. They neither sow, reap, plant, travel, buy, or sell, nor undertake any expedition, without previously consulting the stars, or in other words, their almanacks, or some of the makers of them, whether they be Mahometans or idolaters.

The Turks are of all the inhabitants of Barbary the fewest in number, and in all respects the worst of all the three classes; being originally no better than a wretched crew of indigent, loose, idle, and thievish fellows, enlisted in and about Constantinople, and sent from thence once in three years to recruit the soldiery. They are wanton and savage in the exercise of their tyranny over both the Moors and Arabs. They make ostentatious professions of Mahometanism; but in practice they neglect and violate its precepts in the most licentious degree, and are so notorious for the dissoluteness of their manners, that they are abhorred by all true Mahometans.

The whole tract of Barbary from one end to the other is so excellently situated for navigation and commerce, so fertile of every necessary of life in its variety of soils and climates, so rich in its mines of gold, silver, and other metals and minerals, so healthy, and so populous, that it might defy the whole force of Europe or Asia to reduce it, were its inhabitants as industrious as they are indolent and knavish, and were the several nations that inhabit it, or the several powers to which it is subjected, united in one common interest. Shaw's Travels, passim. Mod. Un. Hist. vol. xi. p. 226, &c. vol. xiv. p. 288. vol. xxxvii. p. 186, &c.

BARBARY POINT, the western point of the entrance into the river, &c. of Senegal, on the coast of Africa. N. lat. $15^{\circ} 38'$. W. long. $15^{\circ} 30'$.

BARBAS, CAPE, lies on the coast of Africa, west from Cypriano river, and 26 leagues north from cape Blanco. N. lat. $22^{\circ} 15' 30''$. W. long. $16^{\circ} 40'$.

BARBASOTE, a sea-port town of Africa, in the kingdom of Fez, a little to the west of Ceuta.

BARBASTELLUS, VESPERTILIO, in Zoology, the tailed bat, with elevated hairy cheeks, and large ears, angulated on the lower part. (Linn. Syst. Nat. Gmelin, p. 48.) *Barbastelle* of Buffon and Pennant. Its length is about two inches from nose to tail; extent about ten inches; upper part of the body dusky-brown; under part ash-coloured;

forehead sunk; ears broad and long, lower parts of the inner sides touching each other, and thus concealing the face and head when viewed in front; nose short; cheeks full; end of the nose flattened; found in France. Shaw.

BARBATA, in Entomology, a species of CANTHARIS that inhabits Germany. It is of a brown colour; antennæ and flanks pitchy. Olivier. The down on the body is changeable to a golden hue.

BARBATA, a species of CICADA (*Deflexa*) of a brown colour, with greenish abdomen, and a snowy-white woolly tuft at the vent. Fabricius, Gmelin.

BARBATA, a species of PHALÆNA that inhabits Barbary. The wings are greyish, with a brown spot in the middle, and an obsolete band behind. Fabricius, &c.

BARBATA, a species of PIMELIA (*Helops* Fabr.), of a black colour; feelers advanced, and with the legs yellowish. Inhabits Saxony. Fabricius.

BARBATA, in Natural History, a species of CORALLINA, about three inches in length, that grows on the shores of Jamaica. Ellis, in his work on coralline, calls it the rosary or bead-coralline of Jamaica; it is the bead-band string of Plunknet, and corallina major, nervo crassiori fuciformi intermedia breviora nectente of Sloane. (Hist. Jam.) This kind is specifically distinguished according to Pallas, Solander, and others, by being dichotomous, with cylindrical joints, the extreme ones bearded at the tips.

BARBATA, a species of NAIS, about one third of an inch in length, that is found in wet places, in woods, and sometimes adhering to the *helix planorbis* and other fresh-water snails. The lateral bristles are disposed in tufts, and it has no proboscis. (Müller, Bonnet, &c.) The body is hairy beneath, and each segment furnished on both sides with four divergent bristles: eyes two, and of a black colour; length four lines.

BARBATA, in Ornithology, a species of FRINGILLA that lives in the mountainous parts of Chili. This bird is about the size of a Canary-bird; of a pale yellow colour, with green wings, spotted with black and red; and has the chin bearded. It is said to sing delightfully, and to be capable of imitating the notes of other birds with the greatest facility. The bill is white at the base, and black at the tip; head black; chin in the young bird yellow, in a few months this changes black, and appears, when full grown, bearded; this is only in the male bird, for the female has no beard, and is of a cinerous colour, with a few spots of yellow on the wings. Molin. Hist. Nat. Chili. Gmel. &c.

BARBATA, a species of MUSCICAPA, of an olive-brown colour above; beneath greenish-yellow; crown yellow; rump yellow. A native of Cayenne; called by Buffon *barbichon de Cayenne*; and by Latham the whiskered fly-catcher.

The length of this bird is five inches; bill broad, depressed, and shorter than the whiskers. Female greenish-black, yellowish beneath; breast brownish; on the crown an oblong yellow spot.

BARBATED LEAF, in Botany, is a leaf terminated by a bunch of strong hairs.

BARBATELLI, BERNARDINO, called POCHETTI, in Biography, a painter of history, fruit, animals, and flowers, was the disciple of Ridolfo Ghirlandaio at Florence; and from his school he went to Rome, where he applied with such assiduity, and his mind was so engaged by the objects of his contemplation, that he neglected the necessary refreshments of sleep and food. In painting the subjects, to which his attention was principally directed, he not only imitated but equalled nature. His touch was free, light, and delicate, and the colouring of his objects inexpressibly true; and.

and besides his merit in his appropriate style of painting, his historical subjects, from sacred and profane authors, were much admired. He was born at Florence in 1542, and died in 1612. Pilkington.

BARBATIA, in *Ancient Geography*, a town of Asia, towards the Tigris. It belonged to the Arabs, according to Pliny.

BARBATINA, or SEMEN *contra*, in the *Materia Medica*, a seed which is efficacious in extirpating worms from the human body, to which children are chiefly liable; it comes from Persia, and the borders of Muscovy. This seed, when good, is plump, of an agreeable scent, and very green. Special care must be taken that it be not dyed green, and that the seed of southern-wood be not sold instead of it.

BARBATISSUS, in *Ancient Geography*, a town of Asia, near the western bank of the Euphrates, on the small river Daradax, south-west of Nicephorium, about 35° 40' lat.

BARBATO, in *Geography*, a river of Spain, which runs into the Atlantic, between Cadiz and the straits of Gibraltar, about 9 leagues south of Cadiz.

BARBATO, or *Puerto Barbato*, a sea-port town of Spain, in Andalusia, on the coast of the Atlantic, near the mouth of the river Barbato.

BARBATULA, in *Ichthyology*, a species of COBITIS with six cirri; head unarmed and compressed. (Linn.) This is the bearded loche of English writers; enchelyopus, &c. Klein; cobitis fluviatilis, Ray; fundulus, Marfd.

"The bearded loche is a native of Europe and Asia; and is most frequent in fresh-water streams and lakes in mountainous countries. From its habit of lurking at the bottom of the water, on the gravel, it has been called the groundling; but the latter name is now given to the spiny loche, a fish distinguished from the present by having a forked spine under each eye, and is that species of cobitis which Gmelin calls tania.

"This is a fertile creature; it spawns in the month of March and April, and grows to the length of three or four inches, but seldom larger. It feeds on aquatic insects; and, we are told by Mr. Pennant, is frequent in the stream near Amesbury in Wiltshire, where the sportsmen, through frolic, swallow it down alive in a glass of wine.

"The loche is found in greater abundance in France, and other parts of Europe, than in England; and these fishes are in such high estimation for their exquisite delicacy and flavour, that they are often transported with considerable trouble from the rivers they naturally inhabit, to waters more contiguous to the estates of the great. This is usually performed in winter; and it is necessary to keep the water in continual agitation the whole way, as the fish would otherwise die. Frederic I., king of Sweden, had them brought in this manner from Germany into his country, where they have been since naturalized; a circumstance that leads us to conclude they were either scarce, or not originally natives of that country.

"In the dorsal fin of the specimen described, are nine rays; in the pectoral eleven; ventral eight; anal seven; and in the tail nineteen." *Donov. Brit. Fishes*, vol. i. p. 22.

BARBATUS, in *Entomology*, a species of CERAMBYX (*Prionus*), of a large size, that inhabits South America. The thorax is entire; jaws ferruginous, and very hairy; antennæ of a moderate size. (Fabricius.) Antennæ rough, extreme joint smooth and compressed; shell pitchy; abdomen villous white; legs black.

BARBATUS, a species of SCARABÆUS, that is unarmed,

smooth, and black; vent bearded. (Fabricius.) A native of India.

BARBATUS, in *Ichthyology*, a species of GOBIUS, with fan-shaped pectoral fins; twelve rays in the first dorsal fin, and thirteen in the second. Its native country is unknown. Gmelin.

BARBATUS, a species of LOPHIUS, of a depressed form, with the lower jaw bearded. (Montin. *act. suec.* 1779.) Inhabits the seas in the northern parts of Europe, is about three inches and a half in length, and is extremely rapacious. Perhaps not distinct from *lophius Vespertilio*. Gmelin.

BARBATUS, in *Ornithology*, a species of FALCO, of a whitish red colour, with the back brown; and a black stripe above and beneath the eyes. Gmelin, &c. *Vultus barbatus* Linn. *Vulturine eagle* Albin.

Of this bird there is a variety of a rufous colour, with the back black; head and neck above rufous white; quill and tail feathers brown. *Vultur aureus* Briss. *Vultur boeticus* Ray. *Golden vulture* Willughby and Latham. A third variety occurs, *falco magnus* Gmel. It, in which the cere is blueish; legs and body beneath chestnut, intermixed with white; tail cinereous.

The first kind inhabits the Alps; the two latter the mountainous parts of Persia. It is larger than the golden eagle, measuring rather more than four feet in length; is very daring, flies in flocks, and will attack men as well as animals.

BARBE, or BARB, in *Zoology* and *Commerce*, a kind of horse brought from Barbary, much esteemed for its beauty, vigour, and swiftness. Barbs have a long fine neck, not overcharged with hair, and well divided from the withers; the head is small and beautiful; the ears are handsome and properly placed; the shoulders are light and flat; the withers are thin and well raised; the back is straight and short; the flank and sides are round, and the belly not too large; the haunch bones are properly concealed; the crupper is somewhat long, and the tail placed rather high; the thigh is well formed, and rarely flat; the limbs are fine, handsome, and not hairy; the tendon is prominent, and the foot well made; but the pastern is often long. They are of all colours, but generally grayish. In their movements they are apt to be careless, and require to be checked. They are swift, nervous, light, and make very fine hunters. These horses appear to be the most proper for improving the breed. The stature, however, is not so large as could be wished. They are seldom above four feet eight inches, and never exceed four feet nine inches, or 14½ hands. It is confirmed by repeated experience, that in France, England, &c. they produce foals which grow larger than their parents. Of the Barbary horses, those of the kingdom of Morocco are said to be the best, and next to these are the Barbs from the mountains. The horses of Mauritania are of an inferior quality, as well as those of Turkey, Persia, and Armenia. (Buffon's *Nat. Hist.* vol. iii. p. 357.) It is a maxim, that barbs grow ripe, but never grow old, because they retain their vigour to the last, which makes them prized for stallions: their mettle, according to the duke of Newcastle, never ceases but with their lives. It is said, they were anciently wild, and ran at large in the deserts of Arabia; and that it was in the time of the cheq Ishmael, that they first began to tame them. It is also affirmed, that there are barbs in Africa that will outrun ostriches; such have been ordinarily sold, according to Dapper, for 1000 ducats, or 100 camels. They are fed very sparingly, and, as Dapper says, with camel's milk. It is added, that in Barbary they preserve the genealogy of their Barbs with as much care as the Europeans do that of their noble families; and that in the

the sale of them, they always produce their titles of nobility. The race of horses is much degenerated in Numidia; the Arabs having been discouraged from maintaining it by the Turkish officers, who are sure to become masters of them. The Tingitanians and Egyptians have had the reputation of preserving the best breed both for size and beauty. Some of these are sixteen hands high, and all of them shaped, according to their phrase, like the antelope. The good qualities of a Barbary horse, besides the supposed one of never lying down, and of standing still when the rider drops his bridle, are to have a long walk, and to stop short, if required, in a full career. The Barb is very lazy and negligent in all his motions; he will stumble in walking upon the smoothest ground; his trot is like that of a cow, and his gallop very low and very easy to himself. This sort of horse, however, is for the most part finewy, nervous, and excellently winded; it is therefore good for a course, if not overweighted. The mountain barbs, which are the largest and strongest, are much esteemed: they belong to the Al-larbes, who value themselves much upon them, and are as fond of them as other nations are, so that they are not easily procured. The common barbs have been usually bought in Provence and Languedoc in France, at a moderate price; and many of our persons of fashion in England have them from thence. Barbs, amongst us, fall short of the swiftness attributed to them in their native country; this may be accounted for, partly from the smallness and lightness of their riders, and partly from their not being loaded with heavy saddles and bridles, as in Europe, nor even with shoes. An Arab saddle is only a cloth girth round with a pair of light stirrups, and a sort of pommel to sustain them.

Baslard-Barbs, those descending from the English mares, covered by barb stallions, are, by experience, constantly found both better shaped and fitter for the saddle, and stronger for service than their sires. Phil. Trans. N^o 105.

BARBE, ST. in *Geography*, a town of Mexico, in New Biscay, in the vicinity of which are very rich silver mines; distant 500 miles N. W. from the city of Mexico. N. lat. 26° 10'. W. long. 110° 5'.

BARBE, ST. *Islands of*, lie off the mouth of Green bay, and to the east of cape Den, or the south point of White bay, in the Marchigonis river; on the east coast of Newfoundland, and to the north of cape Bonavista.

BARBE, or *Barbei*, in the *Military Art*. To fire en Barbe, is to fire the cannon over the parapet, instead of through the embrasures; in which case the parapet must not be more than three feet and a half high.

BARBE, or **BARDE**, is also an old term for the armour of the horses of the ancient knights and foldiers, who were accoutred at all points.

Della Crusca says, the barde is an armour of iron or leather, wherewith the neck, breast, and shoulders of the horse are covered.

BARBEAU, in *Geography*, a river of Canada, which runs into the Utwas. N. lat. 45° 15'. W. long. 76° 20'.

BARBED, in *Heraldry*. The five petals or leaves which appear on the outside of a full blown rose are called *barbs*; and are emblazoned thus: a rose gules *barbed* and *seeded* proper, the rose is red, the *barbs* green, and the seeds yellow or grey.

BARBED Arrow, signifies an arrow whose head is pointed of an angular form, and jagged. See **PLATE of Heraldry**.

BARBED Horse is a horse barbed at all points, that is, a war-horse completely armed, furnished, and accoutred.

BARBED and Crested, a term used in blazoning to express

the comb and gills of a cock. The usual term in the English blazon is combed and wattled.

BARBE'E, or **BARBED Cross**, is by some called cross cramponée and tournée. See **PLATE of Heraldry**.

BARBEL, in *Ichthyology*. See **CYPRINUS BARBUS**.

BARBELA, or **VERBELA**, in *Geography*, a river of Africa, in Congo, which joins the Zaire near its mouth.

BARBELICOTÆ, in *Ecclesiastical History*, an ancient sect of Gnostics, spoke of by Theodoret. The doctrine of the Barbelicotæ was, that one of the æons, possessed of immortality, had commerce with a virgin spirit named *Barbeloth*, who demanded of him, first prescience, then incorruptibility, and lastly eternal life, all which were granted to her: that being one day in a gayer humour than ordinary, she conceived, and afterwards brought forth light, which being perfected by the union of the spirit, was called *Christ*; the child Christ desired to have understanding, *veru*, and obtained it; after which, understanding, reason, incorruptibility, and Christ, united together; and from their union arose autogenes, αὐτογενής. To these fables they add divers others. They were also denominated *Barbariani*.

BARBELLA, **EMANUEL**, of Naples. It would be unjust not to bestow a few words on this pleasing and peculiar player on the violin of the old school. The father of this singular but worthy and inoffensive character, was an eminent performer on the violin, and leader of the opera band at Naples in the beginning of the last century, during the life of Corelli, when his scholar Geminiani arrived in that city from Rome. (See **CORELLI**, and **GEMINIANI**.) On the first hearing of the younger Barbella, he surprised no one who had heard Giardini and other famous violinists of the new schools. He was not young, indeed, when the parallel was drawn, and solo playing was disregarded at Naples, where vocal composition and singing were chiefly cultivated in the conservatories, and patronized by the public, so that teaching and orchestra playing were Barbella's chief employment and support; and for the latter he was ill qualified by the softness of his tone, and the shortness of his bow. He performed, however, most admirably the famous Neapolitan air, which the common people constantly play at Christmas to the virgin. Barbella executed it with a drone kind of bagpipe base, in a very humorous though delicate manner. But as a solo player, though his tone was very even and sweet, it was somewhat languid and inferior in force to that of Nardini of the same school, and indeed to that of several others then in Italy; but he knew music well, had much fancy in his compositions, with a tincture of not disagreeable madness.

He was most remarkable for his sweet and insinuating manner of playing Calabrese, Loccese, and Neapolitan airs, and among the rest a humorous piece composed by himself, which he calls *Tinna Nonna*; it is a nursery tune, or *Lullaby*, excellent in its way, and with his expression, was extremely captivating.

Barbella was the most obliging and best-natured of mortals; his temper has been said to be as soft and sweet as the tone of his violin.

In a correspondence with the author of this article, who had requested of him an account of the Neapolitan school of music; and above all, of his own studies; as his answer concerning himself was short and characteristic, we shall here insert a translation of it.

"Emanuele Barbella had the violin placed in his hand when he was only six years and a half old, by his father Francesco Barbella. After his father's decease he took lessons of Angelo Zaga, till the arrival of Pasquillino Bini, a scholar.

a scholar of Tartini, in Naples, under whom he studied for a considerable time, and then worked by himself. His first instructor in counterpoint was Michele Gabbaloni; but this master dying, he studied composition under the instructions of Leo, till the time of his death; and pleasantly adds: *Non per questo, Barbella, è un vero asino che non sa niente*: "Yet, notwithstanding these advantages, Barbella is a mere ass, who knows nothing."

This modest and ingenious musician, and true follower of Tartini's principles, died at Naples 1773. His worthy disciple, signor Raimondi, with more force in public, has the same sweetness of tone and temper in private.

BARBER, a person who makes a trade of shaving, and dressing the wigs and hair of other men for money. There were no barbers at Rome before the year A. U. C. 454. Varro reports that Ticinius Mena brought them thither from Sicily. The barbers' shops very soon became the resort of idlers and gossipers. To this purpose, Horace, in expressing what was public and notorious, says, that all the barbers knew it:

"Omniibus et lippis notum et tonforibus esse."

Besides curling the hair, and shaving the beard, the ancient barbers also trimmed the nails. Thus Plautus (*Aulul. ii. 4. 33.*): "Quin ipsi pridem tonfor unguis demserat;" and Tibullus (*l. 9. 11.*):

—————"Quid unguis

Artificis doctâ subscuisse manu?"

Anciently a lute or viol, or some such musical instrument, was part of the furniture of a barber's shop, which was then frequented by persons above the ordinary rank, who resorted thither for the cure of wounds, or to undergo some chirurgical operations, or as it was called to be *trimmed*, a word which signified either shaving or cutting and curling the hair. These, and also letting of blood, were the ancient occupations of the barber surgeon. The musical instruments in his shop were for the amusement of waiting customers, and answered the end of a newspaper, with which it has been usual for such to entertain themselves. The origin of the "barber's pole" has been the subject of various conjectures among etymologists. Some have supposed it to have been derived from the word *poll* or head; but the true intention of the party-coloured staff was to shew that the master of the shop practised surgery, and could breathe a vein as well as take off the beard; such a staff being to this day, by every village practitioner, put into the hand of a person undergoing the operation of phlebotomy. The white band, which encompasses the staff, was designed to represent the fillet, thus elegantly turned about it.

The barbers were incorporated with the surgeons of London, but not to practise surgery, except drawing of teeth, &c. 32 Hen. VIII. c. 42.; but separated by 18 Geo. II. c. 15.

BARBERS, *Company of*. See COMPANY.

BARBER SAND, in *Geography*, lies within the sands which form Yarmouth roads, and parallel with the northern part of them, and of the coast, beginning off the town of Caistor. There is within it a good channel along the shore, in five, six, or seven fathoms, till you go out north at Winterton Ness.

BARBERAIN, or BARBERIAN, an island off the coast of the island of Ceylon, in the East Indies, about 15 leagues south of Columbo on the western side; in N. lat. 6° 25'. and E. long. 80°.

BARBERANO, a town of Italy, in the state of the church, and province of Patrimonio; six miles from Bieda.

BARBERINI, MAFFEO, in *Biography*. See URBAN VIII.

BARBERINO, FRANCIS DA, an Italian poet, was

born in 1264 at Barberino, a castle of Valdeffa, and educated for the profession of the civil and canon law at Padua and Bologna. Upon his removal to Florence in 1294, he served two bishops in the way of his profession, and made frequent journeys to the papal court at Avignon. He was honoured with the degree of doctor of laws by Clement V.; and attended the general council at Vienna in 1311. Amidst his professional pursuits, he cultivated poetry, and published a work, intitled, "*Documenti d'Amore*," which treats of moral philosophy, and consists of twelve parts, each of which has for its subject some virtue and its rewards. His style is not distinguished by ease or elegance, but favours too much of Provençal poetry; and yet the author has been reckoned among the good writers and founders of the language. This poem was first printed at Rome in 1640, adorned with fine figures. Another work, in verse, on the Manners of Women, is preserved in MS. in the Vatican. Barberino died of the plague at Florence in the year 1348. Gen. Dict. Nouv. Dict. Histor.

BARBERINO, in *Geography*, a town of Italy, in the duchy of Tuscany, seated on a mountain, 16 miles south of Florence.

BARBERINO is also a town of Italy, in the duchy of Tuscany, situated at the foot of the Apennines, on the side of the river Sieve, four miles west of Scarperia. N. lat. 43° 40' E. long. 12° 15'.

BARBERNOLA, or BLANC, *Cape*, lies on the coast of Asia, in N. lat. 38° 9', and E. long. 26° 27'.

BARBERRY, in *Botany* and the *Materia Medica*. See BERBERIS.

BARBEREUX, in *Geography*, a town of France, and principal place of a district in the department of the Charente. It has a manufacture of linen cloth, and near it is a medicinal spring. The place contains 1984 and the canton 12,720 inhabitants: the territory includes 235 kilometres and 21 communes. N. lat. 45° 28'. W. long. 0° 15'.

BARBESOLA, or BARBESULA, in *Ancient Geography*, a river of Spain, in the country of the Bastuli. Ptolemy and Pliny.

BARBESOLA, *Barbesula*, or *Barbesul*, a town of Spain, in the country of the Bastuli, situated on the strait between Carteia and Transducta. Ptolemy, Pliny, and Mela.

BARBET, in *Zoology*. Buffon calls the *water-dog* of Pennant, *canis aquaticus* of Gmelin, &c. *le grand barbet*; and *canis minor* Gmel. *le petit barbet*. Hist. Nat.

BARBET, in *Ornithology*, the English name of a genus of birds in Latham's Synopsis, corresponding with that of *bucco*, Linn. See BUCCO.

BARBETICUM JUGUM, in *Ancient Geography*, a promontory of Spain, in Bætica.

BARBETS, in *Geography*, the name of the inhabitants of several vallies in Piedmont, particularly those of Lucern, Angrona, Perusa, and St. Martin.

BARBEYRAC, CHARLES, in *Biography*, an eminent physician of France during the seventeenth century, was the son of a gentleman of Ceresse in Provence. He studied physic at Aix and Montpellier, and in 1649 took his doctor's degree in the university of the latter place, where he settled; and in 1658, became a candidate for the medical professorship, but on account of his being a protestant, he was ineligible. In the disputations on this occasion he acquired great reputation, and his advice was sought in difficult cases by persons both in his native country and also in foreign kingdoms. He declined the office of being physician to Mademoiselle d'Orleans, preferring liberty to the shackles of a court; and at Montpellier, where he resided, he was attended in his visits by many students to whom he gave clinical instructions. His practice was distinguished by its simplicity.

simplicity and energy; and he introduced many valuable reforms into the state of medicine in that country. He was no less eminent for his condescension and liberality than for his medical reputation, and he alike visited the poor and the rich. The celebrated Mr. Locke was particularly acquainted with him at Montpellier, and testified to his honour, that he never knew two men more similar in their manners and opinions than Barbeyrac and his friend Sydenham. After an uninterrupted course of practice for 50 years, he died of a fever in 1699, in his 70th year, leaving a son of his own profession, and two daughters. The only works he published were "Traité nouveaux de Médecine, contenant les Maladies de la Poitrine des Femmes, et quelques autres Maladies selon les nouvelles Opinions," 12mo. 1654; and "Questiones Medicæ duodecim," 4to. 1658. A work, intitled, "Medicamentorum Constitutio, &c." published in 1751, is ascribed to him upon uncertain authority, according to the editor M. Farjon. Haller. Bibl. Med. Pract. Gen. Biog.

BARBEYRAC, JOHN, the nephew of the preceding, was born in 1674 at Beziers, whence he withdrew to Lausanne in 1686. His father designed him for the profession of theology, but his own inclination led him to the study of jurisprudence; and he became eminent in that particular branch of it which comprehends the law of nature and nations. After teaching the Belles Lettres in the French college at Berlin, he was appointed in 1710 to the new professorship of law and history founded at Lausanne by the magistrates of Berne, which he occupied seven years. In 1717 he was removed to the chair of law at Groningen, and this station he long occupied with general applause. His works are numerous and valuable. His French translation of Puffendorf's "Law of Nature and Nations," and his treatises "On the Duties of a Man and a Citizen," and on "Grotius on the Rights of War and Peace," were enriched with learned prefaces and notes, which enhanced the value of the originals. He also translated two discourses of Noodt, "On the Power of the Sovereign," and "On Liberty of Conscience;" a treatise of Bynkershoek "On the civil and criminal Powers of Ambassadors;" some of "Tillotson's Sermons;" and Cumberland's Latin treatise "On Natural Laws." Barbeyrac was also the author of several original works. But that which excited the greatest attention was his "Treatise on the Morality of the Fathers," 4to. 1728, in reply to the Benedictine Ceillier's "Apology for the Fathers," occasioned by Barbeyrac's free strictures on them in his preface to the translation of Puffendorf. His "Treatise on Gaming," in two volumes, 8vo. was printed in 1709; his "Defence of the Rights of the Dutch East India Company against the Pretensions of the People of the Austrian Netherlands," in 1725; and "The History of ancient Treaties dispersed in Greek and Latin authors to the time of Charlemagne," fol. in 1739. He also inserted literary and critical remarks in different journals, and published some academical discourses. He closed a life of learned labour and moral worth about the year 1747. Nouv. Dict. Histor.

BARBI, in *Natural History*, a species of ECHINORHYNCHUS, of an ovate shape, yellow colour, fasciated; neck long, white, cylindrical; and cyathiform (glass or pot-shaped) at the end, found in the intestina of the barbel.

BARBICAN. See BARBACAN.

BARBICAN, in *Ornithology*, the name of the Gmelinian *Bucco dubius*, or doubtful barbet, in Buffon's Hist. Birds. *Barbu* is also a name given by that writer to all the birds of the *bucco* genus, which he describes.

BARBICANAGE, BARBICANAGIUM, in our *Old Writ-*

ers, money given for the maintenance of a barbican, or watch-tower; or a tribute towards repairing or building a bulwark.

BARBICON (BARBICON DE CAYENNE), in *Ornithology*, the name of the *Muscicapa barbata* of Gmelin in Buffon's Hist. of Birds.

BARBICORNIS, in *Entomology*, a species of BRENTUS that inhabits New Zealand. It is cylindrical, with the beak very long and bearded beneath: wing-cases elongated and elevated. Gmelin. This is CURCULIO *barbicornis* of Fabricius Spec. Inf. 171.

BARBICORNIS, a species of CERAMBYX, with the thorax spinous; four first joints of the antennæ bearded with black; body testaceous, variegated with black. Linn. A native of Asia.

BARBICORNIS, a species of CIMEX (*Reduvius*) that inhabits Sierra Leone. This is of a black colour, with the thorax and base of the abdomen olive. Fabricius. *Obs.* The thorax is sometimes, though rarely, black, and the antennæ in one sex is bearded.

BARBICORNIS, a species of TIPULA, of a black colour; antennæ plumose, and simple at the tip. Inhabits Europe. This is a small species. Gmelin.

BARBIER D'AUCOUR, John, in *Biography*, a counsellor, and man of letters, was born of mean parentage, in 1641, at Langres, and educated at Dijon. On his removal to Paris, he was entered at the bar, and became a counsellor of the parliament of Paris. He distinguished himself by the excellence of his "factums" or written pleas; but being obliged, either through want of presence of mind or failure of memory, to stop at his first public pleading, he renounced the practice of his profession. In 1677 the minister Colbert appointed him preceptor to his eldest son, and in 1683, he was elected into the French Academy. Colbert conferred on him some lucrative employments; but, on his death, he was under a necessity of returning to the bar, and gained great reputation by the defence of Le Brun, the domestic of a lady of Paris, who had been falsely accused of murdering his mistress. He was soon after carried off by an inflammation of the lungs in 1694. His circumstances were so reduced, that when he was visited, in his last illness, by a deputation from the academy, which expressed concern at finding him so ill lodged, he replied, "It is my consolation, and a very great one it is, that I leave no heir to my wretchedness." When the abbé Choisi, who was one of them, said, "You leave a name that will never die;" "Alas!" (replied D'Aucour) I do not flatter myself in that respect; if my works have any intrinsic value, I have been wrong in the choice of my subjects; I have employed myself in criticism, which has no long duration; for if the work that is criticized, should fall into contempt, the criticism falls with it, since it is immediately perceived to be useless; but if, in spite of the criticism, the book maintains its ground, the criticism is equally forgotten, because it is thought to be unjust." Barbier was in early life embroiled with the Jesuits, who by way of contempt called him "Sacrus," in consequence of his having inadvertently used that word instead of "Sacer," in his reply to one of them. Resenting this offence, he made the society and its writers the objects of his attacks; and he gained great credit as an ingenious writer by a work, intitled, "Sentimens de Cleanthe sur les Entretiens d'Ariste et d'Eugene, par le Pere Bouhours, Jésuite," 12mo. 2 vols. 1671, 1672. This work has been often cited as a model of refined criticism, equally just and witty; and Bouhours could not support himself against it. Some other pieces of this author against the Jesuits, abounding with coarse raillery, did him no honour. In his

two satires, written in verse against Racine, he was unsuccessful. Besides his "factums" for Le Brun, he published some others. *Nouv. Dict. Histo.*

BARBIER, MARY ANNE, was a native of Orleans, and ranked among the dramatic writers of France. Her tragedies, and a comedy in verse, were represented at Paris, and printed in one volume, 12mo. The subjects are well chosen, but the characters, and those of the men especially, are without force, and the style is diffuse and prosaic. Mad. Barbier was intimate with the abbé Pellegrini, who is said to have bestowed, at least, correction on her works. She died in an advanced age at Paris, about the year 1745. *Nouv. Dict. Histo.*

BARBIER, *Mistress*, first appeared as a new English singer, on the revival of the opera of *Almahide* in 1711, while questions were asked in Italian, and answered in English, and *e contra*. Her timidity on first appearing on the stage, gave birth to an admirable Spectator (No. 131), in which Mr. Addison apologizes for, and commends, diffidence and modesty with a sympathetic zeal and sensibility. It is well known, that this excellent writer, with all his learning and abilities, was never able to perform his part in public as a speaker, when he was secretary of state and in parliament, long after this paper was written; and here, by a kind of precognition, he extenuates his fault before it was committed. With respect to Mrs. Barbier's distress on her first facing an audience on the stage, Mr. Addison has put it in the most amiable light possible: "this sudden desertion of oneself," says he, "shews a diffidence, which is not displeasing; it implies at the same time the greatest respect to an audience that can be: it is a sort of mute eloquence, which pleads for their favour much better than words can do; and we find their generosity naturally moved to support those who are in so much perplexity to entertain them. I was extremely pleased," continues he, "with a late instance of this kind at the opera of *Almahide*, in the encouragement given to a young singer, whose more than ordinary concern on her first appearance, recommended her no less than her agreeable voice and just performance." This lady was a native of England, who continued to sing at the opera several years, and afterwards was a favourite concert and play-house singer, till the year 1729.

In the year 1717, it seems as if she had a little vanquished her bashfulness in private, however it may have incommoded her in public; for she had mustered courage sufficient to elope from her father's house with a person that was *suspected* to be of a different sex. During her absence, Mr. Hughes wrote the following pleasant verses:

"O yes!—hear all ye beaux and wits,
Musicians, poets, 'squires, and cits!
All, who in town or country dwell,
Say, can you tale or tidings tell,
Of Tortorella's hasty flight?
Why in new groves she takes delight;
And if in concert, or alone,
The cooing murmurer makes her moan?
Now learn the marks by which you may
Trace out and stop the lovely stray.
Some wit, more folly, and no care,
Thoughtless her conduct, free her air;
Gay, scornful, sober, indiscreet,
In whom all contradictions meet,
Civil, affronting, peevish, easy,
Form'd both to charm you and displease you;
Much want of judgment, none of pride,
Modish her dress, her hoop full wide;
Brown skin, her eyes of fable hue,
Angel when pleased, when vexed a shrew.

Gentle her motion when she walks,
Sweetly she sings, and loudly talks;
Knows all the world, and its affairs,
Who goes to court, to plays, to prayers,
Who keeps, who marries, fails, or thrives,
Lead honest or dishonest lives;
What money match'd each youth or maid,
And who was at each masquerade;
Of all fine things in this fine town,
She's only to herself unknown.

By this description, if you meet her,
With lowly bows and homage greet her;
And if you bring the vagrant beauty
Back to her mother and her duty,
Ask for reward a lover's bliss,
And, if she'll let you, take a kiss;
Or more, if more you wish and may
Try if at church the words she'll say,
Then make her, if you can—obey.

BARBIERI, GIOVANNI FRANCESCO, called *Guercino* *Da Cento*, an eminent historical painter, was born at Cento, a village near Bologna, in 1590; and was at first the disciple of Benedetto Gennari, but afterwards studied for some time in the school of the Caracci. He preferred the style of Caravaggio to that of Guido or Albano, and conceived it impossible to imitate nature truly, without the assistance of strong lights and shadows; and on this principle, his light was admitted into his painting room from above. By this opposition of his strong lights and shadows he unquestionably gave such force to his pictures, that few, those of Caravaggio excepted, equal them in their effect. His principal attention was employed in acquiring perfection of colouring, from a persuasion that few persons are qualified to discern the elevation of thought which constitutes the excellence of a composition, or are perhaps capable of examining even the correctness of any part of a painting; whereas every eye, and even every imperfect judge of a picture, may be sensibly affected by the form and beauty of the colouring. His taste of design was natural, easy, and often grand, but without any extraordinary share of elevation, correctness, or elegance. The airs of his heads are often destitute of dignity, and his local colours of truth: nevertheless his colours possess great union and harmony, although his carnations are not very fresh; and in all his works there is a powerful and expressive imitation of life, which will for ever render them estimable. Towards the decline of life, observing that the clearer and brighter style of Guido and Albano had attracted the admiration of all Europe, he altered his manner even against his judgment. But he apologized for this conduct by declaring that he had formerly painted for fame, and with a view of pleasing the judicious; but he now painted to please the ignorant, and to enrich himself. The most capital performance of Guercino is the history of St. Petronilla, which is considered as one of the ornaments of St. Peter at Rome. He died in 1666. Pilkington.

BARBIERI, PAULO ANTONIO, *Da Cento*, the father of the preceding artist, was born at Cento in 1596, and selected for his subjects fruits, flowers, insects, and animals, which he painted after nature with a lively tint of colours, with great tenderness of pencil, and a strong character of truth and life. Pilkington.

BARBILLON, in *Ichthyology*, a name given by Broussonet, (A. & Paris.) to the *SQUALUS CIRRATUS* of Gmelin.

BARBING is sometimes used in *Ancient Statutes* for shearing. Cloth is not to be exported till it be barbed, rowed, and shorn. 3 Hen. VII. c. 11.

BARBIROSTRIS, in *Entomology*, a species of *CURCULIO*, found in China and some other parts of Asia. It is black; snout bearded; anterior legs tridentated. Fabricius. Donov. Inf. China, &c.

BARBITANI MONTES, in *Ancient Geography*, mountains of India, on this side the Ganges, in which according to Ammianus Marcellinus, are the springs of many rivers that flow into the Indus.

BARBITON, an ancient musical instrument, of which nothing is known but the name; and Rousseau has not even ventured to give us that. Complaints are frequently made of the darkness in which critics, commentators, and historians leave the subject of ancient music; which none have more cause to lament than those who have spent the most time and labour in its investigation. But as no record or memorial has been found, which ascertains the invention, form, or species of instrument called the *barbiton*, would mere conjecture satisfy the complainants? Messrs. Framery and Castilhon, more courageous than the citizen of Geneva, have told us, in the new *Encyclopedie*, all that is pretended to be known about it; though the former begins by telling us that it is an instrument about which nothing is known. The ancients and moderns have frequently confounded it with the lyre. Dacier conjectured that it was a stringed instrument; and deriving its name from *barumiton*, which implies *thick strings of flaxen thread*, he concludes that it was an instrument with thick strings. It is certain that flax was in use for strings to musical instruments, before the art was known of making them of the bowels of animals. Horace calls this instrument Lesbian, *Lesbion barbiton*, ode i. lib. i; and 32 of the same book, *Lesbio primum modulate cithari*, "Thou, O barbiton, first touched by a citizen of Lesbos," meaning Alcæus, to whom he ascribes the invention. But, says M. Castilhon, we may conclude from what Musonius asserts of this instrument, in his treatise "De Luxu Græcorum," that they made a kind of concert with the *pedis* of the Lydians. (See *PECTIS*.) He assures us that Terpander was the inventor of it. Julius Pollux also calls it barbiton *barumiton*. Athenæus relates that they likewise called it *barumus*, and attributes the invention to Anacreon. We hope the grumblers will be perfectly enlightened by this *clear, consistent, and satisfactory* account.

BARBLE, or **BARBEL**, in *Ichthyology*. See **BARBUS**.

BARBLES, in the *Manege*, knots of superfluous flesh growing in the channels of a horse's mouth; that is, in the intervals which separate the bars; and obstruct his eating.

These are also called *barbes*; and obtain in black cattle as well as horses.

For the cure, they cast the beast, take out his tongue, and clip off the barbles with a pair of scissars, or cut them with a sharp knife; others choose to burn them off with a hot iron.

BARBONI, in *Ichthyology*, a name formerly given by many to the *MULLUS BARBATUS*; which see.

BARBONNE, in *Geography*, a town of France, in the department of the Marne, and chief place of a canton in the district of Sezanne, 1½ league south from Sezanne.

BARBORA, an island of Africa, opposite to the kingdom of Adel, so called after a town of the same name upon the neighbouring continent. This island, which is almost contiguous to the Terra Firma, is very fertile, and produces plenty of corn, fruits, and cattle. The inhabitants are negroes clothed in the fashion of the natives of Adel, industrious in trade, and great breeders of cattle, for which the soil affords excellent pasturage. The produce of this island is exported into other countries. The city of Barbora lies

at the bottom of a convenient bay; and was for a long time a kind of rival in commerce with Zeila, and no less the place of resort for foreign merchants. It is situated over against the city of Aden, and made once a considerable figure, but was plundered and burnt by the Portuguese fleet in the year 1518; but the inhabitants, being previously apprized of their design, conveyed themselves and their most valuable effects away.

BARBOSA, ARIAS, or AYRES, in *Biography*, a native of Aveiro in Portugal, and one of the restorers of classical literature in his own country and in Spain. Having commenced his education at Salamanca under many disadvantages, he pursued his studies, particularly that of Greek, which he cultivated with great ardour, at Florence, under Angelo Politiano. After his return to Salamanca in 1494, he taught there for 20 years, in connection with Antony de Lebrixa, who, with Andrew de Refenda, was also one of the principal promoters of useful learning in Spain. Barbosa directed special attention to poetry, and published a small volume of Latin poems, which were commended for the harmonious structure of the verse. He was afterwards employed for seven years as preceptor to the two princes of Portugal, Alphonso and Henry; and then retired to domestic life, in which he died at an advanced age in 1540. Besides the poems abovementioned, Barbosa published several works, which contributed at the time to the progress of literature, but are now forgotten; such as, "Commentaries on the poem of Arator," "Quodlibeticæ Quæstiones," "De Profodia," &c. Moreri. *Nouv. Dict. Hist.*

BARBOSA, PETER, a celebrated lawyer, was born at Viana, in Portugal, and became first professor in the university of Coimbra. Although he occupied several important stations, and was appointed by Philip II. of Spain, when he became master of Portugal, one of the four counsellors of the council of state, and afterwards chancellor of the kingdom, he prosecuted his professional studies; and, in 1595, he published an ample commentary on the article in the "Digests," on the recovery of dowry after the dissolution of marriage. In 1613, the works left by him in MS., which were commentaries on the "Digests," art. "On Judgments," were published by his nephew, and so well received, as to be reprinted at Frankfort in 1715. Other posthumous treatises were published at Lyons in 1662. Moreri. *Nouv. Dict. Hist.*

BARBOSA, EMANUEL an eminent Portuguese lawyer, was born at Guimaranes, and was king's counsellor for the province of Alentejo. In 1618, he published a treatise relative to contracts, last wills, and crimes, according to the Spanish and Portuguese law. In 1638, he published a work, "De Potestate Episcopi;" and in that year he died, aged near ninety years. Moreri. *Nouv. Dict. Hist.*

BARBOSA, AUGUSTIN, son of the preceding, studied civil and canon law under his father, and afterwards at Rome, with incessant assiduity, searching libraries in the day, and composing in the night. It is related of him, that he received a scrap of manuscript wrapping some salt fish, which he purchased, and that he rescued the remainder from a similar use; and thus formed the work "De Officio Episcopi," which he corrected and published in his own name. A prejudice was thus conceived against him, and several of his treatises on the canon law were ascribed to his father. He was, however, a very studious man; and on his return to Spain in 1632, he pursued the same kind of life which he had passed at Rome. His skill in ecclesiastical causes occasioned his promotion, in 1648, to the bishopric of Ugen-

to, in the territory of Otranto. Having been consecrated at Rome in the following year, he returned to Ugento with a view of performing the duties of his office, but died there within a few months. His works were numerous, and were printed at Lyons in 1716 and the following year, in 16 tomes folio. Moreri. Nouv. Dict. Hist.

BARBOSTHENES, in *Ancient Geography*, a mountain of Greece in the Peloponnese, 10 miles from Lacedæmon. Livy.

BARBOT, Penn.; BARBOTA, Rondel; in *Ichthyology*, synonymous names of the species of *GADUS* called *LOTA* by Linnæus.

BARBOTES Rocks, in *Geography*, are two rocks which are about half a league N.N.W. from the Calmardiers, and appear every tide.

BARBOTINE, a feed otherwise called *semen santonicum*, and *semen contra vermes*, in English *wormseed*.

BARBOULT POINT, lies within the south-west point of the bay of Cancale, to the east of St. Maloes, on the coast of France.

BARBOUR, or BARBER, JOHN, in *Biography*, an eminent divine, historian, and poet, was born in the city of Aberdeen, as some say, about the year 1330, but according to others, in 1326. Having received a learned education, he entered into holy orders, and was promoted by king David II. to the archdeaconry of Aberdeen, A.D. 1356. Such was his love of learning, that he continued to prosecute his studies after his promotion; and with this view he prevailed on his own sovereign, David Bruce, with whom he was in great favour, to obtain permission from Edward III. to study at Oxford. The grant for this purpose was dated at Westminster, Aug. 13th, A.D. 1357. He was also appointed by the bishop of Aberdeen, one of the commissioners for the ransom of David II. king of Scotland; and he obtained permission from Edward III. A.D. 1365, to travel through England to St. Dennis, near Paris, with six horsemen as his attendants. Barbour was not only famous for his extensive knowledge in the philosophy and divinity of those times, but still more admired on account of his admirable genius for English poetry; in which he composed, as he tells us, in 1375, a history of the life and glorious actions of Robert Bruce king of Scotland, at the desire of king David Bruce, his son, who granted him a considerable pension for his encouragement, which he generously bestowed on an hospital at Aberdeen. This work is not only remarkable for a copious circumstantial detail of the exploits of that illustrious prince, and his brave companions in arms, Randolph earl of Moray, and the lord James Douglas, but also for the beauty of its style, which is not inferior to that of his contemporary Chaucer. This poem passed through about twenty editions in Scotland since the year 1616, in which the first edition, that can be discovered, was printed at Edinburgh, in 12mo. But these editions were all modernized. An edition of this most ancient production of the Scottish muse extant, in the language and orthography of its author, from a MS. written in 1489, and preserved in the advocates' library at Edinburgh, was printed by Mr. Pinkerton, under the title of "The Bruce," with notes and a glossary, in 3 vols. 12mo. The following verses, distinguished by their softness, afford a specimen of the author's talent at rural description, and also of the state of the English language in his time.

"This was in midst of month of May,
When birdis sing on ilka spray,
Melland their notes, with seemly soun,
For softness of the sweet seasoun.

And leavis of the branchis spreeds,
And blossomis bright, beside them, breeds,
And fieldis strawed are with flow'rs
Well favouring of feir colours;
And all things worthis, blyth, and gay."

Barbour is said to have died at an advanced age in 1396, but the time and circumstances of his death are not satisfactorily ascertained. Henry's History, vol. viii. p. 249. Pinkerton, ubi supra. Wharton's Hist. Eng. Poetry vol. i. p. 318.

BARBUDA, or BERBUDA, in *Geography*, one of the British Caribbee islands in the West Indies, is a small island, about 20 miles long and 12 broad, and lies about 15 miles north-east of Montserrat. This island was planted soon after the English had settled upon St. Christopher's, in 1628, and called "Dulcina" from its beautiful appearance. It is the property of the Codrington family, whose ancestor Colonel Codrington obtained a grant of it for his important services to the crown of England in the West Indies, and is said to yield above 5000l. a year. Upon his death in 1710, he bequeathed two plantations in Barbadoes, and part of Barbuda, valued at 2000l. per annum, to the society for propagating the gospel for the instruction of the negroes in Barbadoes and the other Caribbee islands in the Christian religion, and for erecting and endowing a college in Barbadoes. This is the only proprietary government of all the English Caribbee isles; and the appointment of a governor is in the Codrington family. The land lies low, but is fertile; and the inhabitants are chiefly employed in breeding black cattle, sheep, kids, fowls, and all kinds of domestic stock; in planting Indian corn, and in other parts of husbandry; and they supply the neighbouring islands with these articles. The island, however, is capable of yielding, by cultivation, citron, pomegranates, oranges, raisins, Indian figs, maize, cocoa-nuts, cinnamon, and pine-apples, with various kinds of wood and drugs, such as brasil, ebony, pepper, and indigo. There are some large serpents upon this island, which, not being poisonous, are useful in destroying rats, toads, and frogs; and others so venomous, that their bite proves mortal, unless an antidote be applied in the space of two hours. The coast abounds with rocks: but on the west side of the island there is a well-sheltered road, and there are two shoals, which run more than two leagues into the sea, from the north-west and south-west points. The inhabitants are computed to be about 1500. N. lat. 17° 49' 45". W. long. 61° 50'.

BARBUE, RIVIERE-A-LA, a river of North America, empties itself into lake Michigan, from E.S.E. between Raisin and Marame rivers. Its mouth is 60 yards wide, and lies 72 miles N. by W. from fort St. Joseph. This is also the name of a river, which discharges itself into lake Erie, from the N. by E. 40 miles W.N.W. from the extremity of Long point, in that lake, and 22 E. by S. from Tonty river.

BARBULÆ, in *Botany*, a name given by Pliny to the semi-flocculi.

BARBUS, in *Ichthyology*, a species of *CYPRINUS*, having seven rays in the anal fin; beards four; second ray of the first dorsal fin serrated on both sides. Linn. Mus. Ad. Fr. &c.

This is the *barbel* of the English; a common inhabitant of most fresh waters in Europe, and easily distinguished from the other species of carp, or cyprinus genus, to which it belongs, by the upper jaw being advanced far beyond the lower one, and in having the four beards appendant, from which the appropriate name of barbus or barbel is derived. This fish, during

during the summer, prefers the rapid currents and shallows of rivers, and retires at the approach of winter to the more full and deeper places. They live in societies; lurking in holes along the sides of the water under shelter of the steepest banks, and feed on smaller fish and worms and flesh of all kinds, for which they dig in the banks like swine. In the day-time they love to lurk occasionally among weeds, and between the stones in retired parts of the river, and wander out at night in search of prey. They spawn in April, and begin to be in season in May and June.

The flesh of the barbel was never in great esteem for the table. Mr. Pennant quotes a passage in Ausonius, which, as he observes, is no panegyric on its excellence, for he lets us know it loves deep waters, and that when it grows old, it is not absolutely bad:

"Laxos exercees barbe natatus

Tu melior pejore aro, tibi contigit uni

Spirantum ex numero non inlaudata feneſtus."

And he adds himself, that "they are the worst and coarsest of fresh-water fish, and seldom eat but by the poorer sort of people, who sometimes boil them with a bit of bacon to give them a relish."

"The barbel," says old Walton, "though he be of a fine shape, and looks big, yet he is not accounted the best fish to eat, neither for his wholesomeness nor his taste, but the male is reputed much better than the female, whose spawn is very hurtful."

Again, when speaking of Rondeletius, he makes this remark on the spawn, "we agree with him, that the spawn of the barbel, if it be not poison, as he says, yet that it is dangerous meat, especially in the month of May; which is so certain, that Gefner and Gassius declare, it had an ill effect upon them even to the endangering of their lives." Sir John Hawkins, in his Annotations, inclines to the same opinion, and gives an instance of his servant being taken dangerously ill after having incautiously eaten of this fish. M. Bloch, and some other ichthyologists, contend that this is a vulgar and most absurd prejudice. M. Bloch in particular observes, that himself and all his family have eaten the spawn of the barbel, and never experienced the slightest ill effects from it. Donovan. Brit. Fishes.

The time for taking this fish is very early in the morning, or late in the evening: the place should be baited with chopped worms some time before; and no bait is so good for the hook as the spawn of the salmon, or some other fish: in defect of these, lob-worms will do; they must be very clean and nice, and the hook carefully covered, otherwise he will not touch them. Old cheese steeped in honey is also a very fine bait. The best season for angling for this fish is from May to August.

BARBY, in *Geography*, a small bailiwick of Germany, in the circle of Upper Saxony, forms a part of the circle of Wittenberg, and was granted in 1748 and 1765, to the count of Reuss, and the society of united brethren, or Moravians.

BARBY, is also the name of a town of Germany, in the circle of Upper Saxony, seated on the Elbe, near the mouth of the Saale, in which is a Moravian academy for the instruction of youth, 14 miles N.W. of Dessau, and 14 S.S.E. of Magdeburg. N. lat. $51^{\circ} 37'$. E. long. $11^{\circ} 51'$.

BARBYLA, in *Botany*, a name by which Theocritus, and others of the early writers, have called the common damask prune.

BARCA, in *Geography*, an extensive desert country, situate on the south coast of the Mediterranean, between Tripoli and Egypt, and forming part of the great desert, or Sahara.

It extends in length from west to east from about the 39th degree of longitude to the 46th degree, and in breadth from north to south about 30 leagues, though its confines on the south side are very imperfectly ascertained. It is, in general, a dry and barren sand, whence the Arabs have called it "Sahart," or "Ceyrart Barka," that is the "Desert," or "Road of Whirlwinds and Hurricanes." Water is scarce; and, except in the neighbourhood of its towns and villages, if they may be so called, where the ground produces some grain, such as corn, millet, and maize, it is quite sterile and uncultivated. The articles which the poor inhabitants produce they are obliged to exchange with their no less indigent neighbours for dates, sheep, and camels. This country forms part of the ancient Cyrenaica and Marmarica (see CYRENAICA and MARMARICA): in the most desert and dangerous district of it stood the temple of Jupiter Ammon. (See AMMON.) This spot, though in some respects pleasantly situated, is surrounded by quick and burning sands, which are very pernicious to travellers, and sometimes overwhelm whole caravans. Against this temple Cambyses, and an army of 50,000 men, marched from Thebes in Upper Egypt; but their fate is uncertain, as they never returned either to Egypt or to their own country. (See AMMON.) This country is indeed so desert, that there is no travelling through it without the aid of a compass, or the direction of the stars; and though it was once the thoroughfare for caravans from Barbary and Morocco to Mecca, yet it has been infested with wild Arabs to such a degree, that they are obliged to steer 50 leagues about to avoid being plundered. The French geographers divide the country of Barca into two parts; one called the kingdom, and the other the desert; the former hath, according to their statement, some considerable ports, towns, and villages, and is under the protection of the Porte, governed by a cadi, who is the bashaw of Cairo, and resides at Tripoli; but for this they have no sufficient authority. According to Sanſon and Baudrand, the other part, which extends along the eastern coast, called by them the eastern shore of Tripoli, reaches from the port of Solomon or Solyman, to the gulf of Sydra; but this coast is commonly distinguished by the name of Derna, one of the most considerable of its towns and ports; besides which it has several others, and the ruins of many more, which are now reduced to poor villages. The most remarkable are the cape Raccallino, styled by Ptolemy Chersonesus, because it forms a peninsula; and the furthest towards Egypt is the town of Angela or Onguela. (See ANGELA.) Between these two, are many others differently placed and named, as the Porto Tabarca, formerly Batrachus, Batracha, and Patriarcha, cape de Lucco or Loco, anciently Promontorium Carylionium, Porto Mesulman, the haven of Salonef or Salona, supposed by some to be the ancient Portus Panormus, and Galinus, and by others the Portus Catabathmus, which our latest geographers place on the most eastern verge of the Barcan coast, next to the confines of Egypt. To which may be added the large valley of Carto Sappires, the ancient Catabathmus, extending quite to Egypt, opposite to the spot where the temple of Jupiter Ammon stood. From these we proceed to Porto Albertene, or the Sultan's port; that of Caguxi, formerly Trifachi; the cape and haven of Raxa, anciently Paretonium; and, lastly, the city of Barca or Barce, which gives name to the whole province, and lies farther inland, on the eastern coast of the gulf of Sydra. This was the capital of the Barcae, and is mentioned by Strabo, Pliny, Scylax, and Ptolemy; and is said by the two former to have occupied the spot on which Ptolemais was afterwards built; but the two latter are of a different opinion.

nion. It seems to have stood to the west of Cyrene, and had a port near the Greater Syrtis. As it was a maritime city, it is most probable that it stood by the port of the Barcæi, and not where Barca stood; more especially as that capital was 100 stadia from the sea, according to Scylax. Herodotus says, that Barca was built by the brothers of Arcefilaus III. king of Cyrene, more than a generation before the beginning of the reign of Cyrus; but it is more probable, that it was of Phœnician, if not of Egyptian or Libyan extraction; for Barca was a Phœnician name, well known in those parts of Africa, as we learn from Silius Italicus, and others. Servius intimates, that its citizens came originally from Carthage, which would lead us to conclude, that Barca, Dido's brother, who attended her into Africa, with some of his countrymen, settled here. It sufficiently appears from Virgil and Silius, that the Barcæi spread themselves over several considerable parts of Libya; and, according to Servius, their metropolis made the greatest figure of any city in this region, except Cyrene. St. Jerom confirms these last authorities, when he asserts that this town was situated in a desert; and that its inhabitants, or at least their descendants, dispersed themselves over several districts, lying as far to the westward as Mauritania, and the eastward as India. The Barcæi learned (says Stephanus) the art of managing horses from Neptune, and of driving chariots from Minerva. The modern kingdom and desert of Barca undoubtedly derived their name from the Barcæi; and we may hence infer, that these people formerly held a considerable rank among the various nations of Libya.

What is the present condition of the towns of Barca, what is their commerce, and how they are governed, we have no authentic documents for ascertaining. The maritime towns are, probably, under the protection of the Porte; but it is not certain whether they are under the government of the bashaw of Egypt or Tripoli, or they have formed themselves into free states like those of Algiers and Tunis. This however is certain, that the inhabitants of the maritime towns are more civilized than those within land. The first profess Mahometanism, and have imbibed some notions of humanity and justice; but the latter, and especially those of the desert, who have neither religion nor any appearance of worship among them, are altogether brutish and savage, and live wholly upon theft and plunder, like all other wild Arabs. By them this tract, which was before a barren desert, was first inhabited. Destitute and indigent in the extreme, they are said also to be the ugliest of all the Arabs; their bodies being meagre, their faces grim, and aspect fierce and ravenous; their garb, which is commonly stripped from the passengers and pilgrims, tattered with long wearing; whilst the poorest of them want rags to cover their nakedness. They are likewise reported to be resolute and expert robbers and plunderers; but deriving a scanty supply from their own neighbourhood, they are compelled by necessity to extend their excursions as far as Numidia, Libya, and other southern parts, where they commit many atrocious acts of cruelty. So indigent and famished are these Barcans, that they commonly let, pledge, and even sell their children, for procuring the necessaries of life, to the Sicilians, and other neighbouring Christians, from whom they have most of their corn, especially before they set out on any long expedition. The chief towns of Barca are Derna, the capital and residence of the sangiak, Tolometa or Ptolometa, and Grena or Carea. *Anc. Un. Hist.* vol. xvi. p. 181. *Mod. Un. Hist.* vol. xv. p. 196, &c.

BARCA, a small port on the coast of Peru, about S. lat. 11° 20', where ships may anchor, but obtain no supply.

BARCALAO, a Spanish word, which the French pronounce *baccala* or *baccaliau*. By this last name the Basques most commonly call the fish which we style cod; and those people call also the island which we call Newfoundland, the isle of *Baccaliau* (*Cod Island*), because of the great plenty of cod caught there. There is, however, a league to the west of that large island, another small one, which is more particularly called *Baccaliau*.

BARCALON, an appellation given to the chief minister of the emperor of Siam, to whom belongs the care of trade both within the kingdom and out of it, the superintendency of the royal magazines, the receipt of the revenues, and the management of foreign affairs.

BARCA-LONGA, a large Spanish fishing-boat, navigated with lug-sails, and having two or three masts. These are very common in the Mediterranean. See *BARCK*.

BARCANI, in *Ancient Geography*, a people of Asia, in the vicinity of Hyrcania. They are placed by M. D'Anville, on the east of the Caspian sea, near one of the mouths of the Oxus.

BARCAROLLA, in *Musick*, a kind of song in the Venetian language, sung at Venice by their gondoliers or watermen, in their boats or barks. These airs (says Rousseau) are composed for the common people, and often by the gondoliers themselves. They have so much melody, and such an agreeable accent, that there is not a musician in all Italy who does not pique himself on knowing some of them. The being admitted *gratis* into a gallery appropriated to them in all the theatres, enables gondoliers to form their ear and taste, without trouble or expence, so that they compose and sing their airs, without altering their natural simplicity, in the style and expression of persons not ignorant of the refinements of music. The words of these songs are commonly jocose, and more than natural, like the conversation of those that sing them; but such as the faithful picture of the manners of a people can please, and such as are likewise partial to the Venetian dialect, soon become passionately fond both of the words and music of these airs, chiefly known in England by the title of Venetian ballads, of which travellers into Italy make collections.

The late earl of Leicester, one of the subscribers to the royal academy of music in 1720, used to say, that at the first establishment of operas in England, the nobility and gentry, in imitation of the Venetians, suffered their servants to have admission, gratis, into the upper gallery, with a view to improve the national taste in singing; but instead of profiting or deriving pleasure from this privilege, they became so noisy and insolent, that about 40 years ago, like our first parents, they were driven out of paradise.

We must not forget (says Rousseau) to remark, for the glory of Tasso, that most of the gondoliers know the chief part of his poem "*Gierusalemme liberata*," by heart, and some the whole; that they pass their summer nights in their gondolas, singing it alternately from bark to bark; that the poem of Tasso is an admirable barcarolla; that Homer only had the honour of being thus sung before him; and that, since his time, no other Epic poem has been thus distinguished.

BARCAROTA, in *Geography*, a town of Spain, in Estramadura, 4 miles from Almendrolejo.

BARCE, in *Ancient Geography*. See *BARCA*.

BARCE, a town of India, built by Alexander, on the sea-coast, in memory of his exploits, and where, according to Justin, he erected altars.

BARCELONA, in *Geography*, a rich and strong city and sea-port of Spain, in the province of Catalonia, of which it is the capital, and the see of a bishop, suffragan of the archbishop

bishop of Taragona. It was originally founded by Hannibal Barca, the father of Hannibal, and from him called "Barcino," about 250 years before Christ. It was reduced by the Romans, and continued subject to them till the kingdom of Spain was overrun by the Goths and Vandals, and afterwards by the Saracens and Moors. At the beginning of the ninth century it was possessed by the Moors, under the government of Zade. This governor having abused the clemency of Charlemagne, and by his perfidious behaviour provoked his son, Lewis king of Aquitaine, Barcelona was invested, and the generals who were intrusted with the command of the siege had orders not to abandon it till Zade was delivered into the hands of Lewis. The Moor made an obstinate resistance; but finding that it was impossible to preserve the city any longer, after a defence of many months, he determined to throw himself upon the emperor's mercy, and was condemned to perpetual exile. At length, however, the city surrendered, and the king of Aquitaine, appointed one Bera, count of Barcelona. The city continued subject to him and his successors, who were distinguished by the title of "Counts of Barcelona," from the year 802 to 1131; when it was united to the crown of Arragon by the marriage of Don Raymond V. count of Barcelona, with Donna Petronilla the daughter of Don Ramiro the monk, and heirs of Arragon. In consequence of the revolt by the Catalonians, in 1465, Barcelona was besieged by Don Juan II. king of Arragon, in 1471. The siege was prosecuted for a considerable time with vigour, but without effect; however, in 1472, it capitulated on its own terms; and the king, upon his public entry into the city, confirmed all its privileges. In 1640, the Catalans, having shaken off the yoke of the Spaniards, called in the French to their succour; and they continued masters of the capital till 1652, when, after a siege of fifteen months, it surrendered to Don Juan of Austria. In 1697, it was again taken by the French under the command of the duke of Vendome, but restored the same year to the Spaniards by the peace of Ryfwick. Although the inhabitants of Barcelona had taken the oath of fidelity to the king of Spain, Philip V. and received from him a confirmation of their privileges, they invited the English and Dutch, and the governor was obliged to surrender the town to the allies in 1705, when Charles, afterwards emperor, was received and proclaimed king. In the following year, Philip, assisted by the French, assailed the city, and took the fortrefs of Montjoui; but the fleet of the allies advancing to the relief of the besieged, he was compelled to abandon the enterprise and to retire from the place, May 12th 1706. By the treaty of Utrecht, in 1713, the troops of the emperor evacuated Catalonia; but the inhabitants of Barcelona persisted in their revolt, and would not acknowledge Philip for their king. Accordingly they suffered blockade for a year, which was followed by a terrible bombardment; and at length, after a siege of sixty-two days, from the opening of the trenches by the duke of Berwick, the town was taken by assault on the 11th of September 1714. By the moderation of the conqueror, the city was saved from pillage, but the inhabitants were deprived of their privileges; they have since, however, been re-established, and in 1715 a citadel was erected to keep them in awe.

Barcelona is now one of the largest and handfomest cities in Spain, and is reckoned the third most considerable city in the kingdom. It is situated on a plain by the sea-side, open to the south-east, but protected by hills on the north and west, so that it affords a healthy and delightful residence; however it is subject to a fog brought on by the east wind. The city is surrounded by a good brick wall, round which is another, with fourteen bastions, horn-works, ramparts, and ditches. The ramparts are high and spacious,

and a great number of carriages may be seen every evening driving upon them for pleasure. The city is divided into two parts; the old and the new, which are separated from each other by a wall and a large ditch. The streets are narrow and crooked, and the churches rather rich than beautiful. Barcelona contains several considerable edifices; that called the Terzana, or the arsenal, is of large extent; and a prodigious gallery, containing twenty-eight forges, has been erected in it within a few years. The other most remarkable buildings are the cathedral adorned with two high towers, the church of Notre-Dame, the palace of the bishop, the exchange, the palace of the governor, that where the nobility of the country assemble, called "La Casa de la Deputacion," and that of the inquisition. The hospicio contains about 1400 industrious poor; and in the house of correction are sometimes found women of rank, who have been guilty of drunkenness, or other low vices. The harbour is spacious, deep, and secure, and defended on one side from the winds by a mountain called Montjoui, which rises in the middle of the plain near the city, runs into the sea in the form of a promontory, is covered with vineyards, gardens, and groves of trees, and a strong fort for defending the city, and furnishes a quarry of fine hard free-stone; and on the other side by a large mole; having a light-house with a small fort and garrison at the extremity. Into this harbour 1000 vessels are supposed to enter during peace, and of these 500 are Spanish, 120 French, 100 English, and 60 Danes. Barcelona is a place of great trade, on account of the convenience of its harbour; although none but small vessels can enter within the mole. Its chief manufactures are silk, cotton, and wool, and excellent fire-arms and cutlery: its chief imports are corn, fish, and woollen goods; and its exports wine, brandy, cloth, and leather. Silks from Lyons, stockings from Nismes, several kinds of stuffs and cottons although they are prohibited, and particularly dried cod, an article for which Spain is said to pay annually to the English three millions of piastres, pass into Catalonia through this port. About twenty years ago, a very large cannon foundry was established in this city, under the direction of M. Maritz, a Swiss; and it has several glass-houses. The inhabitants are industrious and active, and their number is said to exceed 100,000; they are hospitable to strangers; the women are as handsome as any in Spain, lively in their conversation, and less restrained in their conduct than in other parts of the country. Barcelona was erected into a county by Charlemagne, and became an independent sovereignty in the year 873 or 884. The king of Spain is called the count of Barcelona. The diocese contains 213 parishes, besides 8 in the city. It is distant 13 leagues E.N.E. from Taragona, and 92 E.N.E. from Madrid. N. lat. 41° 26'. E. long. 2° 13'.

BARCELONETTA, or *CUMANYOTTO*, a town of South America, in the country of Terra Firma, and principal place of a district in the province of Cumana.

BARCELONETTE, a town of France, and principal place of a district in the department of the Lower Alps. It anciently belonged to Piedmont, and was ceded to France by the treaty of Utrecht in 1713. It is situated on the right bank of the Ubaye, in a valley of excellent pasturage, four leagues S. of Embrun, and 8½ N.N.E. of Digne. The place contains 2182 and the canton 8460 inhabitants; the territory includes 290 kilometres and nine communes. N. lat. 44° 23'. E. long. 6° 40'.

BARCELONETTE De Vitrolle, a town of France, in the department of the Lower Alps, and chief place of a canton in the district of Sisteron; the place contains 617 and the canton 1017 inhabitants; the territory includes 62½ kilometres and two communes.

BARCELONNE, a town of France, in the department of

of the Gers, and chief place of a canton in the district of Negaro, seated on the Adour, containing about 2000 inhabitants; three leagues S.W. of Negaro, and 9½ W.N.W. of Mirande.

BARELORE, a sea-port town of the East Indies, on the coast of Malabar, between Goa and Mangalore, in a district ceded to the British by the treaty of 1799. It has a good harbour, and the Dutch had formerly a factory in this place, which carried on a considerable trade in pepper. N. lat. 13° 36'. E. long. 74° 45'.

BARCELOS, a town of Portugal, with the title of a duchy, in the province of Entre Duero e Minho, not far from the sea, on the river Cavado, eight miles W. of Braga. N. lat. 41° 20'. W. long. 7° 0'.

BARCES, or **BERCHES**, were formerly a kind of ship guns, not unlike fakers, only shorter, thicker in metal, and wider bored.

BARCHIN, in *Geography*, a town of Persia, in the province of Kerman, 120 miles S.E. of Sirgjan.

BARCHOCHEBAS, or **CAZIB**, in *Biography*, a false Messiah of the Jews, who taking advantage of the animosity excited among his countrymen by the profanations of the emperor Adrian, when he founded his new city of Ælia on the ruins of Jerusalem, about the year 134, assumed the name of *Barchocab*, or *child of the Star*, in allusion to a prophecy of Balaam (Numb. xxiv. 17.) and pretended to be the long-expected deliverer of his nation. He chose for his precursor the famous Akiba; and collecting together an army of 200,000 men from among the banditti, who then infested Judæa, took possession of the strong town of Bither, called by St. Jerom, Bethoron, between Cæsarea and Diospolis, which he fortified as the place of his retreat and the capital of his newly-projected kingdom. Here he was anointed king, and caused money to be coined in his own name, by which he proclaimed himself the Messiah and prince of the Jewish nation. However he deferred declaring war against the Romans, till Adrian had quitted Egypt, so that it did not break out till the 17th year of that emperor's reign. Adrian seems at first to have neglected this new revolt; but when he perceived that it was likely to become formidable, he sent Tinnius Rufus with a strong reinforcement to quell it. This force being insufficient to restrain the depredations of these banditti, who massacred all the Romans and Christians that fell in their way, Julius Severus was recalled from Britain, and sent at the head of an army against the impostor. This general laid siege to Bither, which was resolutely defended, till Barchochebas was slain. The town was then carried by storm, and this event, which, according to Eusebius, happened in the 18th year of Adrian, was followed by a most dreadful slaughter of the Jews. Crevier's Rom. Emp. vol. vii. p. 188, &c. Basnage, Hist. des Juifs, l. vii. c. 12. Mod. Un. Hist. vol. x. p. 437, &c. See **ASIA**.

BARCAUL, in *Geography*, a town of Spain, in the country of Granada, five leagues from Guadix.

BARCHUSEN, or **BARKHAUSEN**, **JOHN CONRADE**, in *Biography*, a learned physician and chemist, was born at Horne in the county of Lippe, 1666. After a liberal education, and a course of travelling through the principal cities of Germany with a view to his improvement in pharmacy and chemistry, he became physician to the Venetian general in his expedition to the Morea in 1694; and on his return settled at Utrecht, where he obtained permission to teach chemistry, in which employment he continued till the time of his death in 1717. His character was distinguished by integrity and zeal for public good, as well as by indefatigable assiduity in the pursuit of knowledge; without possessing any very extraordinary share of genius or solidity of

judgment. His works are "*Synopsis Pharmaceutica*," Frankf. 1690, and Utrecht, 1696, 8vo.; "*Pyrotophia*," Leyd. 1693, 4to. enlarged and published at Leyden in 1771, under the title of "*Elementa Chemiæ*" &c. "*Acroamata ad Jatrochymiam et Physicam Spectantia*," Utr. 1703, 8vo.; "*Historia Medicinæ*," Amst. 1710, 8vo.; published with enlargements under the title of "*De Medicinæ ortu et progressu Dissertationes*," Utr. 1723, 4to. in which work an account is given of all the sects and theories of medicine from the earliest times to the author's own age, but with less accuracy, especially in relation to the ancient writers, than those of Le Clerc and Freind; "*Synopsis Pharmaciæ*," Leyd. 1712, 4to.; "*Compendium Rationum Chemici*," Leyd. 1712, 4to.; "*Collecta Medicinæ Practicæ Generalia, et Dialogus de optima Medicorum secta*," Amst. 1715, 8vo. Haller Bib. Med. Pract.

BARCINO, in *Ancient Geography*, a town of Hispania Tarraconensis, and capital of the Laetani; now **BARCELONA**.

BARCLAY, **BARCLEY**, or **BARKLAY**, **ALEXANDER**, in *Biography*, an elegant British writer of the 16th century, was a native either of England or Scotland, but probably of the latter country. About the year 1495, he came to Oriel college, Oxford, and having distinguished himself by his parts and learning, he travelled on the continent and acquired a competent knowledge of the languages spoken in Holland, Germany, Italy, and France. On his return to England, he became one of the priests of St. Mary Ottery in Devonshire, and afterwards a monk of the monastery of Ely. After the dissolution of this monastery in 1539, he was presented successively to several livings, the last of which were those of Baddow Magna in Essex, and of Allhallows in London. He was honoured with the degree of doctor in divinity. He died at a very advanced age at Croydon in Surry, in June 1552. Different accounts have been given of his character. Bale, the protestant, treats his memory with indignity, and charges him with being a scandalous adulterer, whilst he led a single life; but Pitts, the papist, assures us that he directed his studies to the service of religion, and employed his time in reading and writing the lives of the Saints. These accounts, however, are not altogether incompatible. As an improver of English literature, his merits are acknowledged; and his industry in enriching our language with many translations, written in a style more pure and fluent than that of his contemporaries, entitles him to grateful commemoration. Some of the principal of his works of which there is no complete catalogue, are the "*Miseræ Curialium*," or "*Eclagues on the Miseries of Courtiers*," compiled by Æneas Silvius; the "*Eclagues of Baptist Mantuan*;" the "*Castle of Labour*," from the French; a treatise "*Of Virtues*," by Mancini; several "*Lives of Saints*;" the "*Jugurthine war*" of Sallust; a "*Treatise against Skelton*," who was poet laureat, and a great enemy to priests; and the most popular of all his works, the "*Navis Stultifera*" or "*Ship of Fools*," which is a free translation, with considerable additions, from a work under the same title, by Sebastian Brantius; this is a satirical work, adorned with many pictures printed from wooden cuts; it passed through several editions, and was first printed at London by Richard Pynson, in 1509, in small folio, again in 1519, and in 4to. in 1570. Gen. Dict. Biog. Brit.

BARCLAY, **WILLIAM**, a learned civilian, was born in Aberdeenshire in 1541, and descended from one of the best families in Scotland. After the captivity of Mary queen of Scots, by whom he was favoured, he retired to France about the year 1573, and then by close application became a proficient in the knowledge of the civil law, so that he obtained a professorship in that science in the university of

Pont-à-Mousson.

Pontamousson, founded by the duke of Lorrain; he was also appointed by this duke counsellor of state, and master of requests. In 1581, he married a lady of Lorrain, by whom he had a son, who was the cause of his contest with the Jesuits, by whose influence he was reduced to the necessity of quitting Lorrain. He then came to England, and was offered a place in the council of James I. with a considerable pension, on condition of his embracing the established religion; but declining the offer, he returned to France, and accepted the professorship of civil law in the university of Angers, where he taught for some time with reputation. Here he died as some say in 1605, according to others in 1609, or 1611. The chief of his works are "De Regno et Regali potentate, adversus Buchananum, &c." published at Paris in 1600; "De potestate Papæ, an et quatenus in reges et principes seculares jus et imperium habeat," Francof. 1609, 1613, 1629. Hannov. 1612, 8vo. Lond. in English, in 1611, 4to; "A Commentary upon the title of the Pandects, *de rebus creditis et de jurejurando*," Paris, 1605, 8vo.; and "Præmetia in vitam Agricolæ," Paris, 1599, 2 vols. 8vo. Gen. Dict. Biog. Brit.

BARCLAY, JOHN, the son of the preceding, was born at Pontamousson in 1582, and distinguished himself betimes as a proficient in polite literature. The Jesuits wished him to enter into their society; but his father incurred their resentment by preventing it, and taking him to England, at the beginning of the reign of James I. He had already, viz. in 1601, published a commentary on the Thebaid of Statius. He also presented to James, a Latin poem upon his coronation; and in 1603, published the first part of his "Satiricon Euphormionis," which was dedicated to the king. He accompanied his father to Angers, with whom he continued till the death of the latter, and then removed to Paris. In 1606, he came over to England, where he obtained considerable employments under king James, and was made gentleman of the bed-chamber. He is said to have assisted this prince in a controversial work, which occasioned some unfounded suspicions of his orthodoxy. Having finished his "Euphormio," he published an apology for it in 1610. Upon his return to Paris, he printed in 1612, a work intitled "Pietas," being a vindication of a performance of his father against the power arrogated by the popes over crowned heads, which had been attacked by Bellarmine. Nevertheless, he was invited to Rome by Paul IV., and resided there during the latter part of his life, carested by Bellarmine, and possessing some lucrative employments, in return for which he wrote a work of controversy, intitled, "Parænesis ad Sectarios." Whilst he was employed in superintending the first edition of his principal work, intitled the "Argenis," he died of the stone at Rome, in 1621. The disposition of Barclay was of a melancholy cast; his mornings were uninterruptedly employed in study, and the afternoons were devoted to his garden. His reputation, both as a scholar and a writer, was extremely high in his own times; but his works were not of a nature, calculated to command lasting attention. His Latin style was much admired by some, and severely censured by others. Petronius was his model, but he somewhat partakes of the florid affectation of Apuleius in his prose, and of the bombast of Lucian in his verse. His "Euphormio," and "Argenis," both works of invention, passed through several editions in various languages. The latter is a kind of political allegory, exhibiting a picture of the vices and revolutions of courts, with real characters under fictitious names. It displays great ingenuity and learning, and abounds with lively imagery and elevated sentiments, but with too much parade. It was

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read with avidity whilst the subjects were recent; and a translation of it in English by a lady appeared in 1772, without attracting much notice. Gen. Dict. Biog. Brit.

BARCLAY, ROBERT, the famous apologist for the Quakers, was the descendant of an ancient family in Scotland, and the son of colonel David Barclay of Mathers. He was born at Gordonstown in the shire of Murray, in 1648, whilst his father had retired, after quitting the army; and was sent for education to his uncle at Paris, who was at that time principal of the Scots college. Pains were taken to profelyte him to the catholic religion; and he acknowledged that they were not altogether unsuccessful. He returned home, however, in his 17th year, and was distinguished by his accomplishments in literature, and particularly by his knowledge of the Latin and French languages. At home he extended his acquaintance, by diligent application, with the Greek and Hebrew; and being of a grave disposition, directed his inquiries towards theological subjects. His father, having in 1666 become a convert to Quakerism, was soon followed by his son; whose zeal, though generally under the control of a sedate temper and sound judgment, was not altogether free from enthusiasm; for he conceived himself obliged by divine command to pass through the streets of Aberdeen clothed in sackcloth and ashes, and he actually yielded to this impulse. But he served the cause, to which he was attached from conviction, much more effectually by his powers of reasoning in its defence. His first publication to this purpose, intitled "Truth cleared of calumnies," &c. was a reply to a work of W. Mitchell, a preacher near Aberdeen, and dated at his father's house at Urie, in 1670. This was followed by an appendix and additional treatise, exhibiting a considerable portion of controversial acrimony, but it had the effect of silencing his antagonist. In 1673 he published, with a view of conciliating the good opinion of Protestants, a systematic exposition of the doctrines of his sect, under the title of "A Catechism and Confession of Faith, approved of and agreed to by the general assembly of the Patriarchs, Prophets, and Apostles, Christ himself chief Speaker in and among them," &c. The design of this work was to prove, that Quakerism was the perfection of the reformed religion, and that Protestants, as they receded from it, were so far inconsistent with themselves, and approached to Popery. His fundamental principle was, that the scriptures alone were to be regarded as the foundation of faith, and that Christians ought to receive no doctrines which were not capable of being proved by the express words of scripture. This work excited very general attention, and removed many prejudices that were entertained against the society. His next treatise, intitled "The Anarchy of the Ranters and other Libertines, the Hierarchy of the Romanists, and other pretended churches, equally refused and refuted," &c. was intended to mark the distinction between the rationalists of his sect, and the enthusiasts; but some sentiments concerning church discipline, which it contained, involved him in disputes with some of his own brethren, and drew upon him attacks from some members of the university of Aberdeen, and from other quarters. He persisted, however, in his endeavours for forming a clear, methodical, and rational system of Quakerism; and in the year 1675, he was diligently employed in composing the most famous of all his writings, which is his "Apology for the true Christian divinity, as the same is held forth and preached by the people in scorn called Quakers." This was introduced by his "Theses Theologicæ," written in various languages, and addressed to the clergy of all denominations throughout Europe, requesting their examina-

tion and judgment. Two copies of the "Apology" were transmitted to each of the ministers plenipotentiary then assembled at the congress of Nimeguen. It was printed in 1676, at Amsterdam; and two years after, the author published an English translation of it. It was also translated into other languages, and excited very general attention. The "Apology" is a learned, scholastic, methodical performance; and it is regarded as the first authority for the principles of the sect. The society derived considerable reputation from it; and whilst it contributed to remove prejudices against this sect both at home and abroad, it gave them a respectable rank among the reformed churches. The dedication is no less remarkable than the apology itself. It is addressed to king Charles II.; and speaks to him in so plain and forcible a manner respecting the events of his own life, and pleads the cause of religion, and of the author's own society, with such a manly spirit, that it has ever been admired as a model in its kind. Let the following passage serve as a specimen: "Thou hast tasted of prosperity and adversity; thou knowest what it is to be banished thy native country, to be over-ruled as well as to rule and sit upon the throne; and being oppressed, thou hast reason to know how hateful the oppressor is both to God and man." This address did not avail, as Voltaire asserts, to restrain the persecution which then raged against the Quakers; for Robert Barclay himself, after his return from Holland and Germany, which he visited in company with the famous William Penn, was, in 1677, imprisoned in Aberdeen, together with his father and many other Quakers, at the instigation of Sharp archbishop of St. Andrew's, with whom he remonstrated by an excellent letter on the occasion. By the interposition of Elizabeth the princess palatine of Rhine, who respected the Quakers and corresponded with both Penn and Barclay, he was soon liberated; and he even acquired the favour of the court, so that in 1679, he obtained a royal charter for erecting his lands at Urie into a free barony. In 1682, he was elected governor of east Jersey, in North America, by the proprietors of the province; but he declined accepting the appointment, and was satisfied with naming a deputy governor. Whilst he was in prison at Aberdeen, in 1677, he published a treatise on "Universal Love," intended to shew that this principle prevailed more in his church than in any other. In the same year he addressed a Latin letter to all "the ambassadors and deputies of the Christian princes and states, met at Nimeguen to consult the peace of Christendom," urging them to promote that good work, and pointing out the true causes of war, and its incomparability with Christian principles. He had also written, in 1676, a Latin letter concerning "the Possibility and Necessity of an inward and immediate Revelation," to Adrian Paets, a person of distinction in Holland; and in 1686 this letter was translated into English and published. This was the last, and has by many members of the society, been reckoned among the most important of his performances. His time was very much occupied in journeys for the benefit of the society, with a view both of promulgating its doctrines and protecting its members from oppression. Barclay and Penn were on terms of intimacy with James II.; who, sensible that he and his party needed toleration, affected to be the great patron of liberty of conscience. The non-resisting principles of the Quakers in civil matters, might probably give him a predilection for their religious opinions above those of other Protestants. Barclay was engaged in a private conference with the king in the year 1688, just as the wind became fair for bringing over the prince of Orange, and on that occasion urged his majesty to make some concession for

satisfying his people; but his advice was of no avail. Robert Barclay did not long survive the revolution. He died, after a short illness, in his house at Urie, in October 1690, in his forty-second year, leaving seven children, all of whom were living fifty years afterwards. The moral character of this eminent person corresponded to the great employment of his life, which was that of promoting what he conceived to be the cause of religious truth. He was amiable and respectable; nor did the gravity of his pursuits infuse any rigour or sourness into his conversation and manners. He governed his house with great prudence and discretion, and preserved a serene mind under all the changes of his fortune. Biog. Brit. Gen. Biog.

BARCLAY Fort, in *Geography*, is the west point of the entrance into English harbour, on the south side of the island of Antigua; the east point also has a battery, from which it is distant only about 300 yards.

BARCONE, in *Navigation*, a short broad vessel, of a middle size, used in the Mediterranean for the carriage of corn, wood, salt, and other provisions, from one place to another.

BARD, is used in the *Culinary Art*, for a broad slice of bacon used to cover fowls before they are roasted, baked, or otherwise dressed.

BARDA, or PARTHA, in *Geography*, a town of Germany, in the circle of Upper Saxony and circle of Leipzick, 2 miles S.W. of Grimma.

BARDANA, in *Botany*. See ARCTIUM.

BARDANA, in the *Materia Medica*. See ARCTIUM Lappa.

BARDANÆ, in *Entomology*, a species of CURCULIO, of a cylindrical form, downy, greyish; anterior legs elongated. About the size of *C. paraplecticus*, and not unlike it in appearance. Inhabits Europe.

BARDARIOTÆ, in *Antiquity*, were a kind of ancient guard attending the Greek emperors, armed with rods, wherewith they kept off the people from crowding too near the prince, when on horseback. Their captain, or commander, was denominated *primivergius*. The word was probably formed from the *bardæ* or housings on their horses.

BARDE. See BARBE.

BARDED, in *Heraldry*, is used in speaking of a horse that is caparisoned.

He bears fable, a *cavalier d'or*, the horse *barded*, argent.

BARDELLE, in the *Manege*, denotes a saddle made in form of a great saddle, but only of cloth stuffed with straw, and tied tight down with packthread, without either leather, wood, or iron. *Bardelles* are not used in France; but in Italy they trot their colts with such saddles: and those who ride them are called *cavalcadours*, or *scozone*.

BARDESANISTS, in *Ecclesiastical History*, a sect thus denominated from their leader, Bardefanes, a Syrian of Edessa in Mesopotamia, in the second century. Bardanes was a man of acute genius and profound erudition, and wrote several works which procured him reputation. He was eloquent in the Syriac language, and well acquainted with the Greek. His thirst for knowledge induced him to travel into the east, in order to converse with the brachmans and other philosophers of that country. He was held in high estimation by Abgarus, who reigned in Edessa from the year 152 to 187. A work written by him, "upon Destiny," against Abydas the astrologer, was valued by the ancients; and a fragment of it is quoted by Eusebius, in his *Præp. Evang.*

Bardefanes adopted the oriental philosophy concerning the two principles; maintaining that the supreme God is free from all evil and imperfection, and that he created the world and its inhabitants pure and incorrupt; that in process

process of time the prince of darkness, who is the fountain of all evil and misery, enticed men to sin; in consequence of which, the supreme God permitted them to be divested of those ethereal bodies with which he had endued them, and to fall into sluggish and gross bodies formed by the evil principle: and that Jesus descended from heaven, clothed not with a real but aerial body, in order to recover mankind from that body of corruption which they now carry about them; and that he will raise the obedient to mansions of felicity, clothed with aerial vehicles, or celestial bodies. It is said that Bardefanes at length renounced the more chimerical part of his system. Eusebius denied that he ever returned to the Catholic faith. His sect subsisted for a long time in Syria, to which his 150 hymns written in elegant Syriac very much contributed; as they also did to the propagation of his opinions. Mosheim's Eccl. Hist. vol. i. p. 220. Lardner's Works, vol. ii. p. 299, &c.

BARDEWICK, in *Geography*, a town of Germany, in the circle of Lower Saxony, on the Ilmenau, supposed to be one of the most ancient towns in Germany. It was in a very prosperous state, and the see of a bishop in 1189, when Henry the Lion, duke of Saxony and Brunswick, took and razed it to the ground, because the inhabitants would not acknowledge him after he had been proscribed by the emperor Frederick I. The bishopric was then removed to Verden; and the city of Lüneburg received the advantages of trade and population: 4 miles N. of Lüneburg.

BARDEWISCH, a town of Germany, in the circle of Westphalia, and county of Delmenhorst; 6 miles N. of Delmenhorst.

BARDI, a town of Italy, in the Parmesan, seated on a rock near the small river Ceno, and capital of a marquise, to which it gives name; 26 miles W. of Parma.

BARDIN, a town of Persia, in the province of Segestan, 30 miles W.S.W. of Zareng.

BARDIS, a town of Egypt, and residence of a schcik, whose authority extends a considerable way along the Nile, 6 miles south of Girgê.

BARDISTAN, **CAPE**, lies on the coast of Persia, in the Indian ocean. N. lat. $28^{\circ} 0'$. E. long. $52^{\circ} 0'$.

BARDO, a town of Piedmont, in the duchy of Aosta, seated on the Doria Baltea; 17 miles S.E. of Aosta.

BARDONACHE, a town of Piedmont, in a valley, to which it gives name; 10 miles north of Sezanne, and 6 W.N.W. of Exilles.

BARDOP, a river of England, which runs into the Read, 6 miles N.W. of Ellsdon, in Northumberland.

BARDS, **BARDI**, in *Antiquity*, ancient poets among the Gauls and Britons, who described and sung in verse the brave actions of the great men of their nation; with design to inculcate and recommend virtue, and even sometimes to put an end to the difference between armies at the point of engagement.

Bochart derives the word from *parat, to sing*. Camden agrees with Festus, that *bardus* originally signifies *a singer*: and adds, that the word is pure British. Others derive the word from *Bardus*, a druid, the son of Dryis, and the fifth king of the Celtæ.

Amidst this uncertainty with regard to the etymology of the appellation *bards* or *beird*, we may add that some have derived it from *bâr*, which signifies *fury*, and which bears, without doubt, some analogy to that poetic fury or enthusiasm with which the poets fancied themselves, or might feign to be inspired. Among the Welsh, we are told by others, *bard* is preserved as an indigenous term, having an abstract signification, and denoting one that makes conspicuous, or causes to be revealed. By another

author we are informed that the word *bard* being a primitive noun, neither derived nor compounded, it can neither be traced to its root, nor resolved into its parts. It signified one who was a poet by his genius and profession, and who employed much of his time in composing and singing verses on various subjects and occasions.

The bards, it is said, differed from the *druids*, in that the latter were priests and teachers of the nation, but the former only poets and writers.

Larrey, Bodin, and Pasquier, indeed, will have the bards to have been priests, as well as philosophers: and Cluverius, orators too; but without much foundation in antiquity.—Strabo divides the sects of philosophers among the Gauls and Britons into three, viz. the druids, bards, and evates. The bards, adds he, are the singers and poets; the evates, the priests and natural philosophers; and the druids, to natural philosophy add also the moral. Homius however reduces them to two sects, viz. bards and druids; others to one, and make a druid a general name, comprehending all the others. Cluverius will have it, that there were bards also among the ancient Germans; because Tacitus makes mention of their songs and poems, which contained their history. Some have distributed the ancient British poets into two classes; the first class comprehending their sacred poets, who composed and sung their religious hymns, and were called in Greek *Eubates*, in Latin *Vates*, and in their own language *Foids*; the second comprehending all their secular poets, “who sung of the battles of the heroes, or the heaving breasts of love,” according to the description of Ossian, and they were called bards. The principal business of these bards was to celebrate the praises of the gods and departed heroes, in odes and verses, and to sing them to their harps, at their religious assemblies, public festivals, and private entertainments. These men were, in fact, the heralds, the chronologers, and the historians, as well as the poets of the land, for they kept up the memory of illustrious transactions, and, by their compositions, which tradition handed down to posterity, they transmitted from age to age the names and characters of patriots and warriors. It is remarkable that such a class of persons subsisted in almost all nations. They derive their origin from remote antiquity, and were ever held in high estimation. Mankind have been early led to poetical compositions. Agreeable sounds strike at first every ear, but poetry was necessary to give those sounds a lasting effect. Verse has therefore been made use of to preserve the memory of remarkable events and great actions. The religious ceremonies of nations, their manners, and rural labours, were also recorded in numbers. Hence it was that Greece could boast of a Homer, a Hesiod, and of other poets, some ages before an historian had written in prose. Amongst the Gauls also, and other Celtic nations, there were poems composed on various subjects from the earliest ages. Diodorus Siculus is the first author among the ancients, who mentions the bards as the composers of verses which they sung to the sound of an instrument not unlike a lyre (l. v. § 31.). Ammianus Marcellinus informs us (l. xii. c. 9.), that the bards celebrated the brave actions of illustrious men in heroic poems, which they sung to the sweet sounds of the lyre. This account of these Greek and Latin writers is confirmed by the general strain and by many particular passages of the poems of Ossian, “Beneath his own tree, at intervals, each bard sat down with his harp; they raised the song and touched the string, each to the chief he loved.” But this union between poetry and music did not subsist very long, in its greatest strictness, perhaps, in any country. The musicians soon became very numerous, and those of them who had not a genius for com-

posing verses of their own, assisted in singing the verses of others to the music of their harps. Many of those songsters, or parasites (as Athenæus, l. vi. c. 12. calls them), which the Celtic princes took with them when they went to war, were mere musicians, and the songs which they sung were composed by those among them who had a poetical genius, and were called bards. Ossian, however, excelled as much both in vocal and instrumental music as he did in poetry, and he seems to have had no idea of playing on an instrument without singing at the same time. Whenever his bards touch the string, they always raise the song.

The bards constituted one of the most respected orders of men in the ancient British states; and many of the greatest kings, heroes, and nobles, esteemed it an honour to be enrolled in this order. They enjoyed, by law and custom, many honourable distinctions and valuable privileges. Kings and princes made choice of bards to be their bosom-friends and constant companions: indulged them with the greatest familiarity, and gave them the most flattering titles. Their persons were held sacred and inviolable; and the most cruel and bloody tyrants dared not to offer them any injury. The bards, as well as the druids, were exempted from taxes and military services, even in times of the greatest danger; and when they attended their patrons in the field, to record and celebrate their great actions, they had a guard assigned them for their protection. At all festivals and public assemblies they were seated near the person of the king or chieftain, and sometimes even above the greatest nobility and chief officers of the court. Nor was the profession of the bard less lucrative than honourable. For, besides the valuable presents which they occasionally received from their patrons, when they gave them uncommon pleasure by their performances, they had estates in land allotted for their support. Nay, so great was the veneration which the princes of these times entertained for the persons of their poets, and so highly were they charmed and delighted with their tuneful strains, that they sometimes pardoned even their capital crimes for a song. It may be reasonably supposed that a profession, which was so honourable and advantageous, and to which were annexed so many flattering distinctions and desirable immunities, would not be deserted. Accordingly, the accounts we have of the numbers of the bards in some countries, particularly in Ireland, are hardly credible. In the poems of Ossian we often read of 100 bards belonging to one prince, singing and playing in concert for his entertainment. Every chief bard, who was called *Allah Redan*, or doctor in poetry, was allowed to have 30 bards of inferior note constantly about his person; and every bard of the second rank was allowed a retinue of 15 poetical disciples. But it is probable that the bards of Britain and Ireland were not so numerous at an early period as they became afterwards; nor were they then guilty of those crimes by which they at length forfeited the public favour. In this most ancient period, the British bards seem to have been in general men of genius and virtue, who merited the honours which they enjoyed. Though the ancient Britons of the southern parts of this island had originally the same taste and genius for poetry with those in the north, yet none of their poetical compositions have been preserved; and this may be easily accounted for. After the provincial Britons had submitted quietly to the Roman government, yielded up their arms, and had lost their free and martial spirit, they could take little pleasure in hearing or repeating the songs of their bards, in honour of the glorious achievements of their brave ancestors. The Romans too, if they did not practise the same barbarous policy which was long after practised by Edward I. of

putting the bards to death, would at least discourage them, and discountenance the repetition of their poems for very obvious reasons. These sons of the song being thus persecuted by their conquerors, and neglected by their countrymen, either abandoned their country or their profession; and their songs, being no longer heard, were soon forgotten. But so natural was a taste for poetry to the original inhabitants of this island, that it was not quite destroyed by their long subjection to the Romans, but appeared again in the posterity of the provincial Britons, as soon as they recovered their martial spirit, and became a free, brave, and independent people. Nennius, who wrote in the ninth century, and in the reign of prince Mervyn, is the first of the British historians who mentions the bards. He says, that Talhaiarn was famous for poetry: that Aneurin and Taliesin, Llywarch-hen and Chian, flourished in the 6th century. Of these bards, the works only of three are extant; those of Aneuryn, Taliesin, and Llywarch-hen. Besides the bards already mentioned, there were others who flourished during this period; of whom the most eminent was Merddin Wyllt, who composed a poem called *Afallennau*, or the orchard. From the sixth to the tenth century it is difficult to meet with any of the writings of the bards, owing probably to the devastations of war, and to the civil dissensions among the Welsh.

Such was the respect in which the bards were held, that by a law of Howel Dha, whoever struck any one of this order must compound for the offence by paying to the party aggrieved one-fourth more than was necessary to be paid to any other person of the same degree.

The election of the bards was made every year, in an assembly of the princes and chieftains of the country, in which they were assigned precedence and emolument suitable to their merit; but the bard most highly distinguished for his talents was solemnly chaired, and had likewise a badge given him of a silver chain. This congress of the bards was usually held at the royal residence of the prince of Wales; the sovereign himself presiding in that assembly. The bards, properly so called, were distinguished from the Druids and Eubates or Ovates, by the colour of their dress; they were clad in sky-blue garments, whilst the Druids wore white, and the Ovates green. Their disciples were arrayed in variegated garments of these three colours united. They held their meetings in circles of unwrought stones, astronomically placed as indexes of the seasons, in the open air, and when the sun was above the horizon, or as they expressed it, *in the face of the sun, and in the eye of the light*. They had four principal meetings in the course of the year. The first was on the winter solstice, called *Alban Arthan*, which was the beginning of their year; the second on the vernal equinox, or *Alban Eilir*; the summer solstice, or *Alban Heruin*, was the third; and the autumnal equinox, or *Alban Elwed*, was the fourth solemn convention.

It appears, upon a close examination of its principles, that one of the primary intentions of bardism was, that it should be a regular system for preserving authenticated records and various kinds of knowledge in the national memory, as it were, by means of oral tradition. And, in order that nothing should have currency without due consideration, whatever was intended to be received into such a public record, whether the historical and aphoristical triad, or the didactic song, was always laid before the grand meetings. There it was discussed with the most scrutinizing severity; if then admitted, it was re-considered at the second meeting; if then approved of, it was referred to the third meeting; and being approved of by that, it was ratified or confirmed; otherwise it was referred

ferred to the triennial supreme convention for ultimate consideration. At this national meeting, all that had been confirmed at the provincial assemblies were also recited; and the disciples, who there attended from every province, were enjoined to learn them, in order that they might become as widely diffused as possible. What was thus solemnly sanctioned was to be recited for ever afterwards, annually at least, in addition to the former bardic traditions, in the secondary meetings of districts, and also at one or other of the four grand meetings. Such being the bardic establishment, by which tradition became formed into a well-combined science, we may rely on its triads for the best illustration of its principles.

The three cultivators of song and imagination among the nation of the *Cymry* were *Gwynson Canbebon*, who was the first in the world that composed poetry; *Hu* the mighty, who first applied poetry to preserve memorials and composition; and *Tydain Tâd Arwen*, or *Tydain father of the muse*, who first reduced poetry to an art, and established rules for composition. And from what those three persons executed, originated bards and bardism, as constituted with privilege and custom by the three institutional bards, namely *Plenywz*, *Alon*, and *Gwron*. They established the privileges and customs which appertain to bards and bardism, and therefore they are called the three institutors. Nevertheless there were bards and bardism before their time; but they were not under the regulation of inviolable transit; and they had neither privileges nor customs, except what were obtained through civility and courtesy, under the protection of the country and nation, before the time of these three. Some say that they were contemporary with *Prydain*, son of *Az the Great*; but according to others, they lived in the time of *Dynwal Moel Mud*, his son, who, in some of the old books is called *Dynwarth*, son of *Prydain*. For a further account of these institutional bards, and of the triads that exhibit their character, office, and privileges, and that illustrate their theology, we must refer the curious who wish for further information on this subject, to Williams's *Poems, lyric and pastoral*, in 2 vols. 8vo. London, 1794; and to Owen's *Heroic Elegies of Llywarch-hen*, in 1 vol. 8vo. London, 1792. According to the latter of these writers, the bards were divided into Bards Braint, who were the civil magistrates or judges; and Bards Druid, who were the priests of the community.

From the triads above referred to the reader may deduce a correct outline of bardism; and as to the detail of its various parts, he may be surprized to be told that they are still preserved in various memorials of the ancient Britons, and in the memory of its initiated; though it is generally supposed that this extraordinary system, known to the world under the name of Druidism, has perished above fifteen hundred years past, except the few hints given of it by Greek and Roman writers. Lost it certainly would have been but for its extraordinary means and precaution for self-preservation; especially in the middle ages, when it had to withstand the persecutions of the popish church in the fulness of its power. Here it may be worthy to remark that bardism contains a great many things to induce a conviction of its being the parent of free-masonry; and some of the principles taught in both are the same in expression; and indeed it is very remarkable, that artisan, or mason, is exactly the meaning of *owyz*, or ovate, the name of the third class of bards; and in this character only could the bards meet under cover. Free-masons do so now: but they preserve a traditionary memorial of their meeting anciently on the tops of their highest hills, and in the bottoms of the lowest vales, and when the sun was in its due meridian. Thus bardism, whose principles were to be diffused in the

face of the sun and in the eye of the light, for the sake of truth and self-preservation, had the means of becoming even more secret than masonry veiled in the darkness of night.

There were three different classes of this order in Wales: the first was called "Beirdhs," and they were the composers of verses and odes in various measures; they were likewise the recorders of the aims of the Welsh chieftains, and the repositories also of the genealogies of families. This class was accounted the most honourable, and was high in the public estimation. The second class, called "Minstrels," were performers upon instruments, chiefly the harp and the crwth. The third were those who sung to musical instruments in general, and were called "Datgeiniad."

The talents of the Welsh bards were not solely employed in preserving the descents of families, in the praise of heroes, or in recording their illustrious actions; they sometimes in plaintive numbers mourned over the tomb of the fallen warrior.

When tyranny erected her banner in Wales, by the cruel policy of Edward in the massacre of the bards, that ancient seat of music and poetry was deserted by the muses, and consequently was deprived of those fascinating arts which softened, at the same time that they invigorated, the genius of the people. During the spirited, and for a while the prosperous insurrection of Owen Glendwrwy, the muses revisited their native seats, encouraged by the munificence of that leader, and animated by the transitory ray which had dawned upon freedom. When the Welsh had made the last effort for their expiring freedom, they sunk into a state of slavery the most deep and severe. The bards were prohibited by law from making their annual progress, and from holding public assemblies; which privileges were called by the natives "clera" and "cymhortha." During this period, and the contest between the house of York and Lancaster, the genius of poetry was nearly extinguished, or was only employed in soothing the misery of the times, by obscure predictions of more prosperous days. A brighter prospect opening on this nation in the reign of Henry VII. a series of bards arose from that time; and these bards, being supported in the families of the Welsh chieftains, ascertained and preserved their genealogies; and as the causes of reciting warlike exploits had ceased, they celebrated the civil virtues of their patrons, their magnanimity, their hospitable spirit, their talents, and the graces of their persons. They likewise, amidst other duties, had the mournful office of composing an elegy on the death of the chieftain in whose family they resided, which was sung to the surviving relations in honour of the dead, reciting the noble families from which the deceased had sprung, and the great actions performed by himself or his ancestors.

Since the reign of queen Elizabeth, there has not been any regular assembly of the bards. The motives to emulation having ceased, and the spirit of ancient freedom being extinguished, the poetic fire, for which the Welsh nation had been so renowned, gradually declined. But a spark of that ancient fire still remains in the genius of the Welsh, which, in the seasons of their festivity, breaks out into a singular kind of poetry, called "*pennyll*." Even at this day some vein of the ancient minstrelsy survives among the Welsh mountains. Numbers of persons assemble, and sit round the harp, singing alternately "*pennillion*," or stanzas of ancient or modern compositions. Often, like the modern improvisatore of Italy, they sing extempore verses; and a person conversant in this art readily produces a "*pennyll*" apposite to the last that was sung. Many have their memories stored with several hundreds, perhaps thousands of "*pennillion*," some of which they have always ready for answers to every subject that can be proposed, or if their

recollection should fail them, their invention supplies them with something pertinent and proper for the occasion.

Bards have been found in many countries; and continued in Ireland and Scotland, as well as in Wales, to our own days. The genealogical sonnets of the Irish bards are still the chief foundations of the ancient history of Ireland.

Spenser, the poet, in his view of the state of Ireland in the reign of queen Elizabeth, observes that he caused several compositions of the bards to be translated; "and surely," he adds, "they favoured of sweet wit and good invention, but skilled not of the goodly ornament of poetry; yet were they sprinkled with some pretty flowers of their natural device, which gave good grace and comeliness unto them; the which it is great pity to see so abused, to the graceing of wickedness and vice, which with good usage would serve to adorn and beautify virtue."

The songs of the Irish bards, says Warton in his "History of English Poetry" (diff. i. vol. i.), are by some conceived to be strongly marked with the traces of Scaldic imagination; and these traces are believed still to survive among a species of poetical historians, whom they call "Tale-Tellers," supposed to be the descendants of the original Irish bards. The Irish historians inform us that St. Patrick, when he converted Ireland to the Christian faith, destroyed 300 volumes of the songs of the Irish bards. Such was their dignity in this country, that they were permitted to wear a robe of the same colour with that of the royal family. They were constantly summoned to a triennial festival; and the most approved songs delivered at this assembly were ordered to be preserved in the custody of the king's historian or antiquary. Many of these compositions are referred to by Keating, as the foundation of his history of Ireland. Ample estates were appropriated to them that they might live in a condition of independence and ease. The profession was hereditary; but when a bard died, his estate devolved not to his eldest son, but to such of his family as discovered the most distinguished talents for poetry and music. Every principal bard, as we have already observed, retained thirty of inferior note as his attendants; and a bard of the secondary class was followed by a retinue of fifteen. They seem to have been at their height in the year 558. None of their poems have been translated.

In the highlands of Scotland there are considerable remains of many of the compositions of their old bards still preserved. But the most genuine, entire, and valuable remains of the works of the ancient bards, and perhaps the noblest specimen of uncultivated genius, are the poems of Ossian, the son of Fingal a king of the Highlands of Scotland, who flourished in the second or third century, lately collected by Mr. Macpherson, and by him translated from the Erse or Gaelic language into English. Dr. Johnson, indeed, has suggested his doubts concerning the existence of any such ancient MSS. as those from which the poems of Ossian have been translated. But this is not a place for discussing this subject of controversy. Admitting, however, their genuineness upon the whole, whatever additions may have been made to them, they afford an admirable specimen of what might be the conceptions of ancient bards. These poems, says Warton (*ubi supra*), notwithstanding the difference between the Gothic and the Celtic rituals, contain many visible vestiges of Scandinavian superstition. The allusions in the songs of Ossian to spirits who preside over the different parts, and direct the various operations of nature, who send storms over the deep, and rejoice in the shrieks of the shipwrecked mariner, who call down lightning to blast the forest or cleave the rock, and diffuse irresistible pestilence among the people, beautifully conducted and heightened under the skilful hand of a master bard, entirely correspond

with the Runic system, and breathe the spirit of its poetry. Had Ossian found it convenient to have introduced religion into his compositions, not only a new source had been opened to the sublime, in describing the rites of sacrifice, the horrors of incantation, the solemn invocations of infernal beings, and the like dreadful superstitions, but probably many stronger and more characteristic evidences would have appeared of his knowledge of the imagery of Scandinavian poets.

The remains of Taliesin, and other Welsh poets, assist us in forming a competent judgment upon this subject. See Evans's Dissertation de Bardis. Jones's Musical and Poetical Relics of the Welsh Bards.

It is not improbable, says Warton (*ubi supra*), that the Welsh bards might have been acquainted with the Scandinavian Scalds, at least before their communication with ARMORICA. The bards flourished most in those parts of Britain which most strongly retained their native Celtic character. The prosody of the Welsh bards depended much on alliteration; hence they seem to have paid an attention to the Scaldic versification. The Islandic poets are said to have carried alliteration to the highest pitch of exactness in their earliest periods; whereas the Welsh bards of the sixth century used it but sparingly, and in an imperfect degree: from this circumstance we may deduce a proof of imitation, or at least of emulation. There are, moreover, strong traces of conformity between the manners of the two nations. Besides, the Scandinavian Scalds were well known in Ireland; and there is sufficient evidence to prove that the Welsh bards were early connected with the Irish. Even so late as the eleventh century, the practice continued among the Welsh bards of receiving instructions in the bardic profession from Ireland. The Welsh bards were reformed and regulated by Gryffyth ap Conan, king of Wales, in the year 1078. At the same time he brought over with him from Ireland many Irish bards for the information and improvement of the Welsh. In Ireland, to kill a bard was highly criminal; and to seize his estate, even for the public service and in time of national distress, was deemed an act of sacrilege. Thus, in the old Welsh laws, whoever even slightly injured a bard, was to be fined 6 cows and 120 pence. The murderer of a bard was to be fined 126 cows. Moreover, an intercourse was necessarily produced between the Welsh and Scandinavians from the piratical irruptions of the latter. It may be added, that the Welsh, although living in a separate and detached situation, and so strongly prejudiced in favour of their own usages, yet from neighbourhood and unavoidable communications of various kinds, might have imbibed the ideas of the Scandinavian bards from the Saxons and Danes, after those nations had occupied and overspread all the other parts of our island. (See SCALDS.) The effect of an intercourse with Armorica is perceived in the composition of those Welsh bards who flourished after the native vein of British fabling had been tinged by the "fairy tales" which had been propagated by the Arabians in Armorica, and which the Welsh had received from their connection with that province of Gaul. It is easy to collect from the Welsh odes, written after the tenth century, many signatures of this exotic imagery. See SCANDINAVIA, and ARMORICA.

BARDSEY-ISLE, in *Geography*, an island of Wales, called in Welsh *Yr Ynis Enlli*, or the island in the current, from the fierce current which runs between it and the main land; and Bardsey, probably from the bards who retired here. It forms the north point of Cardigan bay, and is situated opposite to it, within the county of Caernarvon. At Aberdaron bay there is good anchorage; but the entrance for large ships is very difficult. It was to this place that Dabritius, arch-

archbishop of Caerleon, retired after he had resigned his see to St. David, and here he is said to have died in 612. *Bardsey Abbey*, of which the remains are considerable, was founded in the year 516. A singular oratory belonging to it, consists of a long arched edifice, with an insulated stone altar near the east end. The island forms a remarkably fertile and well cultivated plain of about two miles in compass. It contains a few inhabitants, and is rented from lord Newborough. It was granted by Edward VI. to his uncle sir Thomas Seymour, and after his death to the earl of Warwick. The late sir John Wynn purchased it from the late Rev. Dr. Wilson of Newark. It is 10 leagues N.E. by N. of Caernarvon bar, and 12 leagues N. by W. of Holyhead in the isle of Anglesea. N. lat. $52^{\circ} 58'$. W. long. $5^{\circ} 5'$.

BARDSTOWN, a town of Kentucky, in the United States of North America, and chief place of the county of Nelson, on the Beech Fork river; about 25 miles from the Ohio. N. lat. $37^{\circ} 48'$. W. long. $86^{\circ} 13' 30''$.

BARDT, or **BARTH**, a post-town of Germany, in the duchy of Pomerania, situated in a small bay on the Baltic, six leagues west from Stralsund. It belongs to Sweden. N. lat. $54^{\circ} 20'$. E. long. $13^{\circ} 20'$.

BARDUBITZ, or **PARDUBITZ**, a town of Bohemia, in the circle of Chrudim, celebrated for its manufactures; seated on the Elbe; six miles north of Chrudim.

BARE, in a general sense, signifies not covered. Hence we say bare-headed, bare-footed, &c.

The Roman women, in times of public distress and mourning, went bare-headed, with their hair loose.

Among Greeks, Romans, and Barbarians, we find a feast called *nudipedalia*, at which persons were to attend bare-footed.

The Abyssinians never enter their churches but bare-footed; not on account of Moses, who was commanded to put off his shoes on mount Sinai, but in reverence of the place; as is also done by them in entering the palaces of kings and great men.

Sagittarius has a dissertation on those who went bare-footed among the ancients, "*De Nudipedalibus Veterum*;" wherein he treats of such as went bare-footed in journeys or otherwise, either out of choice or necessity; also of bare-footed religious mourners and penitents, who went bare-footed; and, lastly, of the *leviri*.

BARE, in respect of *Manufacture*. A cloth is said to be bare or naked when the nap is too short, as having been shorn too near, or not being sufficiently covered with wool by the teazel.

BARE is also used for a sort of bowling ground, not covered with green sward.

BARE-FOOT CARMELITES, and *Augustines*, are religious of the order of St. Carmel, and St. Augustin, who go without shoes like the Capuchins.

There are also bare-foot fathers of mercy. Formerly there were bare-foot Dominicans and bare-foot nuns of the order of St. Augustin.

BARE-FOOTED TRINITARIANS. See **TRINITARIAN**.

BARE-POLES, under, in *Sea Language*, expresses the state of a ship, when she has no sail set.

BARE-PUMP. See **PUMP**.

BARE, in *Geography*, an island in the Southern Pacific ocean, near the east coast of New Ireland. It is high land, not fertile, but inhabited; situated in S. lat. $39^{\circ} 57'$, and S.S.W. from cape Kidnappers.

BARE HAVEN, lies on the coast of Nova Scotia, in North America, about three leagues S.W. from cape Canso. It is sheltered by an island off the point called White point.

BAREA, in *Ancient Geography*, a town of Spain,

upon the Iberian sea, in the country of the Bastuli. Ptolemy.

BARÉE, in *Geography*, a province of Hindoostan, in the country of Lahore, between the rivers Rauvee, Beyah, and Setledge.

BARÈGE WATERS, in the *Materia Medica*, are celebrated thermal waters, situated in and near the village of Barege, on the French side of the Pyrenées, at the foot of these lofty mountains. There are four principal hot springs in this place, which differ, however, very considerably in temperature, the highest being about 120° Fahr. and the lowest about 73° . This variety of heat gives every convenience, for bathing, drinking, and topical application. Chemical analysis shews in this water a quantity of sulphur, in the form of sulphurated hydrogen, united to a small portion of soda, a little common salt, and a kind of slimy bituminous matter. The sulphur and the soda, together with the heat, may be considered as the active ingredients, but the quantity of them is very small; as the water scarcely exceeds distilled water in specific gravity.

The waters of Barege are remarkable for a smooth soapy feel, and they give suppleness and smoothness even to dead skin that is immersed in them. They are used chiefly as a discutient and detergent bath, in resolving indolent tumours and rigidity of the joints left by gouty or rheumatic affections. They are also of great advantage in cutaneous diseases. Internally taken, the water gives relief in disorders of the stomach, heartburn, indigestion, colic, and also in several calculous affections of the urinary organs. Saunders on Mineral Waters.

BAREITH, **BAREUTH**, or **BAYREUTH**, in *Geography*, a town of Germany, in Franconia, in the margravate of Culmbach. It is the capital of the principality, and often called the principality of Bareuth. Its palace, which was burnt down in the year 1753, was again rebuilt in a beautiful style. It has one Calvinist and two Lutheran churches, a Roman catholic chapel, a public school, a foundling hospital, and an academy, founded in 1722 by the margrave Frederic, besides the college. In 1430, this town was burnt down by the Hussites. It belonged to a prince of the house of Brandenburg, the last of whom dying in 1782, it descended to the king of Prussia. Near the Fichtelburg, Bareuth produces a variety of beautiful marbles, and some curious minerals. The principality of Bareuth is also known by the name of Culmbach; and with Onolzbach, forms the chief power in Franconia, now annexed to the sovereignty of Prussia. N. lat. $50^{\circ} 0'$. E. long. $11^{\circ} 50'$.

BARELLY, a town of Hindoostan, in the province of Oude; 41 miles S.S.E. of Lucknow.

BAREN, a river of Germany, which runs into the Roer, near Schwiert, in the county of Marck, and circle of Westphalia.

BAREN, a town of Swisserland, in the Valais, 25 miles east of Sion.

BARENA, in *Ancient Geography*, a town of Asia, in Media, near Ecbatana. Steph. Byz.

BARNFELS, in *Geography*, a town of Germany, in the circle of Upper Saxony, and county of Erzgebürg, two miles west of Altenberg.

BARENSTEIN; or **BERNSTEIN**, a town of Germany, in the circle of Upper Saxony, and margravate of Meissen, 17 miles south of Dresden.

BARENT, **DIETERICK**, in *Biography*, a painter of history and portrait, was born at Amsterdam in 1534; and having received early instruction from his father, travelled to Venice, where he was admitted into the school of Titian, and became the favourite disciple of that inimitable master

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ter. With Titian he continued several years, and painted a portrait of him which gained him great reputation; and he was singularly successful in imitating the touch, the manner, and the style of colouring, peculiar to that excellent genius. Upon his return to his own country, he was very much employed in works that added to his honour; but the composition which contributed more than any other to establish his fame, was the picture which represented the fall of Lucifer, containing a number of figures, naked, well contrasted, and excellently coloured. He died in 1582. Pilkington.

BARENTIN, in *Geography*, a town of France, in the department of the Lower Seine, 3 leagues N.W. of Rouen.

BARENTON, a town of France, in the department of the Channel, and chief place of a canton in the district of Mortain, seated at the source of the Ardée, distant seven leagues E.S.E. from Avranches, and $1\frac{3}{4}$ S.E. of Mortain. The place contains 3117 and the canton 9982 inhabitants; the territory includes $147\frac{1}{2}$ kilometres and four communes.

BARESUND, a sea-port town of Sweden, in the province of East Gothland, between Nordkiöping and Söderkiöping.

BARETTI, JOSEPH, in *Biography*, was the son of an architect of reputation, and born at Turin about the year 1716. He received a good education, but squandered his patrimony in gaming. Being of a rambling and dissolutory disposition, he was frequently reduced, notwithstanding his talents and literary character, to circumstances of distress. In 1748, he was employed at Venice in teaching the Italian language to some English gentlemen; and in 1750, at the instigation of lord Charlemont, he visited England, which was the place of his future residence. Possessing a wonderful facility in acquiring the knowledge of languages, as well as a critical acquaintance with his own, his talents were well adapted to the profession of a teacher of languages, in which he engaged. In 1753 he wrote a treatise in English, which was "A Defence of the Poetry of his native country against the censures of Voltaire." About this time an acquaintance commenced between Baretti and Dr. Johnson, which was kind and cordial on the part of the latter, and respectful in the highest degree on the part of the former. As he had acquired reputation by some works which he had published on the Italian language and literature, he availed himself of his friend's English dictionary to compile a dictionary of the Italian and English languages, which first appeared in 1760, and which maintains its superiority over all other works of the same kind. In this year he visited his native country, with some prospects of preferment, in which he was disappointed; but on his arrival he published at Venice a periodical work, intitled "Frusia Literaria," under the character of an old complaining soldier who was returned to his country after long absence. His criticisms, however, in this work, which met with great success, were so severe, that he was obliged to leave the country; and after an absence of six years, he returned through Spain and Portugal to England. In 1768 he published "An Account of the Manners and Customs of Italy," intended chiefly as a reply to the severe strictures of Mr. S. Sharp, the surgeon, in his "Letters from Italy." By Dr. Johnson he was introduced into the family of Thrale both as a teacher and a literary guest. In 1769, he visited Spain, probably intending to complete his account of a tour in that country. Soon after his return, an accident occurred, which was followed by very distressing consequences. Having engaged in an angry altercation with a woman of the town in the Hay-market, he was accosted by

three men, who insulted and jostled him. Alarmed for his life, Baretti took out of his pocket a French desert knife, and attacked one of the assailants; and unfortunately pursuing the contest and repeating the blows, he inflicted wounds which proved fatal. He was arrested and tried for murder at the Old Bailey. In this trial the public were much interested; and a number of men of the first literary eminence appeared to bear testimony to Baretti's character; among whom were Johnson, Burke, Garrick, Goldsmith, Reynolds, and Beauclerk. The event was the acquittal of Baretti; but the charge very materially affected his reputation. In 1770 he published his "Journey from London to Genoa, through England, Portugal, Spain, and France," 4 vols. 8vo. which was deservedly well received; and he continued publishing introductory works for the use of students in the Italian and some other modern languages. Although he had been domesticated in the family of Mr. Thrale, he left it in 1776, in disgust, and by this sudden start of whim or ill-humour, involved the latter part of his life in many inconveniences and difficulties. His attempt, in 1779, for introducing to the public a classical entertainment, which was the "Carmen Seculare" of Horace set to music, failed of success. Reduced to a state of precarious subsistence, he obtained under lord North's administration a pension from government of 80l. a year, but during the urgency of public wants this fell into arrear, and Baretti could scarcely preserve himself from absolute indigence. His last performance was published in 1786, and was intitled "Tolendron: Speeches to John Bowle about his edition of Don Quixote; together with some account of Spanish literature." Oppressed by anxiety and uneasiness of mind, and with a constitution impaired by fits of the gout, he died on May 5th, 1789. Baretti, although he had a rough and somewhat cynical appearance, was formed for society, and his conversation was instructive, particularly to young persons, with whom he had much intercourse. Having lived much in the world, and having had no opportunity in early life of acquiring fixed principles, he indulged a considerable laxness and freedom of opinion. However his integrity was unimpeached, his morals were pure, and his manners were correct. His charity had no bounds, and by the imprudence with which he exercised it, he was himself involved in difficulties. His literary talents, though not of the highest order, were useful and agreeable. "I know no man," said Dr. Johnson to Boswell, "who carries his head higher in conversation than Baretti; there are strong powers in his mind; he has not, indeed, many hooks, but with what hooks he has he grapples very forcibly." Boswell's Life of Johnson. Europ. Mag. for 1789. Gen. Biog.

BAREUX, in *Geography*, a town of France, in the department of the Lower Pyrenées, and chief place of a canton in the district of Maulcon, 5 miles S.E. of Mauleon.

BAR-FEE, in *Law*, a fee of 20 pence, which every person acquitted of felony pays the gaoler.

BARFLEUR, in *Geography*, a sea-port town of France, in the department of the Channel. It had formerly a good harbour and a considerable trade; but in consequence of neglect, the harbour is choked with sand, and the trade decayed. Cape Barfeur is six leagues east from Cherbourg, in N. lat. 49° 40'. W. long. 1° 17'.

BARGA, a town of Italy, in the duchy of Tuscany, on the river Senchio, two leagues from Lucca.

BARGAIN, in a *General Sense*, a contract either for the sale, purchase, or exchange of a thing. The word is formed from the French *barguigner*, to barter or haggle. He that sells is the *bargainor*, and he that buys the *bargainee*.

BARGAIN and Sale, in *Law*, is properly a contract made

of manors, lands, and other things, transferring the property thereof from the *bargainor* to the *bargaince*, for a consideration in money: or, it is an instrument by which the property of lands and tenements is for valuable consideration granted and transferred from one person to another. It is called a real contract upon a valuable consideration, for passing of lands, tenements, and hereditaments, by deed indented and enrolled. 2 Inst. 672.

It is a good contract for land, and the fee passes, though it be not said in the deed, to have and to hold to him and his heirs, and though there be no livery and seisin given by the *vendor*, so it be by deed indented, sealed, and enrolled, either in the county where the land lies, or in one of the king's courts of record at Westminster, within six months after the date of the deed.

This manner of conveying lands was created and established by the 27 Hen. VIII. c. 10. which executes all uses raised; and as this introduced a more secret way of conveying than was known to the policy of the common law, therefore the enrolment of the deed of *bargain and sale* was made necessary by the 16th chapter of that statute. The objects of this provision evidently were, first, to enforce the contracting parties to ascertain the terms of the conveyance by reducing it into writing; secondly, to make the proof of it easy, by requiring their seals to it, and consequently the presence of a witness; and lastly, to prevent the frauds of secret conveyances, by substituting the more effectual notoriety of enrolment, for the more ancient one of livery. But the latter part of this provision, which, if it had not been evaded, would have introduced almost an universal register of conveyances of the freehold, in case of corporal hereditaments, was soon defeated by the invention of the conveyance by lease and release, which sprung from the omission to extend the statute to bargains and sales for terms of years: (See 8 Co. 93. 2 Ro. Abr. 204. 2 Inst. 671.) and the other parts of the statute were necessarily ineffectual in our courts of equity, because these were still left at liberty to compel the execution of trusts of the freehold, though created without deed or writing. The inconveniences arising from this insufficiency of the statute of enrolments, are now in some measure prevented by stat. 29 Car. II. c. 3. which provides against conveying any lands or hereditaments for more than three years, or declaring trusts of them, otherwise than by writing. 1 Inst. 48 a. n. 3. See Blackst. Com. vol. ii. p. 338. Jacob's Law Dict. by Tomlyns, Art. *Bargain and Sale*.

BARGAINS, in *Commerce*, are of divers kinds: *verbal*, those made only by word of mouth, and giving earnest; *written*, those where the terms are entered in form on paper, &c.

At Amsterdam they distinguish three kinds of *bargains*.

BARGAINS, *Conditional*, for goods which the seller has not yet in his possession; but which he knows have been bought for him by his correspondents abroad, and which he obliges himself to deliver to the buyer, on their arrival, at the price and the conditions agreed on.

BARGAINS, *Firm*, those wherein the seller obliges himself to deliver to the buyer a certain quantity of goods, at the price and in the time agreed on.

BARGAINS, *Optional*, those wherein a dealer obliges himself, in consideration of a *premium* received in hand, either to deliver or take a certain quantity of goods at a fixed price, and within a time limited; but with a liberty, nevertheless, of not delivering or not receiving them, if they think proper, upon forfeiture of their *premium*.

BARGAINS, *Forehand*, are those, wherein goods are bought

or sold, in order to be delivered at a certain time afterwards, some part of the price being advanced.

BARGASA, in *Ancient Geography*, a town of Asia, in Caria, seated at the bottom of the gulf called Ceramicus.

BARGAZAR POINT, in *Geography*, a cape on the coast of Iceland. N. lat. 66° 18'. W. long. 16° 38'.

BARGE, in *Navigation*, a kind of state, or pleasure-boat, or large luggage-boat, used chiefly in the navigation of rivers which lead to great cities.

Barges are of various kinds, and acquire various names, according to the variety of their uses and structure: as,

<i>A company's barge,</i>	<i>A Severn barge,</i>
<i>A row barge,</i>	<i>A Ware barge,</i>
<i>A royal barge,</i>	<i>A light horseman,</i>
<i>A sand barge,</i>	<i>A West-country barge.</i>

A barge differs from a bark, as, being smaller, and used only on rivers; whereas the latter goes out to sea.

There are also barges, belonging to men of war, serving to carry generals, admirals, and chief commanders.

Sailing barges are vessels with one mast, and sometimes a bowsprit. Those that have boom-sails, are rigged like sloops; but, having few hands on board, the boom and gaff are more easily hoisted or topped, the power being increased by the addition of blocks. Sailing lighters or barges, with a sprit-mainsail, rig with a sprit-yard at the head of the sail, hanging diagonally to the mast. Some large barges have vangs like a ship's mizen, and a down-hauler at the peak-end of the sprit-yard. Large barges have a fore-sail, jib, cross-jack-yard, and top-sail, similar to sloops.

BARGE, or *Barges*, in *Geography*, a town of Piedmont, in the district of the four Vallies, $7\frac{1}{2}$ miles south of Pine-rola.

BARGE-Brune, in *Ornithology*, Buffon's name of the dusky snipe; *scolopax fusca*, Gmelin.

BARGE Blanche, is likewise a name assigned by Buffon to the white avoet, *recurvirostra alba*, Gmelin.

BARGE le Chatel, in *Geography*, a town of France, in the department of the Ain, and chief place of a canton in the district of Pont-de-Vaux, $4\frac{1}{2}$ leagues W.N.W. of Bourg-en-Bresse. N. lat. 46° 19'. E. long. 4° 49'.

BARGE-Couples, in *Architecture*, a beam mortised into another, to strengthen the building.

BARGE-Course is used by workmen to signify a part of the tiling, which projects over the gable of a building, and is made up with mortar.

BARGE-MON, in *Geography*, a town of France, in the department of the Var, and chief place of a canton in the district of Draguignan, 2 leagues N.N.E. of Draguignan.

BARGH, is used in some places of England for a steep horse-way up a hill.

It seems to come from the German *bargh*, a hill.

BARGH-Master, **BARMER**, or **BAR-Master**, in the *Royal Mines*, the steward or judge of the barghmote.

The word is formed of the German *berg-meister*, q. d. *master of the mines*.

The bar-master is to keep two great courts of barmote yearly, and every week a small one, as occasion requires.

BARGHMOTE, or **BARMOTE**, a court which takes cognizance of causes and disputes between miners.

Some suppose it thus called from a *bar*, at which the suitors appear; others, with more probability, derive the word from the German *berg*, a mine.

By the custom of the mines, no person is to sue any miner for ore-debt, or for ore, or for any ground in variance, but only in the court of barmote, on penalty of forfeiting the debt, and paying the charge at law.

BARGIACIS, in *Ancient Geography*, a town of Hispania Tarraconensis, situated in the inner part of the country, and in the territory of the Vaceæans. Ptolemy.

BARGIE, in *Geography*, the name of a barony in the southern part of the county of Wexford, province of Leinster, Ireland, which, with the adjoining one of Forth, was peopled by the followers of earl Strongbow. The language used there is said to be a broken Saxon, more like Flemish than English, and not one in a hundred knows any thing of Irish. "They are evidently," says Mr. Young, "a distinct people, and I could not but remark that their features and cast of countenance varied very much from the common native Irish. The girls and women are handsome, having much better features and complexions. Their industry is superior to that of their neighbours; and their better living and habitations are also distinctions not to be forgotten. The poor have all barley bread and pork, herrings, and potatoes. On the coast there is a considerable fishery of herrings." Both men and women wear straw hats, which give them a comie appearance. The inhabitants are reckoned more industrious and cleanly, and better farmers than in any other part of Ireland; but Mr. Young found their system very defective. The farms were in general from 20 to 80 acres at an average rent of a guinea per acre. The soil is light, and being extremely well tilled, produces large quantities of barley. Young's Tour, and Latoenay's Rambles through Ireland.

BARGOSA, in *Ancient Geography*, a town of India, which was the country of the philosopher Zarmanochegas, who committed himself to the flames in the presence of Augustus, according to Strabo.

BARGOTA, in *Geography*, a town of Spain, in Navarre. 6 leagues from Estella.

BARGULIA, or **BARGULUS**, in *Ancient Geography*, a place of Illyria, in the neighbourhood of the people denominated Parthini, which Philip ceded to the Romans by a treaty, 204 years before the vulgar æra.

BARGUS, a river of Illyria, both sides of which were inhabited by the Seordisei; it discharged itself into the Ister, according to Strabo. Pliny says, that a river of this name flowed into the Hebrus.

BARGUSII, an ancient people of Spain, to whom envoys were sent from Rome to solicit the Spaniards to take part with the Romans rather than with the Carthaginians. They inhabited the interior of Spain, on the other side of the Ebrus; and were subdued by Hannibal. Livy, l. xxi. c. 19, 23.

BARGUSIN, in *Geography*, a town of Siberia, in the province of Nerthshinsk, in the government of Irkutsk, formerly an ostrog, now a circle-town, on the right bank of the river Bargusin, 20 versts above where it falls into the Bargusian bay of the Baikal, 53° lat. 127° long. 524 versts north-east from Irkutsk. It is chiefly remarkable on account of the baths in its district. They were discovered in a waste region, at the distance of eighty versts from any habitation. M. Grand, surgeon to a regiment quartered in those parts, having successfully preferred the use of these baths to several patients, M. Von Klitsha, the governor of Irkutsk, in 1779, caused some buildings to be erected there. They have proved of great benefit to persons afflicted with rheumatism, scurvy, phtisis, and other complaints of a like nature. The water is drank either pure, or, on account of its nauseous taste resembling that of rotten eggs, mixed with milk. It promotes perspiration, does not quench thirst, and may be drank in large portions. When boiled, it is of a very agreeable taste, and is particularly good with tea.

BARGYLA, **BARGYLIA**, or **BARGILEA**, in *Ancient*

Geography, a town of Asia Minor, in Caria, near Jafos and Mindos. It is mentioned by Pliny, Strabo, and Ptolemy. It was situated near the Meander, south of Miletus. M. d'Anville places it north-east of Halicarnassus, on the gulf called Iassius.

BARGYLUS, a mountain of Phœnicia, on the confines of Syria, on the way towards Antiochene. It was situated north of mount Libanus.

BARH-NAGASH, in *Geography*. See **BAHARNA-GASH**.

BARI, a sea-port town of Italy, in the kingdom of Naples, on the coast of the Adriatic; once the capital of a province of the same name, and see of an archbishop. It is well built, populous, and has a good trade. The harbour was almost destroyed by the Venetians: 120 miles E.N.E. of Naples. N. lat. 41° 31'. E. long. 17° 40'. It contains, says Swinburne, about 6000 persons.

BARI, or *Terra di Bari*, a province of Naples, deriving its name from its capital. It is bounded on the north and north-east by the sea, on the east and south-east by the province of Otranto, on the south by the Basilicata, and on the west and north-west by the Capitanata. It is about 62 miles long, and its mean breadth is rather more than 20 miles. It produces corn, wine, oil, cotton, saffron, and fruits; and the coast is guarded against the corsairs by sixteen towers. Its sea-ports are Barletta, Trani, Bari, and Molfetta; its mountains are Sanazzo, Femina Morta, Lupulo, Franeo, and St. Agostino; and its rivers are Ofanto and Cane. The extent, according to Swinburne, is 869,097 moggie, 5 moggie being equal to 4 English acres: and he states the number of its inhabitants to be 281,048. The city of Bari is the ancient Barium; and coins struck by its principal magistrates still exist. The Lombards, Greeks, and Saracens disputed the possession of this city in the ninth century. In the tenth, it rose to distinction on becoming the residence of the Greek catapan or viceroy, and of a metropolitan bishop. The book of constitutions, compiled for the juridical government of the province, and still in use, is a respectable voucher for the importance and policy of Bari, during the middle ages. About the year 1000, Bari became the scene of conspiracies and revolutions. Melo confederated against the Grecian emperor in this place; but it retained its subjection to the eastern emperor, and was one of the last and firmest supports of his dominion. In 1067, Robert Guiscard invested it by sea and land, and enclosed it by a semicircle of ships joined together by chains and booms, in order to prevent its obtaining succours. This blockade lasted four years. Earl Roger afterwards joined his brother with a strong fleet, defeated the Imperial Squadron sent for the relief of the city, and made its admiral prisoner; upon which Bari opened its gates to the conquerors. A citadel was erected by king Roger for securing the allegiance of this town, but it was hardly finished when Lotharius razed it to the ground. At this time, Bari was a populous and strong place. It was afterwards treated with great severity by William the Bad, who levelled the dwellings of the inhabitants who joined in the grand rebellion against him to the ground. The city, however, must have risen speedily out of its ruins, as the emperor Frederick established an annual fair here in 1233; but in 1248, he ordered the town to be destroyed, by way of punishing the inhabitants for treasonable practices. Bari frequently changed its proprietors, till it was settled by Alphonfus the second upon the family of Sforza, in consideration of the marriage of his daughter Isabella with the duke of Milan. According to treaty, these estates became the property of Bona, queen of Poland, at whose death this duchy returned to

to the crown, to which it has ever since remained annexed. Swinb. Travels, vol. ii. p. 1, &c.

BARJAC, a town of France, in the department of the Gard, and chief place of a canton, in the district of Alais. The place contains 1383 and the canton 4280 inhabitants: the territory includes 167½ kilometres and 8 communes.

BARIANA, in *Ancient Geography*, a town of Asia, in Mesopotamia. Ptolemy.

BARIARED, in *Geography*, a town of Persia, in the province of Kerman, 19 leagues S.W. of Sirgian.

BARIEL, or **BARNACLE POINT**, is the south-eastern limit of Winthrop's bay on the north-east coast of Antigua island, and on the west side of the channel into Parham harbour.

BARILLA, or **BARILHA**, is the term by which the impure mineral alkali from the coasts of Spain and some other parts of the Levant is known in commerce. That from Alicante and the coasts of the province of Murcia is the most esteemed. It is brought over in the form of hard brown speckled porous masses almost without smell, and tasting strongly alkaline. It is procured by burning to ashes several plants growing on the sea-shore of the species of *Salsola* and *Kali*. For the particulars of this manufacture, see the article **SODA**. The term *British barilla* is also applied sometimes to **KELP**, a much more impure soda, and sometimes, though improperly, to *pear-lush*, or the ashes of plants containing *pot-ash*, the vegetable alkali. See **CARBONAT of Soda**.

BARILLARIUS, an ancient officer in monasteries and great households, who had the care of the casks and vessels of wine, &c. in the cellars.

BARILLOVITZ, in *Geography*, a town of Croatia, on the River Korana, 10 miles south of Carlstadt.

BARIN, a town of Asiatic Turkey, in the province of Natolia, 12 miles south of Amasiah.

BARING OF TREES, in *Agriculture*. See **ABLAQUEATION**.

BARJOLS, in *Geography*, a town of France, in the department of the Var, and chief place of a canton in the district of Brignolles. The town is populous, and situated in a pleasant country; 9 leagues north of Toulon. The place contains 3025 and the canton 8079 inhabitants; the territory includes 250 kilometres and 11 communes. N. lat. 43° 35'. E. long. 5° 23'.

BARIQUEMETO, a river of North America, in the country of Terra Firma, which runs into the Oroonoko.

BARISSOGLEBSK, or **BORISSOGLEBSK**, a town newly erected by Catharine II. in the province of Yaroslaf, is situated on the Volga, 57° 39' lat. 57° 9' longit. has 4 brick, and 417 wooden houses, 2076 inhabitants, and a brick church. The trade of this town consists in the produce of the fishery and several manufactories of hardware, chiefly pots and kettles. The home and foreign trade together amount nearly to 60,000 rubles. There is also a small town of the same name, situate 59° 50' lat. and 60 longit. on the Khoper, in the government of Tambok, consisting of 400 timber-houses, and 894 male inhabitants, several of whom are shop-keepers. It has two timber churches. The merchants a few years since inscribed themselves in the registers as possessing a capital of only 13,126 rubles. Here is a considerable distillery.

BARITONO, in *Music*, a voice of low pitch, between a tenor and bafe. The term is formed of two Greek words *βαρυς*, *grave*, and *φωνή*, *tone*. But those who are not partial to bafe voices, rather choose to derive the word from the Italian verb *barire*, to bray.

BARK, in *Vegetable Anatomy*, is a term by which is commonly understood the exterior part of vegetable bodies;

which is separable from the other parts of the plant without much difficulty, during the season of vegetation; but at other periods requires maceration in water, or boiling, and when detached by any of these means, the finer connexions which unite it to the wood are necessarily destroyed.

When bark is thus separated, and subjected to microscopic examination, it exhibits parts differing much in structure and use. These have been divided by anatomists into the *epidermis* or *cuticle*, the *cellular envelope* or *parenchyma*, and the *cortical layers* and *liber*.

The *Epidermis* is situated most externally, and gives a covering to every part of the vegetable body, except the anthers and pistils of flowers. Its texture is varied not only according to the species of plant to which it belongs, but also by the different parts of the same plant; thus, it is strong, dry, and unyielding, upon the roots and trunks of trees; commonly smooth, glossy, and flexile upon leaves and flowers; and sometimes it is villous, or covered with fine projecting processes like hairs.

The most usual colour exhibited by the epidermis is that of green upon the younger branches, and an ash-colour upon those parts of the plants which are most aged; it is however white and shining in the birch, red and silvery in the cherry-tree, and brown upon the horse-chestnut and apple-tree, &c. The epidermis is notwithstanding, in all cases, a transparent membrane, and derives its colour from the substance which is placed immediately behind it, in the same manner as the colour of the skin of animals is produced by the existence of the mucous membrane.

In order to examine the epidermis of vegetables with success, it is necessary to detach it from the cellular tissue, upon which it is immediately applied. This is not difficult to perform, when the plant is full of sap, at which time the epidermis may be removed by a fine knife or lancet; but at other periods it must be submitted to a previous maceration in water before it will separate. When a portion of the vegetable cuticle is thus obtained, it should be inspected under water or spirits, and if viewed with a lens of moderate power, it exhibits the appearance of a plexus or net-work, of which the meshes are not vacant, but filled by a fine pellucid membrane, as may be seen in *Fig. 1. of Plate I. in Vegetable Anatomy*; and the fibres composing the reticulation appear more condensed in some places than others, as represented in the letters *a a*. Hill describes the cuticle of plants as a triple membrane, or three plexuses laid the one upon the other. He observed, by employing high magnifying powers, that these plexuses were of regular forms; that what appeared as fibres in the perpendicular directions were longitudinal vessels, and the spaces left between these vessels were oblong cells, close at their bottom, but open at the top; and that the junction of the cells occasioned the appearance of transverse lines; and thus the reticulation was rendered complete. He even professed to have injected those vessels, by procuring an absorption of a solution of the cerussa acetata, or sugar of lead, and afterwards making it visible by adding a mixture of lime and ointment; and in other instances he filled the longitudinal vessels by the absorption of the tincture of cochineal. The description, which has been given of the epidermis by Hill, does not appear, however, to deserve much attention, as it differs so much from that of other writers. It is indeed true, that Du Hamel and others have observed a second epidermis under the first, which appeared more green, fresh, and succulent; and that on those trees which frequently cast the cuticle, as the birch, cherry-tree, &c. there is a succession of layers; but this does not prove that the epidermis is not a single membrane when first formed, and that where there are more layers than one, each is a perfect cuticle, proceeding in its turn to be exfoliated

or cast off. This mode of reparation resembles what takes place in animals, especially in some reptiles, which have the new cuticle perfectly formed, before the old one is parted with. Upon the trunks of most trees which are dicotyledons, the successive layers of epidermis continue to adhere together; each of these cracks, and gives way as the tree increases in thickness, and hence the deep clefts which always appear in the bark of trees of any age. The several laminae, which are in this manner left furrowed by the cracks, are larger or have more extent, the nearer they approach to the wood, in consequence of the most external epidermis having first yielded to the growth of the tree.

No subject has occasioned greater controversy amongst vegetable anatomists, than the mode in which the cuticle of plants is formed. It was the opinion of Malpighi and Grew, that the epidermis was produced by the last vesicles of the cellular envelope, in consequence of their exposure to the air; but if the cuticle was formed by the desiccation of the cellular tissue, it would not admit of that extension which takes place in all circumstances to a certain degree, and which is so remarkable in the cuticle covering leaves, flowers, and fruits, and all parts of which the growth is rapid.

Several other circumstances might be mentioned to shew that the epidermis can be produced by the drying of the cellular substance; thus when it is wounded or destroyed, and the part perfectly secluded from the action of the air, a new epidermis is soon produced without any exfoliation. The cuticle is in some instances formed, and in others continues to grow, under circumstances entirely beyond the agency of heat and evaporation, as may be observed in the fatal plant, and its appendages, and the internal surfaces of buds, &c.; but although the epidermis does not appear to be the cellular tissue simply dried by exposure, it is sufficiently plain that it is the continuation of the same membrane which forms the cellular envelope.

According to the latest observations made on this subject by Mirbel, who is one of the most ingenious vegetable anatomists of the present time, the lines which give the reticulated appearance to the epidermis, correspond in figure with the cells of the parenchyma, and are really the termination of the septa of these cells in the cuticle. (See *fig. 2. Plate I. Vegetable Anatomy.*) The tubular tissue, which in some cases is perceived upon the superficies of plants, enters also into the composition of the epidermis, as represented in *fig. 3. Plate I. Vegetable Anatomy.* These small tubes are, however, upon close inspection, found to be composed of cells very much elongated, from whence it would appear, that the cellular substance is alone fitted for producing the epidermis of vegetables. The manner in which the cellular tissue is converted into cuticle, is probably beyond the reach of investigation; but that it is not the mere result of exposure to the air, is sufficiently plain from the facts already noticed. Like many other of the changes and operations of organic matter, we are unable to discover its immediate efficient cause, and in such cases, we must be content with observing the phenomenon, and stating it as the effect of a law of the system.

The growth of the cuticle is subject to considerable variety, according to the plant to which it may appertain, or the different parts of the same vegetable: thus, on leaves, flowers, fruits, &c. we do not meet with the successive layers of dead epidermis that exist upon trunks and branches. Some vegetables again have greater accumulations of dead cuticle than others; some get rid of these by repeated exfoliations; the plantane casts its cuticle every year; the epidermis of herbaceous plants and those which are not perennial, is always most delicate in its structure.

The epidermis presents no peculiarities in the monocotyledons, or those plants with one seminal leaf.

The uses of the external or cuticular portion of the bark have been much contested, although many of these are exceedingly obvious: it is evident that it serves as a defence to the whole surface of the vegetable; and accordingly we find its composition and strength dependent upon the functions which each part of the plant performs, and the injuries to which it is liable; on the roots it is tough and flexible; on the trunk rough, thick, and unyielding; on the leaves, flowers, and such parts as are only to possess temporary existence, and which at the same time exercise important functions, the cuticle is thin, delicate, and soft. The epidermis serves to guard the plant against the effects of meteors; it likewise assists to moderate the operation of heat and cold, and thereby contributes to the maintenance of the equality and independence of vegetable temperature; it regulates the action of light upon the cellular tissue, and thus co-operates in the fixation of that subtle matter; but the most important, perhaps, of all its uses is the giving passage both to the fluids absorbed for the nutrition of the plant, and those expelled by transpiration, &c. Besides these known offices of the cuticle, others are ascribed to it. Many authors imagined that it restrained the growth of the whole tree; this however is disproved by the simple experiment of removing a portion of the cuticle, when it has been found that no bur or swelling took place; those trees also which are most distinguished for the cracks of the cuticle, are not observed to grow faster than others. For a further account of the functions of the cuticle of vegetables, see EPIDERMIS, LEAVES, ETIOLATION, TRANSPIRATION, INHALATION, and PORES.

The cellular envelope. This was the name given by Du Hamel to the cellular substance immediately under the cuticle, in consequence of its extending over every part of the plant; by Grew it was called parenchyma; and Mirbel, whose abilities have been already mentioned, has with propriety made a distinction between the cellular tissue immediately next the cuticle, and that which is continued into the cortical layers; the first he terms the *herbaceous tissue*, the other the *parenchyma*.

The *herbaceous tissue* is a composition of cells of an hexagonal figure, so applied to each other that each of the sides assists in forming the parietes of the adjoining cell, precisely like the construction of a honey-comb. The membranes composing these cells are extremely fine and transparent. See *fig. 4. Plate I. of Vegetable Anatomy*, in which the cellular structure is highly magnified, and also some foramina or pores, which establish a communication between the several apartments. These pores are not above the 300th part of a line in diameter. In some instances, the cells are elongated, especially in the parenchyma of the monocotyledons, which is exhibited in *fig. 5. of Plate I.*; and it is remarkable, that in proportion as the vesicles become elongated the pores of communication are more frequent and regular. In some cases, where the cells are very much elongated, they are arranged in rows succeeding each other by intervals, which are perfectly regular. (See GLANDS, and PORES.) The cellular tissue has been described, by some writers, as composed of a number of fibres, interwoven like the texture of felt. Hill says it only differs from the epidermis in having its parts more distinct; and Malpighi believed the cellular substance to be made up of distinct vesicles, collected together, which he called utricles, but, as we have already said, this is not the case; the whole being one continuous membrane, every part of which enters into the construction of two cells. Grew compared the cellular substance to the bubbles observed upon the surface of fermenting liquors, which is a very happy similitude, inasmuch as it conveys a very perfect idea of its appearance when only examined with a single lens.

lens; but when the highest magnifying powers are employed, the hexagonal figure of the cells becomes evident. The herbaceous tissue is the immediate cause of the colour of the epidermis, and its own colour, again, depends upon that of the fluid contained in the cells, which is usually green, but is sometimes brown, red, yellow, &c. This juice is of a resinous nature, which circumstance would appear, as well as the colour, to be the effect of its continual exposure to the light. It is probable that the sap is originally deposited in the cells, in the state in which it is absorbed, that is, consisting of water and carbonic acid gas, and that there, by the agency of light, it undergoes a decomposition; the oxygen contained in both the water and fixed air being discharged by the pores of the cuticle, the carbon of the carbonic acid, and the hydrogen of the water producing the oils and the resins. A number of consequences arise from this operation, not only to plants themselves, but to the animal world, which make it the most important process carried on in the vegetable system. See ETIOLOGICAL LIGHT, OXYGEN, and TRANSPIRATION.

Parenchyma. This part is composed of cells like those described in the herbaceous tissue; indeed, the only difference which exists between these two parts of the cellular substance, is in the colour of their contained fluid; the one being usually green, in consequence of its exposure to the light; whilst the other, not being situated so superficially, is generally found transparent. In other respects, they agree in structure, and appear to be formed of the continuation of the same membrane.

The parenchyma of Mirbel corresponds with the tissue cellulaire of Du Hamel, the utricle of Malpighi, and the parenchymatous substance of Grew; whilst the herbaceous tissue is more strictly the envelope cellulaire of Du Hamel.

The parenchyma is not confined to the superficies of vegetables; it passes between the fibres of the cortical and ligneous layers, and forms the pith or medulla; the pulpiness of leaves and petals depends upon its existence; fruits, seeds, and the embryo plant, are almost entirely composed of it; bulbous, and other succulent roots, owe their bulk to it; no other structure is observable in the fungi and fungi: in short, the cellular tissue is the first and simplest state of vegetable organization, and serves as the connecting medium between all the parts of the plant.

There is, strictly speaking, no circulation of the juices contained in the cellular tissue; fluids, however, being admitted into any of the cells, easily pass into the neighbouring ones, by means of the small pores of communication, already described.

The texture of the cellular substance is very speedily broken down by maceration, or boiling in water; which circumstance should be recollected in preparing the parts of plants for examination; otherwise the natural connections, which are produced by the cellular tissue, may escape observation.

The Cortical Layers and Liber. When the epidermis and the cellular envelope have been removed, the remainder of the bark appears to be made up of a number of reticulated fibres, containing cellular substance in their interspaces; this appearance of the cortical fibres is plain to the naked eye, especially if the cellular tissue, which passes amongst them, be at all destroyed by maceration, or other means; but if examined by the microscope, these fibres become very distinct; their arrangement is then perceived to be singular, and difficult to describe. The fibres in their course, although longitudinal with respect to the plant, are not parallel with each other; each makes a slight curve, and thus comes into contact with the one adjoining, with which it usually becomes incorporated or united, and thus produces a plexus or network, which was called by Du Hamel the cortical plexus;

sometimes these fibres merely touch each other, and then go off again, to compose another mesh in the plexus, see fig. 6. Plate I. of *Vegetable Anatomy*; *aaa* point out the reticulation produced by the fibres, and *bbb* the meshes, or spaces left between them. The meshes are not vacant in the recent vegetable, but filled with cellular tissue, which admits of the transverse motion of the fluids in plants. Du Hamel states, that upon examining these fibres by a high magnifying power, each appeared to be a fasciculus, the fibres of which could be again resolved into fibres, and these again could be divided into others, until they became too minute for observation; he, however, as well as other authors upon the subject, suppose the cortical fibres to be vessels. See VESSELS.

The cortical layers, as the term implies, are not single, but consist of a number of concentric laminae, placed upon each other in such a manner that the meshes of one plexus are situated opposite to those of another. Fig. 7. Plate I. exhibits this circumstance as it has been represented by Du Hamel. The cellular tissue passes through all these meshes, and thus produces a kind of intertexture, which Malpighi compared to cloth, calling the longitudinal fibres the warp, and the transverse the weft.

The meshes of the several net-works are smaller, the more internally they are situated; the gradation in this respect is regular from the external layer to the wood, as may be perceived in fig. 8, 9, 10. in Plate I. of *Vegetable Anatomy*. In the most internal plexus, fig. 10, the longitudinal fasciculi are nearly parallel, and so close to each other that the interspaces are almost obliterated.

The cortical layers, or net-works, are found to increase in number according to the age of the part which sustains them. Thus Du Hamel reckoned only five or six plexuses upon the upper branch of the linden-tree, and seventeen at the base of the trunk of the same tree.

The same disposition of fibres does not exist in all plants; in the lagetto, or the lace bark tree, for instance, the cortical plexus exhibits a texture like gauze or lace. See fig. 11. Plate I. of *Vegetable Anatomy*.

Much confusion may be observed in the descriptions which authors have given of that part of the bark called *liber*. The name would appear to have taken its origin from the likeness which the cortical plexuses, when partially separated, bear to the leaves of a book; and, conformably to this idea, Grew and others have considered all the cortical layers as belonging to the liber; whilst, on the other hand, Malpighi has given this name to the innermost layer only. The liber is, however, generally allowed to be the most important part of the bark, and is that substance for which the cortical layers are formed. When the bark is stripped off a tree in a state of full vegetation, in a very short time a gelatinous substance is observed to exude upon the surface of the wood; this substance acquires organization, and is converted into a new bark. It was termed *cambium* by Du Hamel; the manner in which it is produced, and its composition, are both unknown, but its high utility in the vegetable economy is proved by some beautiful experiments. This formative or organizing substance is constantly renewed during the period of vegetation, and immediately produces the liber, which is insensibly converted into the layers of bark, and the alburnum, or white imperfect wood, which is next the bark; and hence the accessions of bulk in perennial vegetables, which are made every year, and indicate the age of the tree. That the liber is the immediate source of both the wood and the bark, or the central point or fountain of organization, is proved by two very elegant experiments made by Du Hamel. He separated a portion of the bark of a plum-tree, and made sure that it possessed the inner cortical layers.

layers or liber; he then removed a similar portion of bark from a peach-tree, and replaced it with the piece taken from the plum-tree. The graft perfectly succeeded; and upon a future examination he found, that not only the engrafted bark continued to grow, but that a corresponding portion of wood was produced, which was very distinguishable from the rest of the tree, as it possessed the red colour of the wood of the plum-tree, from which the bark had been removed. The other experiment is equally decisive; he passed several silver wires through the bark of a tree, in the season of full vegetation, some of the wires only went through the parenchyma, whilst others were inserted into the liber; those which had only penetrated the cellular tissue, obeyed the excentric progress of the bark, and as the tree grew came nearer the surface; but the wires which had passed through the liber, were carried towards the centre, and after some years, were found covered with many layers of wood.

The conclusion which Du Hamel drew from these experiments was, that the bark produced the liber, the alburnum, and the wood; but it is Mirbel's opinion, that the wood in giving origin to the cambium, produces the liber, which is finally converted into both the bark and wood. For the further discussion of this subject, see CAMBIUM, LIBER, and WOOD.

It should be observed, that the period of vegetable existence depends upon the power of the plant to produce the cambium, and consequently, the liber; accordingly, in herbs, most of which do not survive one or two years, the successive layers which characterise the wood of trees, are not to be seen.

Hitherto we have been describing the arrangement of the cortical layers, in the dicotyledons; in those plants, however, which are called monocotyledons, or having one feminal leaf, the disposition of these parts is very different; only the cuticle and cellular substance are found on the surface of these vegetables; there are no concentric layers of either bark or wood; the interior of the plant is filled with parenchyma, in which are contained the woody fibres, scattered at irregular distances; the cambium is deposited round each fibre, and there produces the tubular and cellular tissue; the tubular tissue forms first the porous wood or alburnum, which contracts in thickness, elongates and is insensibly converted into the perfect wood, and in contracting is detached from the parenchyma and leaves a vacancy which is presently filled up by a new cambium; each of these fibres, therefore, might with propriety be considered as a distinct vegetable, inasmuch as it has the means of an independent growth. See CAMBIUM, WOOD, MONOCOTYLEDON, and DICOTYLEDON. It has already been observed, that some of the more simply organized vegetables, such as the fungi and fungi, do not possess in any of their substance either cortical or woody fibres, but are altogether composed of the cellular tissue.

After the account which we have given of the different parts entering into the structure of the bark, it is unnecessary to insist upon its uses in the vegetable system; in it reside almost all the powers and energies of the plant; wounds only are healed by it; upon the exact contact of the liber of two trees depends the whole of the success in engrafting; and in the bark are prepared not only all the juices and secretions which are required for the sustenance and increase of the plant, but those peculiar substances which are applicable to so many of the purposes of common life and of medicine. See VESSELS, SUCCA PROPRIA, and SECRETION.

BARK, *Peruvian*, *Cortex Peruvianus*. The high importance in medicine of the Peruvian bark has appropriated to it exclusively the term of the bark. We shall describe it under the botanical and now official name of CINCHONA.

BARK, in *Agriculture*, a substance frequently employed by cultivators as a manure to particular kinds of land.

The bark of trees in general, and particularly that of the oak, becomes an useful manure after it has been employed by the tanner in the preparation of leather. One load of oak bark laid in a heap and rotted after having been thus used, it is said, will do more service to stiff cold land, and its effects will last longer, than two loads of the richest dung. Mr. Miller in his Dictionary observes, that it is much better for cold strong land than for light hot ground, if it be used alone as taken from the tan-yard; because it is of a warm nature, and it will loosen and separate the earth so effectually, that, by only employing it two or three times, a strong soil, not easy to be wrought, may be rendered perfectly light and loose; but by mixing it with earth of a nature contrary to that which it is intended to correct, and in a proportion fitted to the nature of the soil on which it is to be laid, it will prove a good manure for almost any sort of land.

And Mortimer has even asserted that it will alter and change the very nature of the soil, and turn it into a rich black mould. As it abounds with vegetable matter derived from the tree to which it belonged, and is strongly impregnated with animal materials by the length of time which it has remained in the tan vats, in contact with the skins and hides of animals, it must necessarily prove beneficial as a manure where judiciously applied.

When laid on grass-land it has been recommended to be spread out over it soon after Michaelmas, that the winter rains may wash it into the ground to the roots of the grasses, as when laid on in the spring, it is apt to burn the grass, and, instead of improving it, to do considerable injury for that season. But when employed on arable land it should be applied and spread before the last ploughing, in order that it may be turned down lightly into the soil so as the fibres of the corn may easily reach it in the spring; when it lies too near the surface, it has however been supposed to forward the growth of the crop at too early a period, and to be nearly consumed in the spring, when the nourishment is chiefly wanted for its support.

In his work on gardening and agriculture, Mr. Bradley says, he advised a gentleman to whom a considerable quantity of bark was left, upon the expiration of the lease of a tan yard, to lay some of it upon a piece of stubborn four land; which he did with such success, that his product was admired by all the gardeners and farmers in the neighbourhood. For such soils, he thinks, it should be mixed with a sandy mould or earth; and that one-third of bark to two-thirds of such materials will be a sufficient proportion for clays in general, laying on about one hundred and fifty cart loads upon the acre.

Worlidge remarks, that the barks or rinds of other trees, though not of so high a value as that of the oak, which is the sort principally used by tanners, must of necessity enrich either corn or pasture grounds, if broken into small pieces, and laid upon them.

It has been found from experience, that by mixing caustic lime with tanner's bark, in the proportion of about two parts of the latter to one of the former, the conversion of the bark into vegetable mould may be greatly promoted, and that the composition when employed as a top dressing for either turnips or grass proves an excellent manure, promoting the growth of the crops in a rapid manner.

BARK, in *Gardening*, comprehends the exterior parts or coverings of trees, plants, and vegetables, and also such substances in their dead state after being separated from them, and employed for different purposes.

The bark of trees, &c. is in itself of a hard porous texture, and adheres loosely to the *liber*, or inner bark. It is stated

stated by Dr. Darwin, in his Philosophy of Gardening and Agriculture, that the barks of the trunks of trees are similar to those of their roots, and may be esteemed a part of them, as they consist of an intertexture of the vessels which descend from the plume of each individual bud to the radicle of it, and constitute its *caudex*. The bark of the root is nevertheless, he says, furnished with lymphatics to absorb water and nutritious juices from the earth, and is covered with a moistened cuticle, while the bark of the stem is furnished with lymphatics to absorb moisture from the air, and is covered with a drier cuticle; the latter resembling the external skin of animals and the lymphatics which open upon it; and the former, the mucous membrane of the stomach, and its lacteals.

The interior barks of some trees, like the alburnum or roots described above, contain, he thinks, much mucilaginous or nutritious matter; as the bark of elm (*ulmus*), and of holly (*ilex*), and probably of all those trees or shrubs which are armed with thorns or prickles, which are designed to prevent the depredations of animals on them, as the hawthorn, gooseberry, and gorse, *crataegus*, *ribes*, *graffularia*, *ulex*. The internal barks of these vegetables may, he thinks, be conceived to be their alburnum less indurated, and might probably all be used as food for ourselves or other animals in years of scarcity, or for the purpose of fermentation; as he doubts not but the inner bark of claret-trees, detracted in the spring by being boiled in water, might be converted by the addition of yeast into small beer, as well as the alburnum of the maple and birch (*acer* and *betula*), all which are now suffered to be eaten by insects, when those trees are felled. For the sugar, which is extracted from the vernal sap-juice of the maple and birch, as well as that found in the manna ash (*fraxinus ornus*), seems, he observes, to reside during the winter months in the root or alburnum, rather than in the bark properly so called, and to become liquefied by the warmth of the spring, or dissolved by the moisture absorbed from the earth and conveyed to the opening buds; but resides solely in the roots of perennial herbaceous plants: and in the economy of grasses, and he supposes of the sugar-cane, it is deposited at the bottom of each joint, which is properly at the root of the stem above it.

Of the above plants, continues he, the bark of the holly not only yields a nutritious mucilage, and thus supplies much provender to the deer and cattle in Needwood forest, by the branches cut off and strewed upon the ground in severe seasons of frost and snow, but contains a resinous material, which is obtained by boiling the bark and washing away the other parts of it. This resinous material possesses a great adhesiveness to feathers and other dry porous bodies, and has hence obtained the name of *bird-lime*, and much resembles the *caoutchouc* or elastic resin brought from South America, and also a fossil elastic bitumen found near Matlock in Derbyshire, both in its elasticity and inflammability. Hollies may, he therefore supposes, be worth cultivating for this material besides the uses of their wood; as the doctor was informed, that thirty years ago a person who purchased a wood in Yorkshire, sold to a Dutch merchant the bird-lime, prepared from the bark of the numerous hollies, for nearly the whole sum given for the wood; which, if it could be hardened, might probably, he says, be sold for the elastic resin above mentioned. Whether this resembles the nutritive resinous material found in wheat flower, when the mucilage and starch are washed from it, might, he thinks, be also worth inquiry.

Other barks contain bitter, resinous, aromatic, or acid materials, which supply the shops of medicine, as Peruvian bark, cascarilla, cinnamon, and were designed by nature, he

supposes, to protect those vegetables from the depredations of quadrupeds or insects. Hence, says he, many trees, and even the wood of them, after it is dried and made into domestic furniture, is never devoured by worms, as the mahogany, cedar, cypress; and hence many plants, as the fox-glove (*digitalis*), hounds-tongue (*cynglossum*), hen-bane (*hyoscyamus*), and many trees, are not devoured by any animals, as their juices would be poisonous to them, or much disagree with their stomachs, if their disgusting flavours to the nose or palate did not prevent their eating them. The same defence of the vegetable kingdom from human digestion, except those which have, in long process of time, been selected and cultivated, appears, he remarks, from the relation of some unfortunate shipwrecked travellers, who have passed some hundreds of miles along uninhabited countries almost without finding an esculent vegetable production.

Other barks contain refringent or colouring particles, employed in the arts of dyeing and tanning, as that of the barberry, oak, and ash (*berberis*, *quercus*, *fraxinus*.) The art of tanning consists in filling the pores of the animal mucous membrane with these refringent particles found in some vegetables, which are believed to possess a quality of shortening animal fibres. Thus, when a long hair is immersed some time in a solution of the bark of oak, or of the galls produced on its leaves by the punctures of insects, the hair is said to be shortened. Whether this process be occasioned by the chemical coagulation of the mucus, of which these fibres totally or in part consist, or by capillary attraction tending to distend these fibres in breadth, and thus to shorten them, as a twisted string is shortened by moisture, has, he says, not yet been well investigated. By thus impregnating the pores of animal skins with vegetable particles they become less liable to putrefaction, as consisting of a mixture of animal and vegetable matter, as well as much better adapted to many domestic or mechanical purposes.

The art of dyeing consists likewise in impregnating the pores of dry substances with a solution of the colouring matter extracted from vegetables by the capillary attraction of these pores to the coloured solution; and, secondly, by a chemical change of those colouring particles after they have been imbibed, and the water of the solution exhaled, by again steeping them in another solution, which may chemically affect the former. Thus, says he, as green consists of a mixture of blue and yellow, it may be best produced by boiling the material designed to be dyed, first in a decoction of one of these colours, as of indigo, and then in that of another, as of the bark of barberry. And as a solution of iron becomes black, when mixed with a decoction of oak-galls, by being in part precipitated; it is probable that the particles of this combination, of a solution of iron with refringent matter, may be larger than either of these particles separately; and, therefore, that if a dry porous substance be immersed, first in a decoction of oak-galls, and, after being suffered to dry, is then immersed in a solution of iron, the black tinge will penetrate into minuter pores, and thus become more intense than if the substance had been immersed in the black dye already prepared.

Other barks are, he adds, used for apparel, paper, cordage, and for many mechanical purposes, owing to the strength and tenacity of their fibres, or to the fineness of them; as hemp (*cannabis*), flax (*linum*), for the purposes of spinning and weaving. The bark or leaves of the papyrus, a flag of the Nile, was, he says, first used for paper; and the bark of the mulberry tree is still made into cloth at Otaheite, and other southern islands.

The art of separating the fibres of the bark of plants, as they consist of the caudexes of buds, or the connecting vessels between the plumules and the radicles of them, is, he observes,

observes, performed by soaking them some weeks in stagnant water, till the mucous membranes, which connect these fibres, are destroyed by putrefaction; and afterwards by drying them, and beating off with hammers what may still adhere.

These fibrous parts of the barks of trees, as they contain no saccharine matter, like the alburnum, are, he observes, much less liable to decay than the sap-wood, or perhaps than any part of the timber. Maupertuis, he adds, who went to Lapland to measure a degree of the meridian, says, that among the numerous trees which lay upon the ground, destroyed by age, or blown down by the winds, many birch trees appeared whole, owing to the undecayed state of their bark, but crumbled into powder on being trod upon; and that the Swedes took the practice from this of covering their houses with this unperishable bark, on which they sometimes lay soil, and thus possess aerial gardens.

To increase the quantity of bark, it must, the doctor remarks, be remembered, that the leaf-buds, or viviparous offspring of trees, as they form new buds, acquire new caudexes extending down into the ground, and thus increase the bark of the stem in thickness; but the flower-buds acquire no new caudexes, but die as soon as they have ripened their seed, and consequently do not increase the thickness of the bark. Whence one method of increasing the quantity of the bark is to increase the number or vigour of the leaf-buds, in contradiction to the flower-buds, which may be done by pinching off the flowers as soon as they appear; and as the bark becomes gradually changed into wood, this may be one method, also, he thinks, of forwarding the growth of timber-trees.

It is added, that the method of preserving the bark of trees from moss consists in rubbing off that parasite vegetable in wet weather, by means of a hardish brush; which is said to be used with advantage on the apple-trees in the cyder countries; and may, at the same time, give motion to the vegetable circulation, or forward the ascent of their juices absorbed by the radical or cortical absorbents. In dry weather, the brush should be frequently dipped in water. Washing the barks of wall trees by a water-engine, may also facilitate the protrusion of their buds in dry-seasons; and might possibly prevent the canker, if applied to dwarfs or espalier apple-trees. Other parasite vegetables must be occasionally destroyed where they occur; as the lichens, fungi, mistletoe, with the ivies and other climbers, as some kinds of *lonicera*, *climatis*, and *fumaria*, woodbine, virgins-bower, and fumitory.

It is further remarked, that when a wound is made in the bark of a tree, so as to expose the alburnum to the air, the upper lip of the wound is liable to grow faster downwards than the lower one is to grow upwards, owing to the former being supplied directly with nutritive juices secreted from the vegetable blood after its ventilation, and consequent oxygenation in the leaves; whereas the lower lip only receives those juices laterally by the inoculation of vessels. Over these wounds the cuticle is liable to project, and to supply a convenient hiding-place for insects, which either eat the new fibres of the growing bark, and perforate the alburnum; or by their moisture, their warmth, and their excrements, contribute to the decay of the alburnum, and prevent the healing of the wound. These dead edges of the projecting bark or cuticle should therefore, it is said, be nicely cut off, but not so as to wound the living bark.

It is remarked, that plasters of lime or of tar with sublimate of mercury, have been recommended to preserve the wounded parts from the air, and from moisture, and from insects; but as all these materials are injurious to the fibres

of the living bark, they should be used with caution, so as not to touch the edges of the wound, but only to cover the alburnum; for this purpose, white lead and boiled oil, mixed into a thick paint, or with the addition of sublimate of mercury, or of arsenic, or of spirit of turpentine, may probably answer the purpose; and may be of real utility on the wounds of those trees whose wood contains less acrimony, and is therefore more liable to be bored into and eaten by a large worm or maggot, almost as thick as a goose-quill; which the doctor has seen happen to a pear-tree, so as to consume the whole internal wood, till the tree was blown down.

In respect to the caution necessary to be observed in not touching the living edges of the wounded bark with such materials as may injure the tree by their absorption, he remembers seeing several young elm-trees which died by their holes having been covered, as he was informed, by quicklime, mixed with cow-dung, to prevent their being injured by horses; and he has seen branches of peach and nectarine trees destroyed by sprinkling them, when in leaf, with a light solution of arsenic, and others with spirit of turpentine.

The composition recommended by Mr. Forsyth, in his "Treatise on the Culture and Management of Fruit Trees," which is constituted of cow-dung, effete lime, wood-ashes, and river sand, seems however to have been made use of in those cases with much advantage, and without any inconvenience having been experienced in this way.

It is further stated, by the author of Phytologia, that a more curious method of cure is said to have succeeded, where the bark of a tree has recently been torn off, even to great extent; and this is, by binding the same piece of bark on again, or another piece from the same tree, or from one of a similar nature, nicely adapting the edges of the bark to be applied to the edges of that which surrounds the wound of the tree, which, it is said, will coalesce, in the same manner as the vessels of the bark of an ingrafted scion, unite with those of the bark of the stock ingrafted on; which is strictly analogous to the union of inflamed or wounded parts of animal bodies, as in the cure of the hare-lip, or the insertion of the living tooth from one person into the jaw of another.

If the bark, over the cankered parts of apple-trees, adds the doctor, could be thus renewed by paring the edges of the mortified bark to the quick, and then nicely applying a piece of healthy bark, from an apple-tree of inferior value, and securing it with an elastic bandage, as a shred of flannel, it would be a very valuable discovery. Another method, where a branch of a valuable tree is in the progress of being destroyed by canker, might, he observes, be by inclosing the cankered part, and some inches above it, in a garden pot of earth previously divided, and supported by stakes, and tied together round the branch, which might then strike roots in the earth of the garden-pot; and, after some months, be cut off, and planted on the ground, and might thus be preserved, and produce a new tree; which experiment (the doctor says) he has tried on two apple-trees, and believes it will succeed.

Bark, in its dead state, after having been employed in the vat of the tanner, is found to be a material of great utility for the purpose of constituting those hot-beds in stoves and pits constructed for them, that are usually denominated *bark-beds*, and which from their being much more regular and durable in the temperature of their heat, than those formed from dung, become a great deal more convenient and useful for different purposes of the gardener; and are of course employed with much advantage in the growth and culture of various tender and curious exotic

exotics that require the aid of an uniform degree of artificial heat in this climate. See BARK-BED, and BARK-PIT.

BARKS of Trees, (Chemical Analysis of). Since the time that chemists have introduced a considerable degree of minuteness and comparative accuracy in the analysis of vegetable matter, many of the general classifications of medical chemistry have been found inconvenient and liable to error. This is particularly the case when vegetable substances, designed for chemical examination, are classed *anatomically*, or according to the uses which they fulfil in the economy of the plant, rather than the properties which they exhibit under the hands of the chemist. Thus, in the instance of the *barks of trees*, scarcely any common chemical character can be assigned to them, as their composition varies in almost every order of plants, and as they partake largely of the qualities of the common juice which circulates in the vegetable. If there is any principle common to all barks, it is (besides water, an invariable ingredient in vegetable matter), the ligneous fibre or insoluble woody part, but even in this respect some very important differences occur in the several species which cannot be neglected by the chemist. The substances which render many barks peculiarly interesting in the arts and in medicine are, **TANNIN**, or the principle which causes several of them to be employed in the art of tanning; **EXTRACT**, a substance varying considerably in properties, and much used in medicine; and the **GALLIC ACID**, the basis of many of the black dyes and pigments when in conjunction with iron. These principles, however, are not peculiar to barks, but they are all found in other parts of vegetables. We have an example of an excellent analysis of the bark of the **CINCHONA**, by M. Fourcroy, to which article we shall refer the reader who may wish to have a good specimen of the chemical analysis of vegetables.

BARKS, general observations relating to. From the experiments of M. Buffon, it appears, that trees stripped of their bark through the whole length of their stems, die in about three or four years. But it is remarkable, that trees stripped in the time of the sap, and suffered to die, afford timber heavier, more uniformly dense, stronger, and fitter for service, than if the tree had been cut down in its healthy state. Something of a like nature has been observed by Vitruvius and Evelyn. Mem. Acad. Scienc. 1738.

As animals are furnished with a panniculus adiposus, usually replete with fat, which invests and covers all the fleshy parts, and screens them from external colds, plants are encompassed with a bark replete with fatty juices, by means whereof the cold is kept out, and, in winter-time, the spiculæ of ice prevented from fixing and freezing the juices in the vessels: whence it is, that some sort of trees remain ever green the year round; because their barks contain more oil than can be spent and exhaled by the sun, &c. Ray's Wild. of God, &c. part i. p. 103.

The bark has its peculiar diseases, and is infected with insects peculiar to it. Wounds of the bark often prove mortal. See **CANKER**.

There are a great many kinds of barks in use in the several arts: some in medicine, as the quinquina, or jesuit's bark, macer, chacarilla, &c. others in dyeing, as the bark of the alder; others in spicery, as cinnamon, cassia lignea, &c. the bark of oak in tanning; others on other occasions, as that of cork; that of a kind of birch is used by the Indians for canoes capable of holding twenty-four persons.

Of the bark of willows and linden trees is ordinarily made a kind of ropes. The Siamese make their cordage of the bark of the cocoa tree, which is also the case in most of the Asiatic and African nations. In reality, flax and

hemp, with all their toughness, are only the sap-vessels, or ligneous fibres of the bark of those plants.

The ancients wrote their books on barks, especially those of the ash, and tilia or lime-tree; not on the exterior or outer bark, but on the inner and finer, called philyra; which are of so durable a texture, that there are manuscripts on it, still extant, a thousand years old.

In the East Indies they manufacture the barks of a certain tree into a kind of stuff or cloth. It is spun and dressed much after the manner of hemp. The long filaments separated from it, upon beating and steeping it in water, compose a thread, of a middle kind between silk and common thread: neither so soft nor bright as silk, nor so hard or flat as hemp. See Neuman's Works, p. 428. note. Some of these stuffs are pure bark, and are called pinasses, biam-bonnes, &c. In others they mix silk with the bark, and call them gingham and nillas: the fountahingees too are part silk, part bark, and are only distinguished by being striped. The Japanese make their paper of a species of mulberry tree. (See **MORUS**.) In the island of Otaheite, the natives make their cloth, which is of three different sorts, from three different kinds of bark; that of the mulberry tree, that of the bread-fruit tree, and that of the cocoa tree. That made of the mulberry is the finest and whitest, and worn chiefly by the principal people. It is manufactured in the following manner. When the trees are of a proper size, they are drawn up and stripped of their branches; after which, the roots and tops are cut off; the bark of these rods being then slit up longitudinally is easily drawn off; and when a proper quantity has been procured, it is deposited in some running water to soak, and kept down by heavy stones; when it is supposed to be sufficiently soaked, the women go down to the brook, and, stripping themselves, sit down in the water to separate the inner bark from the green part on the out-side; for this purpose, they place the under side upon a flat smooth board, and with a kind of shell scrape it very carefully, dipping it continually in the water, till nothing remains but the fine fibres of the inner coat. Being thus prepared in the afternoon, they are spread out upon plantain leaves in the evening, and placed in lengths of about eleven or twelve yards, one by the side of another, till they are about a foot abroad, and two or three layers are also laid one upon the other; care is taken that the cloth shall be in all parts of an equal thickness, so that if the bark happens to be thinner in a particular part of one layer than the rest, a piece that is somewhat thicker is selected to be laid over in the next. In this state it remains till the morning, when a great part of the water which it contained, when it was laid out, is either drained off or evaporated, and the several fibres adhere together, so that the whole may be raised from the ground in one piece. It is then taken away and laid upon the smooth side of a long piece of wood, prepared for the purpose, and beaten by the women. The instrument used for this purpose is a square wooden club, having each of its four sides or faces marked, lengthwise, with small grooves or furrows of different degrees of fineness; those on one side being of a width and depth sufficient to receive a small packthread, and the others finer in a regular gradation, so that the last are not more than equal to sewing silk. They beat it first with the coarsest side of this mallet, keeping time like our smiths; it spreads fast under the strokes, chiefly, however, in the breadth, and the grooves in the mallet mark it with the appearance of threads; it is successively beaten with the other sides, and last of all with the finest, and it is then fit for use. Of this cloth there are several sorts, of different degrees of fineness, in proportion as it is more or less beaten; and the other cloth

also differs in proportion as it is beaten, and the several cloths differ also from one another in consequence of the different materials of which they are made. The bark of the bread-fruit is not taken till the trees are considerably longer and thicker than those of the mulberry; the process afterwards is the same. Of the bark of a tree which they call "pocrou," the "*hibiscus tiliaceus*" of Linnæus, they manufacture excellent matting; both a coarse sort on which they sleep, and a finer which they wear in wet weather. Of the same bark they also make ropes and lines, from the thickness of an inch to the size of a small packthread.

BARK, Indian, *Thuris cortex*, a medical bark, brought from the East, rolled up like cinnamon, of a rusty colour, a warm aromatic, bitter taste, and pleasant smell; sometimes used in fumigation against fits of the mother.

BARK-Mills. See **MILL**.

BARK, Grafting in. See **ENGRAFTING**.

BARK, in Navigation, denotes a little vessel for the sea, usually with pointed or triangular sails, in number two, or three at the most. The term is usually appropriated by seamen to those small ships which carry three masts without a mizen top-sail. Our northern mariners in the coal-trade, apply the term to a broad-sterned ship, which carries no ornamental figure on the stern or prow. Bark is also a Mediterranean vessel, with three masts and no bowsprit; the foremost rakes much forward and carries a lateen sail; the main-mast is a pole-mast, and carries three square sails, like the polacre; the mizen-mast is small and carries a mizen and a top-sail. Fishing-barks are small vessels with one mast, used for fishing, &c. by the Spaniards: on the mast they carry a square main-sail, with a jib upon the bowsprit. Japanese barks are vessels similar to junks, 80 or 90 feet long on one deck, which have only one mast, that carries a square-sail, and forward one or two jibs made of cotton. They only use sails, when the wind is large. Barks of Cracaloo and straits of Sunda are vessels with flush-decks, high sheer, and sharp forward. They have one mast, and the sail is similar to the Caracores, being long and narrow. These vessels are kept from upsetting by a sort of beams crossing the vessel and bending downwards at the ends which fasten to a long round or flat piece of timber. Bombay-barks are called **DINGAS**. See **PLATES OF SHIPS**.

The word *Bark* is derived by some from the Latin *barca*; by Fournier, from *Barce*, a city in Africa; and by Tolénatus, from *Barcelona*.

Some authors use the word bark for any vessel that has no masts.

BARK, Armed, a kind of fire-ship filled with soldiers, used both for making sallies, and to attack galleries, and bar the passage over them.

BARK, Long, is a small vessel without deck, longer and lower than the common barks, being sharp before, and commonly going both with sails and oars. It is built after the manner of a sloop, and in many places is called a *double sloop*.

BARKS, Water, are little vessels used in Holland for the carriage of fresh-water to places where it is wanting, as well as for the fetching sea-water to make salt of. They have a deck, and are filled with water up to the deck.

BARK-Bed, in Gardening, that sort of hot-bed which is either wholly or principally constituted of tanner's bark. This sort of bed, from its preserving the most uniform and regular degrees of heat, is found by much the most useful in the propagation and culture of all kinds of tender exotic

plants that are brought from warm climates, and which stand in need of the continued assistance of artificial heat in this part of the world. Beds of this nature, with a little trouble in the management of them, are found sometimes to support a pretty uniform and regular temperature for a considerable length of time.

These are the kind of hot-beds that are generally employed in hot-houses, being formed in pits or cavities constructed for the purpose in them, frequently the whole length of the houses, six or seven feet in width, and three in depth, being inclosed by means of brick-work. See **BARK-Pit**.

In these beds, the pots of such tender exotics as have been mentioned, are plunged and supported; and they at the same time afford assistance in supplying such houses or stoves with those degrees of heat that may be proper for the growth and support of various other plants that do not require to be plunged into the beds, the heat of the surrounding air, produced in this way, being sufficient for their growth and preservation. Thus, by the aid of bark-heat, and that of fire during the severity of the winter season, the gardener is enabled to imitate, within the hot-house, the temperature of distant climates, and not only to cultivate and bring to perfection the *Bromelia Ananas*, or pine-apple, but also various other tender plants from different quarters of the globe, both of the herbaceous and woody kinds, and to exhibit them in their most healthy and beautiful states in this country.

Bark hot-beds are likewise occasionally formed in pits constructed for them, in the open ground, separately and detached from the hot-house. These are walled round with bricks chiefly above the surface of the ground, having a frame or coping of wood upon the top on which glass lights are fixed so as to slide with facility. See **BARK-Pit**.

In these pits the bark-beds are made to the depth of three feet or more, in order to afford an uniform and lasting heat, for the purpose of raising and propagating different sorts of tender plants from seeds, suckers, layers, cuttings, &c. both of the stove and green-house kinds, as well as those of the natural ground. Such beds are of course of great utility where there are large collections of tender exotic plants, and as nursery-pits for young pine-apple plants to supply the stove or pinery annually. See **STOVE**.

Beds formed of bark are also employed with success in raising various sorts of early productions of other kinds, as early strawberries, melons, peas, French beans, &c. which by the regular and moderate heat which they afford are mostly brought forward in the greatest perfection. They are likewise made use of in forcing different sorts of curious flowers, both of the bulbous, tuberous, and fibrous rooted kinds, into early bloom; as hyacinths, dwarf tulips, narcissus, jonquils, anemones, ranunculuses, pinks, &c. also many flowering plants of the small shrubby kind, as roses, hypericums, &c.

Bark-beds are also employed with great advantage in forcing frames for the purpose of producing early fruit of the apricot, peach and grape kinds. See **FORCING FRAMES**, and **HOT-WALLS**.

Hot-beds constituted of bark, from the slow and regular manner in which the heat is in common evolved, are not so liable, as those of dung, to injure the plants by their steam; they are therefore to be preferred for all the more important purposes of forcing where the material can be obtained.

The heat of them may be perpetuated for a great length of time, by having recourse occasionally to the practice of forking or turning them over, adding in such operations about a third part of new tan or bark. The beds are how-

ever

ever to be wholly, or in a great part, renovated every autumn or spring.

There are different sorts or sizes of bark made use of for the construction of these beds, as coarse, middling, and small. The first kind is the longest in taking on heat, and is apt to heat violently at the beginning, but is of the longest duration. The second sort heats sooner, is more regular, and pretty durable in its effects. But the last kind heats the quickest, yet is the weakest, and soonest becomes earthy, consequently the least proper for the purpose. Where there is a choice of the material, the middle sort, or a mixture of it and the coarse, should constantly be preferred, admitting as little of the small as possible; and care should be taken that it be perfectly fresh from the vat of the tanner. When the bark is wet after being brought home, it is a good practice to throw it up into heaps or ridges for a few days, in order that it may be drained and rendered more dry, as without such precaution the process of fermentation may be too much retarded.

The periods of making beds of this nature must be regulated by circumstances; but where they are intended for pine-apple plants, they should be prepared about the latter end of September or beginning of October, in order that they may afford a good heat during the winter season: but when the raising of plants from seeds, cuttings, &c. or the forcing of culinary vegetables, and fruits or flowers, are the principal objects, the spring may be the most suitable time, as in January or March. For particular uses they may, however, be made at any period.

In forming the beds, the tan or bark, prepared as above, is thrown into the pits that are constructed for it; and where there is old, the new bark well mixed and blended with it, by means of the tan-fork, quite to the bottom; then it is the practice to begin at one end and carry them on to the full breadth and depth, without treading upon them, as that would render the bark too solid for the process of fermentation. It is necessary to raise the surfaces of the beds about three or four inches higher than the tops or copings of the beds or pits, in order to allow for the settling that may take place. In the making of this sort of hot-beds for the purpose of raising pine-apples, the author of the "Scotch Forcing Gardener," in order to avoid the danger of too much bottom heat, never admits of the tan being sifted, or of more than one eighth part of new tan being added, which is introduced by skinning off a portion of the old tan from the surface; by this means the new tan is not suffered to come within a foot of the surface of the bed, and of course the pots are entirely plunged in the old tan. It is his general practice to deposit half of the quantity of new tan that may be added, in the bottom of the trench, and blend the other half equally with the old, till within a foot of the top of the bed. And in trenching over the beds, it is his custom to throw the sides to the middle, and the middle to the sides, in order that the old tan may be incorporated in an equal manner with the new.

It is contended, that in this manner of preparing the beds, they will be "of a mild and equal temperature from the first, and continue much in the same state for three or four months;" and that after the first filling, they will be attended with but little expence for new tan. It is obvious that the filling of the pits of new pinneries, in the above intention, should either be performed some time before the plants are to be introduced, or the tan be well sweated down and reduced by frequent turning over in an open shed or other convenient place; and in these cases it is even advised not to plunge the pots more than half their depths into the beds for the first two or three months after they have been filled.

The new bark or tan that is to be added should constantly be thrown up into heaps for eight or ten days before it is employed, in order that it may drain and sweeten; as when used while wet from the tan-pit, it is apt not only to cake in the beds, but sometimes to heat violently.

It is necessary, as soon as the beds have been made, to thrust sticks into the bark in different parts, in order that they may be drawn up occasionally to ascertain the heat of them.

The beds, in the first method of making them, will in general be of a proper temperature for the reception of plants in about ten days or a fortnight, as the examination of the sticks will shew. If they be intended for pines or other plants that require pots, they must be plunged immediately into the bark, no earth being necessary as in other sorts of hot-beds; and in performing this business, it is of utility to have a board placed across the beds or pits to stand or kneel upon, and thereby prevent the bark from being trodden too close. The pots containing the plants must be placed to suitable depths, according to the differences in the degrees of heat in the beds, in order to be ultimately let down to their rims. When the heat of the beds is shewn by the trying sticks to be on the decline, it will be proper to restore it by stirring up or turning over the bark, which, when of the large or middle sort, will seldom require any increase of new tan.

In accomplishing this business, it may be performed either in the manner directed above, or, after removing the pots, by beginning at one of the ends, and forking up the whole of the bark to the bottom, afterwards breaking the lumps and turning all the bark over, the pots with the plants being directly restored. The same operation is to be repeated as often as the decline of heat may render it necessary, and such additions of fresh bark be made as may be required, but in common, not more than two or three turnings are requisite. The additions of fresh tan should mostly be made about the beginning of March or April, the crumbly earthy parts of the old bark being cleared away.

The making of new beds is mostly performed, as has been seen above, in the autumn, about September or October, as after they have remained ten or twelve months, the bark is much exhausted both in heat and substance, and becomes earthy. This earthy part is to be now separated by means of the screen, and new bark added, the whole being well blended together with the fork. When the whole of the old tan appears earthy, it is the best method to clear the pit out entirely, and make the bed up altogether of new bark. See **HOT-HOUSE**.

BARK-Bound, a disease which has been supposed common to fruit and other trees, and to be capable of being cured by making a slit or opening through the bark, in a longitudinal direction, from the top of the tree or bough to the bottom, about February or March; and if the gaping be pretty considerable, to fill it up with cow-dung, or some other similar composition. This is probably not so frequently a disease as has been believed by gardeners, as the imperfect growth of trees often causes such appearances.

BARK-galling, is when trees are galled by thorns or by being bound to stakes, &c. It is cured by clay laid on the galled place, and bound on with hay ropes.

BARK-Pit, a pit or cavity of a long, square, or other form, a yard or more in depth, appertaining to a hot-house or stove, &c. and being formed internally, or detached externally, in which to make tan or bark hot-beds, commonly called bark-beds. The dimensions are four, five, or six feet in width, or more, having length in proportion to that of the hot-house, &c. and when in detached pits, such as may be required. In

both methods they are formed by a low surrounding brick wall, about a yard in height in the internal pits, and in the external ones three or four feet in front, by four or five in the back wall. These different sorts of pits are indispensably necessary, where bark-beds are intended, to make the beds in, as the short loose nature of the tan will not admit of being formed into compact regular beds, without the aid of such kinds of inclosed pits to confine it close together within the limits that are requisite in the formation of the beds.

For various purposes, bark-pits are necessary in all hot-houses or stoves, and occasionally in forcing houses, &c. And detached bark-pits, distinct from the hot-house, are likewise very useful in all extensive gardens on many occasions, being of great service in the culture of many sorts of tender exotics, and in raising various kinds under different methods of propagation; as well as for raising and nursing those of similar kinds in their young and tender growth; also occasionally for forcing and raising early productions of several sorts of hardy plants in the greatest perfection.

The bark-pit of a hot-house, &c. is an essentially necessary interior compartment, and which, as before observed, is the internal cavity wherein the tan or bark hot-bed is made, extending lengthways, and occupying almost the whole bottom space of the house, except about two feet on each side and ends, which is reserved for an alley or walk round, between the outward wall and that of the pit, which should be but very little sunk below the general surface of the floor of the surrounding walk, and formed by a thin wall of brick-work, generally raised, the greater part, three feet high above the surface, the bottom being paved with brick or stone, &c. and in which the bark-bed being made to the whole width, length, and depth, serves both to plunge the pots of the more tender exotics in, such as the pine-apple, &c. in order that they may receive the kindly moist heat thereof immediately about their roots; and, at the same time, to diffuse a peculiar beneficial warm vapour for heating the internal air, assisted by fire-heat in the flues in winter; but sufficient alone in summer and autumn; producing, from May till October, an effectual temperature of internal heat, for the preservation and growth of various tender exotic plants of the stove kind, natives of different parts of the hot regions of South America, Asia, and Africa. See *BARK-BED*, *HOT-HOUSE*, and *STOVE*.

Hot-houses, or stoves of the common width, have in general only one pit; extending lengthways of them as described above; but if they are of considerable extent in length, the pit is sometimes divided in the middle by an intervening passage, to render it more convenient in performing the necessary culture of the plants.

Some hot-houses, however, of very great width, have two internal bark-pits ranging parallel lengthways with an alley or passage extending between them, which renders them more commodious in giving the requisite culture to the plants that are plunged in the beds, than if the whole was in one extremely wide pit, in which it would often be very inconvenient to come at the plants placed towards the middle of them; so that two parallel pits, four or five feet wide each, become more eligible than one of eight or ten feet, and by having an intervening passage, give a larger scope and afford a better current of air, for the growth of the plants in the beds, as well as admit of viewing them to greater advantage and effect.

Detached or external bark-pits are exterior erections, separate and distinct from the hot-house or stove, but in some manner connected with, or appertaining to them, being, on many occasions, employed for similar uses, as well as for various other purposes, where occasional artificial heat is

wanted. They are, as has been observed, four, five, or six feet wide, having such length as may be required; formed by a surrounding wall of brick-work, three or four feet high in the front, by four, five, or six behind, where sometimes flues for winter fire-heat are erected in the upper part; the whole being covered at top with moveable glass frames, sloping southward to the full sun, and in which, a bark-bed being made to the whole width, length, and depth, becomes an useful appendage to the stove; assisting in the culture of various tender exotics of that repository, especially in the way of a nursery-pit, for raising and preserving them to some advanced state of growth; also occasionally in the propagation and protection of the more tender kinds of green-house plants, or any particular, curious, or tender exotic plant, of the full ground, as being always ready and prepared with a continuing growing heat, wherein to plunge the pots, where artificial heat is required, or essentially necessary in raising such tender plants more effectually and expeditiously.

These kinds of bark-pits also prove exceedingly useful in raising many sorts of tender exotics from seed, suckers, cuttings, slips, &c. and in retaining and forwarding them in their growth for some time. Bark-pits of the same kind are likewise particularly useful and necessary in the culture of young *ananas* or pine-apple plants, in rearing and nursing them till of a proper age and size, to be placed in the succession-house, fruiting-stove, or pinery. See *BROMELIA ANANAS*, and *STOVE*.

A similar kind of detached bark-pit is likewise occasionally used with advantage in the work of planting or transplanting, or shifting tender or curious plants in pots, for plunging the pots which contain them, as soon as re-planted, into, which much expedites their taking fresh root, and brings them up at first into a free and vigorous growth.

Bark-pits, of the same kind, are also successfully employed in the work of forcing and raising early productions, such as melons, kidney-beans, peas, strawberries, &c. and for many sorts of flowers, both of the bulbous, rooted, and herbaceous kinds, as well as for small flowering shrubs. And if the dimensions of them were increased, especially in height, in the back parts they might have several sorts of dwarf-fruit trees in pots for the production of early fruit, placed in them. See *FORCING-FRAME*.

Detached bark-pits should always be erected in warm dry situations, in a southerly aspect, and be constantly ranged lengthways in the direction of east and west, or nearly so, in order to have the whole front incline fully to the south sun, in a sloping manner, on which to place the glasses in the same position, being generally stationed either contiguous to the hot-house or stove, but at a proper distance in front of it, as the situation and convenience of the place may admit. Or they may be erected at one or at both ends, extending in a line with it, but separated by a passage between them.

But detached bark-pits are sometimes formed with ridged tops, like the roofs of houses, the glasses sloping to both sides, being ranged lengthways north and south, in order to have the benefit of the sun equally on both sides, and used for the same purposes as the others; though the common south-fronting pits, extending east and west, are more generally adopted, being less expensive in glass-work, &c. and, in general, more convenient for different purposes of the forcing kind.

They should be constructed, as has been observed, with walls of brick work, forming the upright sides and ends nine inches thick; and where fire-flues are intended, the back wall should be of a proper thickness from the bottom, to admit of having flues in the upper parts, a fire-place being contrived externally at the bottom at one end; or, in considerable

siderably extended pits, a double fire-place may be formed in the middle, behind, or one at each end, either endways or in the back part, as may be thought the most convenient.

Some detached pits are formed of wood-work only, by means of post and planking, serving for particular occasions, where no fire-heat is required, as flues for that purpose cannot be admitted in such kinds of pits; where additional heat is occasionally necessary, in such pits, it is effected by applying a strong lining of hot dung to the outside; by which a good constant heat may be supported. In these bark-pits, sometimes the younger pine-apple plants are deposited and nursed for the first year; they are likewise occasionally used for the purposes of propagating, raising, and nursing tender plants in spring and summer, &c.; also for forcing early esculent crops, flowers, &c.

The principal detached bark-pits should, however, be formed with brick-work walls; as being the most effectual for general use, and of the greatest duration.

At *fig. 1. Plate I. in Gardening*, is the representation of a bed or pit of the most common kind, which may be made use of either with bark or dung.

Fig. 2. exhibits a view of a bark-pit upon a larger scale.

Fig. 3. is the plan and section of two nursing pits, as given by Mr. Nicol in the "Scotch Forcing Gardener," adapted equally to the purpose of striking young pine plants, and the forcing of asparagus, cucumbers, melons, strawberries, French-beans, fallads, flowers, &c. In the plan they appear considerably sunk below the ground level for the convenience of shifting. But in wet situations this should not be the case, but a bank of earth raised against them in a sloping direction all round, as by this contrivance the front flues may be useful in raising early fallads, by having the front borders properly prepared. The furnaces are placed behind, communicating first with the front flues, but returning in the back singly. The surface of the bark-bed is level with the bottom of the flues all round, to prevent the danger of burning; and at the distance of two feet from the wall of the pit. The inner wall of the flue is formed a brick on edge, and the outer one a brick in bed, for the purpose of strength. The divisions of the plan are only each thirty feet in length, but they may be extended to forty, and be wrought by the same furnaces.

One length of ash is sufficient, as they are worked in the manner of the common hot-bed, having fastenings at top to prevent their slipping down.

Fig. 4. is the plan and section of a single pitted pine stove on an improved construction, as furnished by the same author for a fruiting or succession house. It is wrought by two fires, having a shed behind it which may be converted to various uses.

The bottom of the bark-bed is level with the surface of the ground, but the surface much elevated, that the sun and light may be admitted more freely to the plants.

Trellises for vines may be placed against the brick-wall and upright fashes in front.

Two lengths of fashes are here necessary in the roof. The under ones should be made to move either up or down.

Fig. 5. is a bark-pit for succession pine-apple plants.

BARKARY denotes a tan-house, or place to keep bark in, especially for tanners.

It is otherwise called a *beath-house* in old writers.

BARKING of Trees, in *Rural Economy*, the operation of stripping off the bark or rind, which, when taken from some kinds of trees, as the oak, elm, &c. is made use of by the tanners, and of course becomes an article of profit to the proprietor.

It is the most usual in this climate to perform the operation in the month of May, as, at that season, the bark, by the rising of the sap in great quantity, is the most easily separated from the wood. This, however, renders it necessary to fell the trees in that month; by which the timber is of much less value than it would be if they were cut down after the falling of the leaf.

It is remarked by Dr. Darwin, in his "Phytologia," that as the sap-juice rises in all deciduous trees during the vernal months to expand their foliage, though probably in greater quantity in some trees than in others; it must consist, not only of sugar and mucilage, as in the maple and birch, but of various other ingredients in different trees, which have not been attended to; as appears from the taste of their young leaves, as of oak or ash. And as some of these materials reside in the roots and sap-wood, or alburnum, so others of them may perhaps reside in the bark, where they have been deposited during the preceding summer, and become liquefied by the warmth of the spring, or dissolved by the moisture absorbed from the earth and air, and conveyed upwards to the opening buds; whence it is evident, he thinks, that the barks of trees should be taken off for use in winter, or in early spring, before their buds begin to expand; as then a portion of these nutritious juices, or of the other materials which are required for medicines, or in the arts of dyeing and tanning, is in part expended on the young leaves, which generally possess the taste and qualities of the bark, though in a less degree. It may nevertheless be observed, he says, that all these astrigent or other materials may reside in the alburnum of the trunk or roots of all perennial vegetables, as well as in their barks; because the young leaves, which pullulate on decorticated oaks, have the same bitter flavour as the leaves on those which have not been decorticated; which may in part be derived from the bark of the root, which is still in the ground, and be carried up the vessels of the sap-wood to the new buds. Hence the bark of oak-trees should be taken off during the winter; but when the sap juice, residing or ascending in the vessels of the alburnum, becomes more liquefied by the warmth of the spring, or is mixed with moisture, and pushed up with great force by the absorbent vessels of the roots, it oozes out in some degree between the alburnum and the bark; and thus the bark becomes so much more readily separated from the sap-wood; whence this business, as has been already observed, is generally done early in the spring, and should always be performed as soon as this facility of detaching the bark appears; because this process of the germination of the buds continues to injure the bark, whether the tree be cut down or not; as the buds expand their foliage on new felled trees, while they lie on the ground.

It is observed by Mr. Marshall, in his "Rural Economy of Yorkshire," that the peeling of oak timber in that country is generally done by the day, the labourers being, he believes, invariably employed by the timber-merchant, not by the tanner; practices which are, he conceives, productive of a considerable saving of bark. Men, says he, working by the ton or quarter, or tanners paying by weight or measure, will not induce them to peel the boughs sufficiently near; as it is against their interest to do it. But it is the interest of the timber-merchant, or of the tanner, if he purchases by the gross, or by the ton of timber, to peel so far or so long as the bark will pay for the labour. This, he thinks, accounts for the smallness of the twigs which are peeled in that county; if the bark run freely, twigs not much thicker than the finger are frequently stripped of their bark.

The tool commonly made use of for this purpose in most countries,

countries, is made either of bone or iron. If of the former, the thigh or shin-bone of an ass is preferred, which is formed into a two-handed instrument for the stem and larger boughs, with a handle of wood fixed at the end. The edge once given by the grinding-stone, or rasp, keeps itself sharp by the wear that afterwards takes place in the operation.

The method of drying bark in the above county is generally the common one of setting it in a leaning posture against poles lying horizontally on forked stakes. But in a wet season, or when the ground is naturally moist, it is laid across a line of top-wood, formed into a kind of banklet, raising the bark about a foot from the ground. By this practice no part of the bark is suffered to touch the earth, and it is perhaps, upon the whole, the best practice in all seasons and situations. The bark is then put in stacks or houses, and generally shaved or chopped ready for the tan-pit, and afterwards sold to the tanner at so much the quarter. This custom, however, appears to be founded on a false basis; the tanner is the best judge of the mode of preparation, and the operation, ought, therefore, to pass under his immediate inspection.

The practice of grinding bark does not seem to have yet got sufficient footing in the district mentioned above; whenever it does, Mr. Marshall observes, it will of course bring the preparation of it into its proper channel.

The price of chopped bark varies considerably, according to the quality and the circumstances under which it is placed.

Maliciously barking of apple-trees, or other fruit trees, is made felony by 37 Hen. VIII. c. 6.

By the French laws, all dealers are forbid to bark their wood while growing, on the penalty of 500 livres. This law was the result of ignorance; it being now found, that barking of trees, and letting them die, increases the force of timber.

BARKING is also a name given to the cry of dogs and foxes.

The term is also applied to certain quaint noises, made by sick persons in some diseases.

In cynic spasms, and epileptic fits, the patient sometimes snarls, howls, and barks, with all the notes of a dog. But it is in the *hydrophobia* that barking has been oftener observed; persons seized with this, are apt to rave, bite, snarl, and make a harsh noise in their throats, which is called barking.—Vide Phil. Transf. No. 280. No. 323. No. 207. and No. 242.

BARKING, in *Geography*, a market town in the county of Essex, seven miles from London, is so called from a creek on which it is situated. The town is of considerable extent, and chiefly inhabited by fishermen, from whom the fish-markets of London are frequently supplied. The parish is divided into the four wards of Barking, Great Ilford, Chadwell, and Rippleward, abounding with fertile lands and beautiful prospects. It was to this place that William the Conqueror retired, shortly after his coronation, till he had erected such castles in London as might awe the people whom he governed; and here the great barons Edwin and Morcar came and swore fealty. Very lately the remains of an intrenchment were visible at this place; but the plough has nearly obliterated the whole. Much land in the parish has been recovered from the rivers Thames and Roding. The second nursery of the Saxons was founded at Barking by Erkinwald, fourth bishop of London, in 666, for Benedictines; the bishop placing his sister Ethelburga (afterwards canonized) as the first abbess. She was constituted lady paramount in all the manors within the half hundred of Becontice, and held of the king an entire barony, a privilege granted to only three other religious foundations

in England, those of Wilton, Shaftesbury, and Winchester. At the dissolution, the revenues of Barking abbey were estimated at 862l. 12s. 5½d. A gateway and a great part of the wall of this magnificent structure still remain adjoining the church-yard. In the township of Great Ilford is an ancient hospital for lepers. The parish church is a large handsome structure, which formerly belonged to the abbey, but is now in the gift of the warden and fellows of All Souls college, Oxford.

The market is held on Saturday, and a fair on October 22d for horses; another fair is held yearly on and round a famous oak denominated *Fairlop*, concerning which the following summary may be acceptable. Many years since, Mr. John Day, a worthy but whimsical character in Wapping, used annually to dine with his friends on beans and bacon under the shade of this famous oak; hence arose the fair. *Fairlop oak* has sustained its dignity in the forest of Hainault for many centuries, and though it has very materially suffered, still maintains a majestic appearance peculiar to itself. About a yard from the ground, where its rough fluted stem is thirty-six feet in circumference, it divides into eleven vast arms, not in the horizontal manner of the oak, but rather in that of the beech. The fair held beneath its shade, which overspreads an area of 300 feet in circuit, has been injurious to the parent stem, by means of fires which the visitors have occasionally kindled in the cavities formed by the decayed roots of the tree. Mr. Forsyth's composition, however, has in some degree remedied the decay; and a close fence five feet high, with a board on which is painted, "All good foresters are requested not to hurt this old tree, a plaister having been lately applied to his wounds," will, it is hoped, preserve *Fairlop oak* from further destruction.

BARKOW, a town of Poland, in the palatinate of Braclaw; 48 miles W.N.W from Braclaw.

BARKU, a village of Africa, in the country of Agonna, where the Dutch have a fort. See *AGONNA*. *Little Barku* lies about a league and a half from the former.

BARKWAY, a populous and flourishing village of Hertfordshire, in England, is situated in the hundred of Edwinstree, three miles from Royston, 19 from Cambridge, and 34 north from London. This is a considerable thoroughfare in the road to Lynn, and has several good inns. At the time of the conquest, the lands here were divided between four great lords into as many manors.

Barkway was anciently a market town, privileged by Edw. I. to keep a market on Tuesday, and an annual fair for six days. The market was altered in the reign of Elizabeth to Friday, and at last discontinued on account of its proximity to Royston. The church is a handsome spacious building, and the vicarage is in the gift of the Chester family; within the building are several fine monuments and some curious painted glass. This village was greatly damaged by fire in 1748. Its houses amount to 147, and its inhabitants to 699.

BARLAAM, in *Biography*, a learned monk of St. Basil, flourished in the fourteenth century, and was born at Seminara in Calabria. Having in his youth visited Greece for the purpose of learning the Greek language, he settled at Constantinople in 1327, where he obtained by his extensive erudition the favour of the emperor Andronicus the younger, and also that of his confidential domestic John Cantacuzene, in whose house he resided. He was employed in teaching the languages and belles lettres; and in 1331 was made abbot of the monastery of the Holy Ghost. Barlaam is described by Petrarch and Boccace as a man of a diminutive stature, though eminent for his learning and genius of a piercing discernment, though of a slow and painful elocution.

elocation. Having visited the monks of mount Athos, he engaged with them in a controversy concerning the place of the soul and essence of God. These fanatical ascetics, in their mental abstractions, pretended to see the light of mount Thabor, which had been manifested to the disciples in the transfiguration of Christ, on the region of the navel, conceived by them to be the seat of the soul; and this light was adored by them as the pure and perfect essence of God himself. Nor were these simple solitaries inquisitive, how the divine essence could be a *material* substance, or how an *immaterial* substance could be perceived by the eyes of the body. Barlaam ridiculed these monks, and accused them of heresy and blasphemy. His attack induced the more learned of the monks to renounce or dissemble the simple devotion of their brethren; and Gregory Palamas, who took a lead in this dispute on the part of the monks, introduced a scholastic distinction between the essence and operation of God. This distinction, however, did not escape the reproach of polytheism; and Barlaam charged the adherents of Palamas with holding two eternal substances, a visible and an invisible God. The dispute was violent, and Barlaam's life was in danger. However, he secured himself by a timely retreat; and Andronicus, who, with a view of obtaining the aid of the western princes against the Turks, wished to reconcile the Greek church with the see of Rome, sent Barlaam, in 1339, to conduct this negotiation at the court of pope Benedict XII. at Avignon. Here he formed an intimate connection with Petrarch, whom he instructed in the Greek language; and Barlaam is said to have been the first who revived, beyond the Alps, the memory, or at least the writings of Homer. Being compelled, however, to relinquish a fruitless embassy, he returned to Constantinople, and his dispute with the monks of Athos was renewed; and the censure of a council, held in 1341, obliged him to quit the east. After a separation of three years, he renewed his acquaintance with Petrarch in the court of Naples; and by his recommendation Barlaam was finally settled in a small bishopric of his native Calabria at Hieracium, now Gerace, where he died about the year 1348. He deservedly incurred the charge of inconstancy in religion; because, when he was a Greek monk, he wrote against the Latin communion, which he vindicated after having been made a Latin bishop. Having adopted the sentiments and precepts of the stoics, with respect to the obligations of morality and the duties of life, he digested them into a work entitled "*Ethica ex Stoicis*." He also wrote a work on arithmetic, and some letters and orations. Moreri. Gibbon's Hist. vol. xi. p. 388. vol. xii. p. 66. 120. Mosheim's Eccl. Hist. vol. iii. p. 305. 368.

BARLAAMITES, in *Church History*, the followers of the Calabrian monk mentioned in the preceding article. They are the same with those otherwise denominated *Acindynites*.

BARLÆUS, GASPAR, in *Biography*, an eminent Latin poet of the 16th century, was born at Antwerp in 1584, and educated for the ministry at Leyden, where he afterwards settled in the exercise of his profession, and also as sub-principal and professor of logic. But in consequence of having joined the Arminian party, he was deprived of all his employments, and devoted himself to the study of medicine, for which purpose he took a doctor's degree at Caen. In the practice of physic, he made no great progress; but resuming the office of a teacher, delivered lectures in philosophy and the belles lettres to young persons at Leyden. From hence he was invited in 1631 to be professor of philosophy in the public school founded at Amsterdam, where, on account of his attachment to Arminian principles, he was the object of jealousy to the orthodox, by whom he was un-

kindly treated, and unjustly charged with Socinianism. At length he fell into the hypochondriac maladies incident to literary men, and died in 1648. Barlæus was a man of erudition as well as genius; and he principally distinguished himself by his Latin poetry, in which he has been thought to rival the ancients, and at least to be upon a par with Claudian. His "*Poems*," printed at Leyden in 1628 and 1631, contain three books of heroic pieces, two of elegies, and one of miscellanies, consisting of iambics, epigrams, &c. His Latin harangues, on various subjects, were admired. Every great event that occurred called forth his exertions; and he celebrated most of the greatest men of his age. His "*Relation of the Transactions in Brasil under the government of count Maurice*" was published in 1647; and his "*Letters*" were collected after his death, and printed in two volumes. He also published several controversial pieces against the adversaries of Aminius. Gen. Dict.

BARLÆUS, LAMBERT, the brother of the preceding, was born at Bommel in Guelderland in 1595, and became professor of Greek in the university of Leyden. His inaugural oration "*De Græcarum Literarum Præstantia ac Utilitate*" was pronounced in 1641. In 1652, he published the "*Timon of Lucian*," with notes; and after his death, which happened in 1655, his "*Commentary upon the Theogony of Hesiod*" was printed in 1658. Gen. Dict.

BARLAIMONT, or BARLEMONT, in *Geography*, a town of the Netherlands, in the county of Hainaut; 4 leagues south-east of Le Quesnoy.

BARLAND, ADRIAN, in *Biography*, a writer of the sixteenth century, was born about the year 1488 at Barland, a village of Zealand, whence he took his name. Having studied at Ghent and Louvain, he became first a private teacher at the latter place, and afterwards professor of eloquence in the university; in which station he continued till his death in 1642. His works, which were all written in Latin, were numerous. Some of the principal are "*Notes on Terence, Virgil, Menander, and Pliny the younger*;" "*An Abridgment of Universal History, from the birth of Christ to 1532*;" "*On the Doges of Venice*;" "*Chronicle of the Dukes of Brabant*;" "*History of the Counts of Holland*;" "*Life of Charles, Duke of Burgundy*;" "*Catalogue of the chief towns of Lower Germany*;" "*De literatis Urbis Romæ Principibus*." Several of his historical works were published together at Cologne, in 1603, 8vo. Moreri.

BARLENGA, in *Geography*, a small island, is the principal of a cluster in the Atlantic ocean, about 3 leagues from the west coast of Portugal, with a fortress. These islands are called "*Borlings*" by the English seamen, and most of them are merely rocks. N. lat. 39° 20'. W. long. 8° 41'.

BARLERIA, in *Botany*, a genus of plants intermediate between *Ruellia* and *Jussiaea*, named by Plumier in honour of James Barrelier, a Parisian physician and botanist. Lin. g. 785. Schreb. 1051. Plum. 31. Juss. 103. Gært. t. 54. Class. *dynamia angiospermia*. Nat. Ord. *Personata*. *Acanthi*, Juss. Gen. Char. *Cal.* perianth four-parted, permanent; two opposite leaflets larger. *Cor.* monopetalous, funnel-form, quinquefid, subequal, the fifth division deeper than the others. *Stam.* filaments four, filiform, two very short, capillary; anthers oblong, two lower withered. *Pist.* germ ovate; style filiform, the length of the stamens; stigma bifid. *Per.* capsule acute, flat-quadrangular, two-celled, two-valved, gaping elastically at the claws; partition contrary. *Seeds* two, compressed, roundish.

Ess. Gen. Char. *Cal.* four-parted. *Stam.* two far less than the others. *Capf.* quadrangular, bilocular? bivalvular, elastic without the claws. *Seeds* two.

Species, 1. *B. longifolia*. Anchusa. Pluk. Alm. 30. t. 133. f. 4. Morr. 3. f. 11. t. 27. f. 5. "Spines of the whorls sixfold; leaves ensiform, very long, scabrous." The stem is erect, rough, obtusely quadrangular; leaves opposite, lanceolate-sword-shaped, entire, thrice the length of the internodes; flowers in whorls, axillary; three spines on each side of the stem of the length of the whorls. A native of the East Indies. Introduced here by sir J. Banks, in 1781. 2. *B. solanifolia*. Plum. g. 31, 43. f. 2. "Spines axillary; leaves lanceolate, tooth-letted." Stems erect, square, three feet high, with two oblong entire leaves at every joint, above which the flowers stand in whorls, surrounding the stalks, and under each whorl are six sharp spines as long as the calyx; the flowers are blue, and more completely labiated than the other species of the genus. 3. *B. Hystrix*. *hystrix frutex*. Rumph. 7. 22. 13. "Spines axillary, twin, simple; leaves entire, lanceolate-ovate." Stem wand-like, not firm; branches scarcely angular; leaves smooth on both sides; axillary spines twin, simple, sessile, horizontal. A native of the East Indies. 4. *B. Prionitis*. Coletta-Vetula. Rheed. Mal. 9. 77. 41. "Spines axillary, pedate, fourfold; leaves entire, lanceolate-ovate." Stem herbaceous, round, stiff; leaves opposite, running down the petioles, pubescent underneath; between the branch and leaf a spine, with four sharp rays from the centre; calyxes acuminate-spiny. A native of the East Indies. 5. *B. buxifolia*. Caraschulli. Rheed. Mal. 2. 91. 47. "Spines axillary, opposite, solitary; leaves roundish, entire." Stalks shrubby, five or six feet high, with strong spines under the leaves; flowers in whorls towards the upper part of the stalk; seed-vessels short, containing three or four flat seeds. A native of Jamaica and the East Indies. 6. *B. nodiflora*. "Spines axillary, branching; leaves lanceolate, entire, cuspidated; bractes ovate, scarious; tube elongated." Flowers blue, resembling those of *B. buxifolia*, but longer, and expanding during the night; bractes smooth. Observed near Tanjour by Koenig. 7. *B. crisplata*. *Melampyro cognata*, &c. Mor. Hist. 3. 429. f. 11. t. 23. f. 7. "Leaves oblong, entire; two leaflets of the calyx broader, ciliated, and two linear, acute." Stem round; leaves oblong-ovate, sharp at both ends; flowers axillary, sessile; two leaflets of the calyx ovate, acuminate, ferrate-spiny; two alternate, shorter, linear, acute, entire, spreading; corolla blue, with ovate lobes. 8. *B. coccinea*. Plum. g. 31. 43. f. 1. "Unarmed; leaves ovate, tooth-letted, petioled." Stems smooth, four feet high; flowers scarlet, in whorls at the joints, and appearing from July till September. A native of South America. 9. *B. pungens*. "Unarmed; leaves ovate, acute, pungent; bractes ciliated." Found at the Cape of Good Hope by Thunberg. 10. *B. longiflora*. Gært. Fruct. 253. "Unarmed; leaves ovate, silky; bractes cordate, scarious; corollas very long." An undershrub, with opposite silky branches; leaves opposite, entire, on stalks; flowers terminal; bractes two or bivalve, sessile, nearly as large as the leaves, and below these four other bractes disposed cross-wise, linear, spreading, silky, as long as the leaves; capsule pointed at each end, quadrangular; seeds much flattened, covered with waved bundles of oppressed hairs. Found on the mountain of St. Thomas in Malabar by Koenig. 11. *B. procumbens*. Lour. Cochinch. 377. "Unarmed; leaves lanceolate, crenate, hispid; heads terminal." This is a procumbent twisted rough undershrub; leaves opposite, broad-lanceolate; flowers yellow; bractes acuminate, ciliate; segments of the calyx subulate, hairy; capsule oblong, angular, with orbicular seeds. A native of China, near Canton.

Propagation and Culture. All the species of this genus require the protection of a bark-stove. The second, fourth, fifth, and eighth were cultivated by Miller, but the others

have not yet been introduced here. The second is to be propagated by seeds, which will sow themselves in the pots which are near them in the stove, when the plants are once obtained; but where the seeds are received from abroad, they must be sown on a hot-bed on the spring; and when the plants are fit to remove, they must be each planted in a separate pot, plunged into a hot-bed of tanners' bark, where they must constantly remain, and be managed in the same manner as other tender exotics from the same countries; giving them water frequently in summer, and allowing them fresh air every day in warm weather. They flower from June till November. The fourth has flexible perennial stalks, which, if cut off during the summer months and made into lengths of six or eight inches, and planted in pots, plunging them into hot-beds, and duly watered and shaded from the sun, will soon put forth roots, when they may be each planted in a small pot and plunged into the tan-bed in the stove, where they are found to grow better than in the dry stove. This species rarely produces flowers in England. The fifth and eighth sorts will produce seeds which are to be treated in the same manner as the former. See Martyn's Miller's Dict.

BARLETTA, in *Geography*, a sea-port town of Italy, in the kingdom of Naples and country of Bari, on the Adriatic, four miles west of Trani. The inside of this city is magnificently built, though it has from without a ruinous aspect, and is thinly peopled. Frequent changes of masters, bad administration, and decay of commerce, have blasted its prosperity. Its streets are wide and well paved, and its houses large and lofty. The style of building fixes their date at the first emergence of the arts out of the chaos of barbarism; many of the houses still retaining pointed arches, short twisted columns, and other remains of Saracenic taste; while others are decorated with pillars, entablatures, and members characteristic of the ancient Grecian architecture. The city owes its embellishments to the policy of the Aragonian kings, who resided here to secure the allegiance of the Pugliese. In the cathedral, which is remarkable for its antique granite columns, Ferdinand I. was crowned. In the market-place stands a colossal bronze statue, seventeen feet three inches high, representing, as it is supposed, the emperor Heraclius, who began his reign in 1610. The citadel is spacious, and commands the port, consisting of several irregular piers, but without any shelter from the north wind, which sweeps the whole basin. The exports from this place are salt, corn, almonds, and liquorice, which latter grows spontaneously in the swamps. During the hot months the air is accounted unwholesome. Barletta is said to have derived its name from a tower, or drinking-house, situate on the road to Cannæ, having for its sign a barrel, "*barilletta*;" and when the cities of Cannæ and Canosa fell to decay, and the advantages of trade drew people to the coast, a numerous colony gathered round this tower, and in 484, pope Gelasius consecrated a church for the settlers, which became the cathedral of the united sees of Nazareth, Cannæ, and Monteverde. The emperor Frederick added greatly to Barletta, and has been by some called its founder. Others suppose it to have been the Barduli of the Itineraries. In the fifteenth century, Barletta was esteemed one of the four strongest fortresses in Italy; the other three being Fabriano in the Marca, Prato in Tuscany, and Crema in Lombardy. Swinb. Trav. vol. i. p. 275. N. lat. 41° 30'. E. long. 16° 32'.

BARLEY, in *Botany*, a gramineous, frumentaceous herb, whose seeds are of the larger sort, being covered with a husk, growing in a spike, and the grains bearded. See *HORDEUM*.

B A R L E Y.

Pearl BARLEY, and *French BARLEY*, are barley freed from the husk, and rounded by a mill; the distinction between the two being, that the pearl barley is reduced to the size of small shot, all but the very heart of the grain being ground away. In mills appropriate to this purpose, the mill-stone is rough-hewn round its circumference; and instead of an under stone, has below it a wooden case, in which it revolves, and which, on the inside, is lined with a plate of iron pierced like a grater, with holes having their sharp edges turned upwards. The barley is thrown upon the stone, which, as it runs round, draws it in, frees it from the husk, and rounds it; after which, it is put into sieves, and sifted. The first kind of barley-mills is a German invention. In Holland, the first was erected at Saardam, not earlier than the year 1660. This mill, which was at first called the *Pellikaan*, scarcely produced in several years profit sufficient to maintain a family; but in the beginning of the last century, there were at Saardam fifty barley-mills, which brought considerable profit to their proprietors.

BARLEY, in *Agriculture*, a well-known kind of grain from which malt is made. Miller enumerates four different sorts of this useful grain: *spring barley*, *long eared barley*, *sprat-barley*, and *winter barley*.

The *spring barley* has a double row of beards or awns standing erect. This is the sort principally cultivated in the southern and eastern districts of both England and Scotland, and which the farmers distinguish into two different kinds, the *common* and the *rath-ripe* barley; but the two sorts are in reality the same, as the rath-ripe is only an alteration of the common barley, occasioned by being long cultivated upon warm gravelly soils. The seed of this, when sown on cold or strong land, will, the first year, ripen nearly a fortnight earlier than that taken from strong land, and therefore the farmers in the low districts generally purchase their seed barley from the warm or gravelly lands; for when cultivated in the vales two or three years, it becomes full as late in ripening as the common barley of their own produce: on the other hand, the farmers on warm gravelly lands are obliged to procure their seed barley from the strong lands, otherwise their grain would degenerate in bulk or fulness, which by this change is prevented. This sort of barley is easily distinguished as above, and besides the rind is much thinner, and of course it is esteemed better for making malt.

The *long-eared barley* is likewise cultivated in many parts of England, and is a good sort; but some cultivators object to it, because from the ears being long and heavy they think it more apt to lodge. In this sort of barley, the grains are regularly ranged in a double row, lying over each other, like the tiles of a house, or the scales of fish. It has no beards or awns; and its rind is very thin, and therefore it is esteemed for making malt.

The *sprat-barley*, which is sometimes also called *Battledore*, *Fulham*, and *Putney* barley, from great quantities being cultivated in the neighbourhoods of those places, has shorter and broader ears than either of the former sorts; the awns or beards are longer, which tend greatly to preserve it from the birds, and the grains are placed together. It seldom, however, grows so tall as the other kinds; the straw is generally coarser, and therefore not so good as fodder for cattle.

The *winter barley*, which is called also *square barley*, *bear barley*, and *big*, is seldom cultivated in the southern parts of England; but in the northern counties, and in Scotland, it is the sort generally sown, as being much hardier than the others. There are two kinds of this barley, the one with four rows of grains, and the other with six, the latter of

which is commonly distinguished by the name of *barley big*. The grain is large and plump; but the rind and chaff of it being thicker than that of either of the preceding sorts, it is less esteemed for making malt.

Barley, from its being that sort of grain which is considered next in value to wheat, is very generally cultivated. On dry, light, mellow, soils, the thinnest-rinded and largest-bodied barley, which is always esteemed the best in quality, is produced. Even light poor soils, when dry, and from nature and situation warm, yield barley which is superior in quality to that which is commonly reaped from the strongest land when cold or of a moist nature.

In the corrected report of Middlesex it is observed, that the tender nature of this plant, in its infant state, unfits it for cold and compact soils. It thrives best in a soil that is moderately dry and light, as a loamy sand, and is esteemed rather a clean crop. As, for this crop, the soil is generally well tilled late in the spring, it reduces the weeds very much; and from its occupying the ground only four months, they have not time to recover themselves and perfect their seed. This grain may and frequently is, the writer says, sown after every kind of crop, but always succeeds best after turnips, pease, beans, or others of an ameliorating quality.

In the preparation for this grain, the soil should invariably be well pulverized and rendered light, first by a thin ploughing and then by harrowing, which should be followed at as great a distance as the season will admit by a more deep cross ploughing, harrowing, and rolling. The seed should then be ploughed in with a very small furrow, and immediately afterwards clover seed harrowed in with short-tined harrows, which leaves the land as light as possible. The next thing to be done is, with one horse to draw a very light roll over the land, in order to press the mould gently on the seeds. These operations promote a more certain, speedy, and equal vegetation than can be procured by harrowing in the seed. Harrowing in the seed is, however, the more usual method, and is, he thinks, the cause of much grain being lost, and also of the crop being often of two or three growths. Many farmers postpone the last rolling until the first leaves of the seeds are up, but, it is believed, more from the hurry of the season than from choice. This perfect tillage seldom fails to secure a good crop of barley, and a plant of clover.

In the event of land-springs, or excessive rains, it may be advisable not to plough the land flat, but into ridgelets of about eighteen inches wide. These will drain themselves dry in any weather, at least so much so, that two or three dry days will prepare the soil for harrowing previous to the second ploughing; and if the season should still continue favourable, the land on such second ploughing might be laid up in a similar manner till sowing-time; when two or three days more of fine weather would render it fit to be harrowed or scuffled down, and for ploughing in the seed: otherwise a third ploughing may be given, and the seed be harrowed in; which last is considered the better practice, where the soil is not quite so dry as could be wished. Scuffling the land, instead of the second ploughing, would in fine seasons dispatch the work, and be a saving of expence. In the cleanest soil it would be equal to cross ploughing, and in soils not quite free from root-weeds it would be much more useful by bringing them within reach of the harrows. It will perform more than double the quantity of work with the same number of men and horses, and leave the land equally ready for the harrow and roller before sowing the seed.

The author of the Synopsis of Husbandry observes, however,

ever, that it is improper to sow clover among barley on rich land, because the natural fertility of the soil hastens on the vegetation of the grass, which will before harvest have advanced to a considerable height among the corn, and will occasion a longer time to be necessary for drying the swath; and thus, by lying abroad longer than would otherwise have been required, a total destruction of the crop may ensue; but in those lands, where there is not the danger of so luxuriant an increase, clover, trefoil, and other grass-seeds may, he thinks, often be sown among barley; and if a favourable time can be procured for harvesting it, the straw may be greatly improved by the mixture of the clover or other grasses, and become then a valuable fodder in the winter; but barley-straw simply is, he says, the most ordinary cattle-food of any.

Where barley succeeds turnips, the land is sometimes only once ploughed; but the author of modern agriculture says that it is a much better method to plough it twice, first early in the spring, and again before sowing the seed. This last is the practice in Norfolk, where that species of grain is cultivated in a more perfect manner and to a greater extent after turnips, than perhaps in any other district. But when barley is sown after peas, beans, or oats, the land is commonly first ploughed in autumn; and the attentive farmer always takes care on this occasion to plough in such a manner as to expose as great an extent of surface to the influence of the air and frost as possible, and at the same time to form the ridges in such a way as to prevent the field from receiving any damage from excessive rains during winter. The second ploughing is given immediately after the oat-seeding is finished. This ploughing is intended to answer two purposes; in the first place, to loosen the couch-grass and other root-weeds where they abound, so that they may be easily taken out by the harrows, which are immediately afterwards applied; and in the second place, to reduce the soil to a finer tilth, whereby the seed-weeds are encouraged to vegetate, and which the subsequent ploughing and harrowing at seed-time effectually destroy.

This sort of grain is also frequently sown after wheat, when the same mode of culture as just mentioned is adopted. But however common this rotation of cropping may be in some districts, there is no good reason, he says, why it should be recommended to the general notice of farmers. For two white corn crops succeeding each other is undoubtedly an erroneous method, both for profit and improvement. Besides, it mostly happens, that where barley succeeds wheat, the crop is in some measure blighted, many of the stalks becoming white about the month of July; and where there are any grains in the ears, they are shrivelled and never come to maturity, though the soil may be well suited to the production of this sort of grain.

The author of the Survey of Middlesex indeed thinks, from the nature of corn crops, that barley ought not on any account to be sown after either wheat, rye, or oats; a much better practice being to sow it after turnips, potatoes, carrots, tares, &c. and in some cases, after hemp, flax, and rapc. The land should not receive any further manure than what was laid on for the preceding crop, together with the dung and urine deposited by cattle during the time they are eating the green crops off the lands.

The seed season for barley begins, in most of the southern counties, about the first week of March, and terminates in the more northern ones, towards the middle of June. But from the middle of March to the end of April may be reckoned the chief barley seed season, as within these periods by much the greatest proportion of that species of grain is put into the ground.

The writer just mentioned observes, that barley, though usually sown during the months of March, April, and May, has succeeded when put in the first week in June; but it ought to be sown as early as the soil is sufficiently dry and in condition to receive it, and the prior attention which is due to the oat, tare, and other crops will permit. Let it always be kept in mind, says he, that barley will bear late sowing much better than those crops. Both the four and six-rowed kinds of barley are frequently sown in the autumn nearly at the same time with wheat, not only in temperate climates, but also in very cold countries; their hardiness being such as to bear the severity of the winter season even in the mountainous parts of the northern countries. In hot countries they are mostly sown in January, February, and March.

All the other sorts are sown in the spring of the year in a dry time, as has been already seen; when this sort of grain is sown late on strong clayey soils, if the season does not prove very favourable, it is very late in autumn before it is fit to reap or mow, unless it be the early or rath-ripe sort, which is often ripe in nine weeks from the time of sowing.

In the seventh volume of the Annals of Agriculture, Mr. Young gives the following experiments by Mr. Macro, on early and late sowing of barley; on Nov. 16, 1785, he began his experiments by sowing two bushels of barley, which he harrowed in on clover land that had been folded the same as for wheat; the first sowing, therefore, had only one earth. The barley came up about a week sooner than the wheat by the side of it, which was sown the same day, and was exceedingly flourishing till the first sharp frost set in, which damaged the blade, but did not seem to affect the root. As near the middle of December as the weather would permit, he sowed two bushels more, on exactly the same quantity of ground, and some about the middle of every month, till the month of May 1786. This and every sowing after, it had two earths; one cast, or half the seed, was ploughed in, and the other half harrowed in; all the land was folded alike in the month of November. The second sharp frost killed some of this sowing, and a good deal of that sown in November; but they both, with that sown in January, seemed to suffer still more by the sharp cutting winds in the month of March, when there was no snow to cover the blade, and it was injured by the frost. The sowings in February and March lost few, if any of their plants, and, what was somewhat remarkable, were both forward enough to be harvested on the same day with the three preceding sowings. That sown in April was full a fortnight later; and that sown in May, there not being any so late sown in the neighbourhood, was entirely destroyed by vermin.

As he some years before intended trying the same experiment, but was disappointed of knowing the event by the stupidity of his workmen, he determined this time to prevent any mistakes by mixing the different parcels in the barn, to thresh enough of the different sowings in the field to satisfy himself which was the most profitable crop, and accordingly attended the thresher the whole day himself. As it was not at all necessary for the experiment to thresh the whole crop, he took three swaths of each sowing twelve yards in length, on the lowest part of the land, where he thought the soil was the most equal for the purpose of the experiment, which, he should have observed before, were by the side of each other on the same piece of land. He had every parcel dressed and put into a sack by itself as soon as threshed, and the account stood thus:

From

B A R L E Y.

	Pecks.	Qrs. P.	Pints.	to parcels	Combs.	Bushls.	Pecks.	Qrts.
From that sown in November 72 sq. yards.	3				12	2	1	
December	3		1		12	3	1 ¹ / ₂	
January	3	1			13			
February	2	3	2		11	2	2 ¹ / ₂	
March	2	2	2		10	3	3 ¹ / ₂	1
April	2		2		8	3	2 ¹ / ₂	1
May	0	0	0		0	0	0	0

The last fowing, as observed above, was entirely destroyed by the rooks; he believes it had not been fown more than three days before they began to scrape and pick it up, and completely devoured it. It was the same with the very early sowings, but that he expected, and was guarded against. It may however serve he thinks, as a lesson to young farmers, that although early fowing may in most cases be profitable, yet it will not answer in large open fields, where the lands are intermixed, unless neighbours sow at the same time; for, if only one farmer sows early, he must have as many keepers as he has pieces of land. The barley of all the sowings was of the Zealand stock. On the same piece of land on which he tried the above experiments, which was a deep sand, value about six or seven shillings per acre, he tried two others, one about ten years since, with chalk from different pits, some of which was a dry chalk, and others greasy; he carried only one load of each sort, and laid it about the thickness of seventy loads to an acre. Neither of them did the least good, for he could not tell by any of the crops since, without looking at the soil, where they were laid. The other was by deep ploughing, in the autumn of 1785, when he sowed part of the piece with wheat, by going with a second plough after the first for one stretch only, and raising about three or four inches of soil that had never been turned up before; on viewing it about midsummer he could not find where it was by any apparent difference in the crop, nor could he see that the barley sown in January was the best crop. By the same rule, when he began to try the experiment before, that sown in February was the best, and it appeared so on view, he remembers, all the summer.

The quantity of seed barley allowed to the acre varies very much; and depends not only on the quality of the land and the season, but on what was the preceding crop, and also on the condition of the land for receiving the seed. When barley succeeds turnips, the land being then in the best state for the seed, a less quantity is necessary than if it were to be sown after two or three successive white corn crops. The usual allowance to the acre is from three bushels and a half to five; but four bushels and a peck may be considered as the general average, so large a quantity as five bushels being never sown but on lands exhausted and worn out by improper cropping.

Mr. Middleton remarks (in his Survey of Middlesex) that early fowing requires less seed than late; but on a medium soil in proper condition, sown broad-cast, in March three and a half, in April four, and in May four and a half bushels per acre are sufficient. A rich soil makes such a great difference, that it can hardly be sown too thin; even one bushel and a half early sown, has produced as much as could stand; whereas had three or four bushels been sown, the crop would have been lodged, and of a very reduced value.

It is observed by Mr. Donaldson, that if a statement of

the average returns of barley by the acre was confined to England and the south of Scotland, it might be rated at thirty-two bushels; but when Wales and the north of Scotland are included, where, owing to the imperfect modes of culture still practised, the crops are very indifferent, the general average over the whole will not probably exceed twenty-eight bushels the acre. The author of the Agricultural Report of Middlesex states it as varying in England from fifteen to seventy-five bushels per acre. The average produce of the county of Middlesex, he says, is about four quarters of corn and two loads of straw per acre. The straw usually sells at about a guinea a load delivered in, which, with chaff and thin grain, is equal to one shilling and sixpence per bushel on the corn; and as the corn has averaged three shillings, together they produce four shillings and six-pence per bushel, or seven pounds four shillings per acre.

The ultimate destination of barley to be converted into beer and spirits, he says, raises the value of this crop to more money per acre than that of any other grain. For after the farmer has disposed of it, the maltster, brewer, distiller, rectifier, and victualler, successively draw the wages of labour and profit from it before it comes to the consumer. Including a revenue of five millions and one quarter a year, which it nets to government, but which costs the subject between six and seven millions, its entire expence to the consumer at this time is not less than thirty pounds an acre. He understands that porter is brewed in the ratio of 162 gallons from one quarter of malt: and is sold by the retailer after the rate of one shilling and two-pence per gallon, which produces nine pounds nine shillings; deduct the value of the hops, and there remains upwards of a guinea a bushel for the malt, or full thirty pounds an acre. In the article of spirits, he thinks, it must necessarily yield much more. According to Mr. Donaldson, barley is applied to various uses. In Wales, Westmoreland, Cumberland, and in the north, as well as in several parts of the west of Scotland, the bread used by the great body of the inhabitants is made chiefly from barley. Large quantities of the barley cultivated in England are converted into beer, ale, porter, and what is called British spirits, as English gin, English brandy, &c. The remainder, beyond what is necessary for feed, is made into meal, and partly consumed in bread by the inhabitants of the above districts, and partly employed for the purpose of fattening black-cattle, hogs, and poultry. There is a much greater share of the Scotch barley consumed in distillation in proportion to the quantity cultivated, than there is in England. Exclusive of what is used for feed, the Scotch barley is either converted into beer or ale; or made into pot barley, or into meal, for the use of the inhabitants in the more remote and less cultivated parts of the kingdom; or, lastly, into whiskey.

In the Report of Middlesex it is also stated, that much of the most ordinary barley is given to poultry; the rest is sold to the maltsters, except so much as is reserved for feed.

In respect to pearl barley it is observed, that a mill to manufacture it costs about twenty pounds. A ton, or 160 stone, of pearl barley sells for twenty three pounds, which is rather under three shillings a stone, or thirteen shillings and four-pence a bushel. Twenty-three stone and a half of common barley produces five stone and a half of pearl barley by the common method of manufacturing it; but by an addition to the mill, which would only cost two pounds, the barley corn would be split, and then the same quantity would yield nine stone of pearl barley. This is stated on

the authority of evidence before a committee of the London Society of Arts.

With regard to the choice of feed barley, it is necessary to observe that the best grain for sowing is that which is free from blackness at the tail, and is of a pale lively yellow colour, intermixed with a bright whitish cast: and if the rind be a little shrivelled, it is so much the better, as it shows that it has sweated in the mow, and is a sure indication that its coat is thin. The husk of thick-rinded barley being too stiff to shrink, will lie smooth and hollow even when the infide flour has shrunk from it.

The necessity of a change of feed from time to time, by sowing that of the growth of a different soil, as has been observed, is in no instance more evident than in the culture of this grain, which otherwise becomes coarser and coarser every year. But in this, as well as in all other grain, the utmost care should be taken that the feed be full bodied.

It is easy to suppose that barley, like wheat, may be benefited by being steeped before it is sown. For as rain cannot always be depended upon soon after the sowing of spring corn, there is surely an equal reason for extending the practice to these sorts of grain as well as those which are sown in autumn. Liming indeed may hurt barley in some cases, but a little sprinkling of foot bids fair for improving it, at least it may prevent insects from preying upon the feed.

Mr. Middleton indeed remarks, that the feed is never steeped, and yet the farmers are continually complaining of its coming up at different periods, thus producing two crops which do not become ripe at the same time, and are injurious to the sample. Steeping the feed a proper number of hours, which might be ascertained by experiment, seems (he says) to be as well calculated to secure an uniform vegetation and prevent this complaint, as poisoning the feed appears to be to keep it from vermin.

According to Miller, the common method is to sow the barley-feed with a broad-cast at two sowings; the first being harrowed in at once, but the second not until the feed is buried. The common allowance of feed is four bushels to an acre: but (says he) if the farmers could be prevailed upon to alter this practice, they would soon find their account in it; for if a third part of that quantity be sown, there will be a much greater produce, and the corn will be much less liable to lodge, as he has many times experienced; for when corn or any other vegetable stands very close, the stalks are drawn up weak, and thence incapable of resisting the force of the winds, or supporting themselves under heavy rains; but when they are at a proper distance, their stalks will be more than twice the size of the other, and therefore are seldom laid. He says he has frequently observed in fields where there has been a foot-path through their middle, that the corn which has stood thin on each side of the path has stood upright, when all the rest on both sides has been laid flat on the ground; and whoever will give himself the trouble to examine these roots near the path, will find them tiller out, that is, have a greater number of stalks, to more than four times the quantity of the other parts of the field. He has seen experiments made by sowing barley in rows across divers parts of the same field, and the grains sown thin in the rows, so that the roots were three or four inches asunder in the rows, and the rows a foot distant; the intermediate spaces of the same field were at the same time sown broad-cast in the usual way. The success was this: the roots which stood thin in the rows, tillered out from ten or twelve to upwards of thirty stalks on each root; the stalks were stronger, the ears longer, and the grains larger, than any of those sown in the common way; and when those parts of the field where the corn was

sown in the usual way have been lodged, these parts sown thin have supported their upright position against wind and rain, though the rows have been made not only lengthways but across the lands in several positions, so that there could be no alteration in regard to the goodness of the land, or the situation of the corn. Where therefore such experiments have been made, and always attended with equal success, there can be no room to doubt which of the two methods is most eligible, since, if the crops were only supposed to be equal in both, the saving two thirds of the corn sown is a very great advantage, and deserves a national consideration, as such a saving in scarce times might be of very great benefit to the public. This saving of feed-corn (says he) must be understood to regard such as is sown broad-cast; for if it be sown in drills, an eighth part of the feed usually sown will be sufficient for an acre of land, and the produce be greater; for all sorts of corn are naturally inclined to send out several stalks from each root, which they rarely fail to do where the roots are at a proper distance and have room; nor do the stalks grow in this case near so tall, but are much stronger than when they are near together, when they rarely have more than two or three stalks, whereas those roots which have proper room seldom have less than ten or twelve. He has had eighty stalks upon one root of barley, which were strong, produced long ears, and the grain was better filled than any he ever saw grow in the common method of husbandry, and the land on which this grew was not very rich; but he has frequently observed on the sides of hot-beds in the kitchen gardens, where barley straw has been used for covering the beds, that some of the grains left in the ears have dropped out and grown, the roots have produced from thirty to sixty stalks each, and those have been four or five times larger in size than the stalks ever arrive at in the common way. But to this, he knows, it may be objected, that although upon rich ground in a garden these roots of corn may probably have so many stalks, yet in poor land they will not have such produce; therefore, unless a greater quantity of seeds be sown, the crop will not be worth standing; which is (he says) one of the greatest fallacies that can be imagined; for to suppose that poor land can nourish more than twice the number of roots in the same space as rich land, is such an absurdity as one could hardly suppose any person of common understanding guilty of; and yet so it is; for the general practice is to allow a greater quantity of seed to poor land than for richer ground; not considering that where the roots stand so close, they will deprive each other of their nourishment, and consequently starve themselves, as is always the case when the roots stand close, which any person may at first sight observe in any part of the fields where the corn happens to scatter when they are sowing it: or in places where by harrowing the seed is drawn in heaps, those patches will starve, and never grow to a third part of the size as the other parts of the same field; and yet, common as this is, it is little noticed by farmers, otherwise (says he) they surely would not continue their old custom of sowing. He has made many experiments for several years in the poorest land, and has always found that all crops which were sown or planted at a greater distance than usual, have succeeded best upon such land; and he is convinced, if farmers would be prevailed upon to quit their prejudices and make trial of the method of sowing their corn thin, they would soon see the advantage of this husbandry.

The experiments of Mr. Young, however, lead us to a different conclusion. On April 25th, 1791, upon a land of moist loam on a wet marl bottom, worth about sixteen shillings an acre, he marked four beds, each eight feet long

long by three feet broad, and dibbled them with four-rowed barley.

- No. 1, 91 holes, and four seeds in each hole.
- 2, 198 ditto, three seeds in each.
- 3, 198 ditto, one seed in each.
- 4, 198 ditto, two seeds in each.

No hoeing given; but before they ripened a net was suspended over the whole, to guard the barley from the ravages of birds.

On Sept. 9th he reaped them, and clipping off the ears, weighed them.

- No. 1, 28½ ounces.
- 2, 31.
- 3, 20¾.
- 4, 24.

- In No. 1, 13 grains of seed give one ounce produce.
- 2, 19 grains of seed, one ounce produce.
- 3, 9½ ditto, ditto.
- 4, 16½ ditto, ditto.

- In No. 1, 15 grains of seed per square foot.
- 2, 24 ditto, ditto.
- 3, 8 ditto, ditto.
- 4, 16 ditto, ditto.

It seems (says he) remarkable, that comparing No. 1 and 4, the seed are nearly the same, yet the crop is different, and very considerably in favour of the seed being crowded together in clusters, rather than spread much more equally over the ground. This (continues he) is a most singular circumstance; it coincides very much with the modern practice of dibbling wheat, which has been changed gradually from one grain in a hole, to two, three, and even four, and this cluster-sowing has been found to answer best. But upon what principles? and owing to what cause? Theory would seem to tell us, that plants standing single would have regular spaces for the roots to feed in, without struggling with each other for nourishment: but there must be some other circumstance which more than balances this advantage. The farmers say that the plants assist each other: but how? Is it by shelter? is it by an accelerated fermentative motion from additional warmth? Very obscure all this, but highly deserving further repeated and varied experiments. Mere quantity of seed appears to have much effect; No. 2, the most seed, has of all the greatest crop.

It is a common practice in some parts, to scatter the dung of pigeons, poultry, &c. over barley and other grain after they are sown; but if this method be pursued, care should be taken to scatter such dungs on immediately, because then the shoot will easily make its way through; but when laid on later, it is apt to burn up and destroy the blades of the young plants.

It often happens, on the more stiff soils, from unfavourable weather and an extremely dry spring, that it is impossible, by the common method, to break the clods and prepare the ground sufficiently for sowing barley; in which case it has been the usual method to break the clods with a large beetle, called from its use a *clotting-beetle*: but this being a very expensive and tedious method of preparing land, induced the ingenious Mr. Randall of York to construct an instrument, which he calls a *spiky roller*, by the assistance of which a large quantity of land may, in such a dry season, be soon reduced to an exceeding fine tilth, with very little trouble. See SPIKE ROLLER.

After the barley is sown and harrowed in, the ground should be rolled after the first shower of rain, to break the clods and lay the earth smooth, which will render it easier to mow the crop, and also cause the earth to lie closer to the

roots of the corn, which may be of great service to it in dry weather: and also when the barley has been up three weeks or a month, it may be a good method sometimes to roll it over with a weighty roller, which will again press the earth close to the roots of the corn, and thereby prevent the sun and air from penetrating the ground in dry seasons; and this rolling of it before it stalks, may likewise cause it to tiller out into a greater number of stalks; so that if the plants should be thin, it may cause them to spread so as to fill the ground, and likewise strengthen the stems.

If the corn should grow too rank, as is sometimes the case in a wet spring, mowing is then much better than feeding it, because the scythe takes off only the rank tops, but the sheep feed upon all indifferently; nor should they even in any case be left upon it too long, because, being particularly fond of the sweet end of the stalk next the root, they bite so closely as to injure the future growth of the plant.

Barley is ripe when the *red roan*, as the farmers term it (a reddish colour on the ear), is gone off, or when the ears droop and fall as it were double against the straw, and the stalks have lost their verdure. If it be full of weeds, it must lie in the swath till they are dry. It is not apt to shed, but in wet weather it will be apt to sprout or grow musty; and, therefore, every fair day after rain it should be shook up and turned; and when it is tolerably dry, let it be made up into shocks: but be careful never to house it till thoroughly dry, lest it mow-burn, which will make it malt worse than if it had spired in the field.

BARLEY, *Causlic Indian*. See VERBASCUM *Sevadilla*.

BARLEY Water (*Decoctum Hordei P. Lond. & Ed.*) It is of some consequence that the preparations which generally fall under the care of the nurse, should be made with as much attention as those of the apothecary. Barley water, either by itself or with a variety of additions, forms an agreeable and valuable drink for the sick room. When prepared in the following manner, it is smooth, uniform, and palatable. Take of pearl-barley two ounces, water five pounds: first wash the barley from the mealy matter that adheres to it, with some cold water; then boil it a little with about half a pound of water to extract this colouring matter; throw this away, and put the barley thus purified into five pounds of boiling water, which is to be boiled down to one half, and strained.

Barley Water Compound. (*Decoctum Hordei Compositum P. Lond.*) Take of the preceding barley water two pints; sliced figs two ounces; liquorice root, sliced and bruised, half an ounce; raisins, stoned, two ounces; water one pint; boil to two pints, and strain. This decoction is more tasteful than the former, and is very palatable; it forms a good demulcent liquor in sore throats of every kind, and is very considerably nourishing. It is apt, however, to cloy the stomach if taken in large quantity; lemon juice, or any other acid, may be added to it with advantage.

BARLEY-bird, in *Ornithology*, a name given in Suffex to the *Siskin*.

BARLEY-corn is used to denote a long measure, containing in length the third part of an inch, and in breadth the eighth.

The French carpenters also use barley-corn, *grain d'orge*, as equivalent to the line or the twelfth part of an inch.

BARLEY-corn, *grain d'orge*, is also used, in *Building*, for a little cavity between the mouldings of joiners' work, serving to separate or keep them asunder; thus called because made with a kind of plane of the same name.

BARLEY-sugar. See SUGAR.

BARLEY-cove, in *Geography*, a creek on the south-west coast.

coast of Ireland, between Mizen-head, the *Notium* of Ptolemy, and Browhead in the county of Cork. N. lat. $51^{\circ} 24'$. W. long. $9^{\circ} 40'$.

BARLOWE, WILLIAM, in *Biography*, was a descendant of the ancient family of the Barlowes in Wales, and born in the county of Essex. He was at first a monk in the Augustine monastery of St. Osith in Essex; and having commenced his education in this place he finished it at Oxford, where he obtained the degree of doctor in divinity. He afterwards became prior of the canons of his order at Bisham in Berkshire, and at the dissolution of the monasteries he resigned his house, and prevailed on many abbots and priors to follow his example. In 1535 he was appointed bishop of St. Asaph, and in 1536 translated to St. David's, where he formed the unsuccessful project of removing the episcopal see to Caermarthen, as being situated more in the centre of the diocese. He was a favourite of king Henry VIII., and was employed by him in the matter of his divorce; and he was also much esteemed by lady Ann Boleyn. In 1547, he was translated to Bath and Wells; but as he was attached to the protestant religion, he was deprived of his bishopric in 1553, upon queen Mary's accession, on pretence of his being married, and committed to the Fleet prison. Having made his escape from confinement, he retired with many others to Germany; where he remained in a poor and distressed condition till the happy inauguration of queen Elizabeth. On this occasion he returned to his native country, and in 1559 was promoted to the see of Chichester, where he died in 1568. He was reckoned a learned prelate; but appears, notwithstanding his profession of the protestant religion, not to have possessed the spirit of a martyr. Besides other pieces which he wrote, he was concerned in the compilation of the treatise entitled "The Godly and Pious Institution of a Christian Man," commonly called the "Bishop's Book," printed at London in 1537; and in the reign of Edward VI. he is said to have translated into English the "Apocrypha" as far as the book of Wisdom. He had five daughters, all of whom were married to bishops. *Biog. Brit.*

BARLOWE, WILLIAM, son of the former, was born in Pembrokehire, and in 1560 entered at Baliol college. He afterwards travelled, and became skilful in navigation. On his return he took orders in 1573, and obtained several preferments in the church, the last of which was that of the archdeaconry of Salisbury, to which he was promoted in 1614. He died at Easton near Winchester in 1625. In his acquaintance with the nature and properties of the loadstone, he seems to have preceded Dr. William Gilbert, and wrote upon this subject twenty years before Gilbert's book was published. He was the first that made the inclinatory instrument transparent, and to be used hanging with a glass on both sides and a ring at the top; and he also contrived to hang it in a compals box, and to adapt it for use at sea. He was also the first person that discovered the difference between iron and steel, and their respective tempers, for magnetical purposes. He also shewed the right method of touching magnetical needles, and shewed how to piece and cement loadstones. Moreover he explained the reason why a loadstone being double capped, takes up so great a weight. On these subjects he wrote the following books, viz. "The Navigator's Supply, &c." 4to. Lond. 1597; "Magnetical Advertisements, &c." 4to. Lond. 1616; and "An Answer to Dr. Ridley's Animadversions on this work." *Biog. Brit.*

BARLOW, THOMAS, a learned English bishop of the 17th century, was born at Langhill in the parish of Orton in Westmoreland in 1607, and educated at Queen's

college in Oxford. In 1635, he was appointed reader of metaphysics in the university, and his lectures were published. On the surrender of Oxford to the parliament in 1646, he retained his fellowship, and in 1652 was appointed keeper of the Bodleian library. In 1657, he was chosen provost of his college. Upon the restoration he contrived to be chosen one of the commissioners for restoring the members that had been wrongfully ejected in 1648, and in 1660 was created doctor of divinity and Margaret professor in that department. In this year he wrote "The Case of a Toleration in Matters of Religion," which he extended farther than any divines of that age. As he was distinguished for his skill in the civil and canon law, he was often applied to as a casuist; and in 1671, he wrote Mr. "Cottington's Case of Divorce." In 1675, he was promoted, notwithstanding the opposition of archbishop Sheldon, to the bishopric of Lincoln; and after his advancement wrote several pieces particularly against popery, which served to sound the alarm with respect to the danger of a popish successor. However on the accession of James II., he was one of the most forward in procuring thanks to the king for his declaration in favour of liberty of conscience, and he vindicated the regal power of dispensing with penal laws; which conduct some have censured as manifesting an unwarrantable accommodation to the times, and others have ascribed to his love of toleration. With the revolution he adopted its principles, and avowed his allegiance to the successors of James. As to his sentiments, he was in theology a rigid Calvinist: and in philosophy a strict Aristotelian, and an enemy to the new mode of experiment encouraged by the Royal Society. As a bishop he neglected his duties in his cathedral and diocese, and resided constantly at his manor seat at Bugden; nevertheless his tolerating spirit and opposition to popery seem to have produced in the author of the "Confessional" a singular predilection in his favour. He died at Bugden in 1691, in the 85th year of his age; and he was eminently distinguished by his learning and liberality. The works of this bishop, printed after his death, were a volume of "Cases of Conscience," re-vised by him, 8vo. 1692; and his "Genuine Remains," 8vo. 1639. *Biog. Brit.*

BARLOW, FRANCIS, a painter of birds, beasts, and fish, was born in Lincolnshire, and excelled in drawing every species of animals with great correctness; but his knowledge of colouring was very imperfect. This artist died in 1702. *Pilkington.*

BARM, otherwise called yeast; the head or workings producing by the fermentation of ale or beer. It is the froth that forms on the surface of beer or wine of grains during their fermentation; which, mixing with dough, raises it more quickly and better than leaven, and makes the lightest bread. See LEAVEN, and YEAST.

BARMACH, in *Geography*, a lofty mountain of Persia, in the province of Schirvan near the Caspian sea.

BARMANCOTTY, a town of Asia, in the country of Thibet, five miles south of Sirinagur, and thirteen north of Deuprag.

BARMEA *Haven*, is a large bay, situated about four miles S.W. by W. from cape Machicaco, two leagues N.E. by N. from Placentia, and four from Bilbao.

BARMEN, a town of Germany, in the circle of Westphalia and duchy of Berg, situate in a fertile valley to which it gives name, five miles north of Launep.

BAR-MINE denotes such mine or ore as is adjudged at a court of barghmote.

BARMOUTH, in *Geography*, is a small watering place in the parish of Llanaber, Merionethshire, North Wales. The

houses

houses are singularly placed at the bottom and on the side of a steep hill which overlooks a narrow winding valley to the south, and the bay with St. George's channel on the west. The situation of the houses affords matter of astonishment to most travellers; some being placed on the sands close to the beach, and others at such varied heights on the rocks, that in some of the winding paths a person may look into the door of one house on his right hand, and down the chimney of another on his left. This place is at the mouth of the river Mawddach, which at high tide forms a bay of about one mile over; but the entrance is rather unsafe on account of the sand banks. The Welsh call it *Aber-maw*, i. e. the mouth or confluence of the river Maw. Barmouth is much frequented as a convenient bathing place during the summer by many genteel families. Here are a few bathing machines for the use of ladies, but the gentlemen commonly bathe from the coast. This place is the port of Merionethshire, and great quantities of flannels and hose are annually exported hence. Mr. Pennant states that forty thousand pounds' worth of the former and ten thousand pounds' worth of the latter have been shipped from this port in one year. About one hundred vessels belong to this place, some of which sail up the river nearly to Dolgelly.

Not far from Barmouth, the river Mawddach divides into two arms, and forms a small island called *Ynys y Brawd*, or the friar's island. The number of houses in this parish is 317, and its inhabitants amount to 1463. Bingley's Tour round North Wales.

BARN, in *Rural Economy*, a covered building constructed for the purpose of laying up and preserving all sorts of grain, hay, straw, &c. Arable as well as hay farms should in general be provided with barns proportioned to the quantity of grain or hay they produce; though since the practice of stacking hay and grain and of threshing by mills has become more general, there seems to be much less need of large barns.

Buildings of this sort should have a dry, rather elevated situation; and be placed on the north or north-east side of the farm yard, but not by any means contiguous to the house or such offices as are connected with it.

Barns may either be constructed on wooden frames and covered on the outsides with weather boarding, or built of brick or stone, which ever the country affords in the greatest plenty; but in either case, there should be such vent-holes or openings in their sides or walls as may be sufficient to afford free admission to the air, in order to prevent the mouldiness that would otherwise from the least damp lodge in the grain. The gable ends of such buildings are probably always best formed of brick or stone, on account of their greater solidity; the whole may be roofed with either thatch or tiles as can be most conveniently procured. They should have two large folding doors facing each other, one on each side of the building, for the convenience of carrying in or out a cart or waggon load of corn in sheaves or any other sort of bulky produce: and these doors should be of the same breadth with the threshing floor, to afford the more light and air; the former for the threshers, and the latter for the purpose of winnowing the grain. Over the threshing floor, and a little above the reach of the flail, poles are often laid across from one beam to another, to form a kind of upper floor, upon which the thresher may throw the straw or chaff, to make an immediate clearing till he has time to stow it properly elsewhere; and on the outside over the great doors, it is sometimes convenient to have a large pent house, made to project sufficiently to cover a load of corn or hay, in case a sudden storm should come on before it can be

housed, and also to shelter the poultry in the farm yard from too great heat or bad weather of any kind.

It was formerly much the custom in countries that abounded in corn to have separate barns for wheat, for spring-corn, such as barley and oats, and for peas, tares, clover, sainfoins, &c. but where the grain, hay, and other similar produce can be stacked, the heavy expence of so many buildings of this kind may be avoided, and at the same time the different articles be preserved with equal safety and convenience. In the corn barns it was formerly also much the custom to have bays or large separate chambers formed in their sides or ends for the purpose of containing the grain when threshed out, straw, and other articles; but these at present are not so much in use. The hay barns should constantly be constructed of wood and not made too close. They are sometimes formed in such a manner as to be capable of being moved to different places by having low wheels or rollers fixed on the bottom frame. In grazing farms that do not afford a supply of straw for thatching the stacks with, moveable roofs erected on strong upright posts of wood, or what are sometimes termed Dutch barns may be useful; as they may be raised or lowered at pleasure by screws or levers so as to accommodate themselves to the quantity of hay, either in proportion to the crop or its consumptions; while at the same time they are cheaper, more airy, and less troublesome in case of heating, than close barns.

It is observed in the sixteenth volume of the *Annals of Agriculture*, in speaking of the construction of barns, that the underpinning should be of brick or stone, two feet high above ground, and the sides boarded; the roof of the barn is best covered with reed or straw, and those of the stables on its sides with slate or glazed tile; because they must be more flat, and the water which runs from the roof of the barn would injure most other coverings. At each end of the barn, and over the back door, small doors four feet square should be fixed at the height of twelve feet from the ground; the two former for putting corn in at the ends, and the latter for filling the middle of the barn after the bays are full. All the bays should have a floor of clay or marle, and the threshing floor be made with hard bricks, which will be sufficient for all sorts of grain except wheat and rye; and for threshing them it will be good economy to have planks of oak or red deal well fitted together and numbered, to be laid down occasionally and confined by a frame at their ends. A barn built on such a plan would hold a great deal of corn and be filled most conveniently; and if the stacks of corn were built at each end, they might be taken in without any carting. If more buildings are requisite, two may be added on the back side like the stables in front; otherwise if doors are made under the eaves on the back side, as directed at the ends, and stacks be placed opposite to them just far enough to avoid the eaves dropping, by placing a waggon between them and the barn by way of a stage, these stacks may be taken in without carting; which method spares a great waste of corn and much trouble. The spars of the roofs of the stables rest upon the upper cills of the sides of the barn, and the outside wall of the stables is eight feet high; the barn supplying the highest side and one end of each stable, and the stables in return are buttresses to the barn and strengthen it greatly.

It is remarked by the author of the *Agricultural Survey* of the county of Somerset, that the practice lately introduced of placing barns on a declivity cannot be too much recommended; as a warm commodious range of stalls for cattle, covered by the same roof, is by that means obtained.

Besides,

Besides, the barn-floor, by being thus elevated, is rendered more durable, and less subject to vermin; the grain is kept more dry and sweet than on a ground floor, and cannot slip through it without discovery. The plan is indeed, in his opinion, almost unexceptionable. Barns, when built in this way, should have a southern aspect, the arches of the cattle-stalls facing that way. Mr. Marshall, in the "Rural Economy of Yorkshire," also speaks highly of the advantages of barns formed in this manner.

In respect to the size of barns, the same writer has observed, that in Gloucestershire fifty-two by twenty feet in the clear, and from sixteen to twenty feet in height to the plate, is considered a good barn: these dimensions admitting of four bays of ten feet each, with a floor in the middle.

The advantage of having buildings of this sort conveniently situated, is extremely great both in regard to the feeding of cattle, sheep, and hogs, and likewise in the economy of labour, and the preventing of waste in different kinds of fodder.

The invention of threshing machines has, in some measure, varied the construction of barns, as where they are made use of they should be contrived chiefly with a view to the distribution of the straw; the machines being built in the centre, with the grain stacks adjoining them, in such a manner as that they may be supplied without the assistance of carts or horses. The barns in these cases need not be so large, but they should have granaries provided in them, which may probably be most conveniently placed over the floors. In most old barns, threshing machines may be erected without much inconvenience or trouble.

But, notwithstanding the superiority of stacking grain in the open air has been fully shewn by different writers, and of course the necessity of large barns in a great measure obviated, there are still many agriculturists attached to the method of housing corn in the straw; it may therefore be proper to give a few plans and descriptions of such as appear to be the best calculated for that purpose.

At *fig. 1. Plate I. of Agriculture*, are given the elevation and ground plan of a small common barn used in most parts of the kingdom for the smaller kinds of farms. The threshing-floor is in the middle; on one side of which a cross wall is sometimes raised to the height of about three feet, in order to keep the threshed corn from being mixed with that which is unthreshed: *e* is a place for containing the threshed grain till it be cleaned, or a large quantity be accumulated for that purpose. It is about three feet in height, being covered over with boards, and only open on the side next the threshing-floor of the barn.

At *fig. 2*, the elevation and ground plan of a double barn with two threshing floors are seen. In this sort of barn a wall is sometimes raised across in the middle. These barns are often built of large dimensions, but possess few conveniences, except for piling up the grain while in the straw.

At *fig. 3*, the elevation and ground plan of an improved barn are given, in the middle of which is the threshing floor, and on one side near the end a place for depositing the threshed corn, with stairs up to a small granary, below which is a place for putting potatoes, &c.; and on the other a division that may be made use of for different purposes, such as the rearing of calves, preserving implements, &c.

And at *fig. 4*, the elevation and ground plan of an open improved barn are shewn, the threshing floor of which is placed towards one end. And on each side of it below are divisions for a great variety of different purposes; the corn being kept above in the straw till threshed out. In this

barn much expence is saved in masonry by the great number and largeness of the openings in the upper part, and at the same time the air is admitted more freely.

Fig. 5, is the representation of a Dutch moveable barn which has many conveniences, and at the same time is capable of being made to cover the parts of such hay stacks as are cutting. It moves on six wheels each two feet in diameter, and costs, when complete, about sixty pounds.

Some degree of art, which must be the result of practice, is necessary in placing and piling up the sheaves in barns; and it may not be useless to observe, that it is always necessary to press them as close to the walls of the barn as possible, so as not to afford the least room for rats or other vermin to creep in between them, for if they once get admittance, they will soon penetrate farther, lodge themselves in the mow, and do prodigious damage to the grain. Where this misfortune happens, the only remedy is to take down the mow, destroy the vermin, and pile it up anew in a more careful manner.

As the introduction of threshing machines has made considerable alteration in the construction of barns, it may not be improper to give a few plans or representations by which the manner of their attachment to them may be rendered more clear and comprehensible. These machines may be wrought by different powers, as water, wind, or animals; but the first, when it can be obtained, is by much the best and most regular.

At *fig. 1. Plate II. of Agriculture*, are given a front and end elevation, with the plan, of a small barn adapted for a two-horse threshing machine. The barn is only fifty feet in length within the walls, and sixteen in width. The walls are ten feet in height, which admits of a granary or room thirty feet long above the machine, as is shewn by the dotted line in the elevation, which denotes the extent of the granary as well as the height of the floor from the ground. The floor is not continued the whole length, in order that there may be more room left in the other end for containing the unthreshed grain, which is introduced at *a*, *figs. 2* and *3*. At *b*, *fig. 2*, is seen the space occupied by the machine within the barn, which is only ten feet by seven, including the distance from the wall; *c*, *d*, *figs. 2* and *3*, shew the horse beam or lever; which is twenty four feet in length, and which gives motion by a laying shaft through the wall, to the machine within. In this there is no shed or cover over the horse path and parts on the outside of the barn, as is usual, except *g*, *b*, *fig. 2*, which is closely boarded to protect the wheels of the first movement from the effects of weather, a part of one side being fixed with hinges for the purpose of opening to apply grease. The expence of a machine on this plan will be from thirty to forty pounds, according to the strength and manner of its being put together.

And at *fig. 4*, are seen the front and end elevations, with the plan, of a barn and horse threshing machine upon a much larger scale, being intended for three or four horses or other sorts of cattle; and designed to winnow or clear the grain at the same time that it is threshed out. It may likewise be so contrived as to hoist it up to the granary above, to split beans, cut straw, and perform several other operations, such as churning, pumping, grinding, &c. Such a barn and machine will suit a farm of almost any extent. The shed over the horse-path and first movements is mostly made with a conical roof merely for the purpose of covering them; but as the expence is considerable, it is here made to answer other uses. It is square, as shewn at *fig. 5*, by *a*, *b*, *c*, *d*; the dotted circle is the horse-path, in the corner of which stands the upright axle *e*, *fig. 6*. Above this, by raising the pillars to a proper height, may be obtained a convenient place

place either for putting corn in the straw till threshed out, or for keeping straw or hay, or as a granary. But in either case the floor must be so constructed as to support the weight upon it without sinking in the middle. A communication with the barn may be made near the threshing machine at *f*, *fig. 5*, which will afford an easy access to the machine in case grain be deposited there to be threshed. In this barn, the machine is erected on a floor raised seven or eight feet above the ground-floor, in order that there may be sufficient room for the fanner or winnowing machine below. This floor may be extended the whole breadth of the barn and fifteen feet or more towards *i*, from the back part of the machine at *f*, by which, and being properly partitioned below, a very necessary and useful division *f g h i*, will be obtained for containing the grain till hoisted up to the granary. The doors of this place may be locked by the farmer, if thought necessary, during the time of threshing. The space *k* will contain the chaff blown by the fanners. There is a door through at *g* to render the communication more easy and expeditious from the part *i*, where the unthreshed grain is deposited; as it may be proper to look often below while the machine is at work: there might likewise be a door in the partition at *h*; but this is not so very necessary, as the farmer can easily see what his servants are about at *m*, where the straw goes, by standing on the threshing floor, to which there should be steps up at *n*. This machine may also be so constructed as to rake away the straw, and throw it down to *m*; which saves the labour of a person in raking from the machine.

The expence of a machine on this plan, when made to clean the grain and rake away the straw only, will amount to about fifty pounds exclusive of flooring, &c.; and when made so as to hoist up the grain, split pease or beans, and cut straw, from six to ten pounds in addition for each.

Other more powerful machines of this kind will be described under the article *THRESHING Machine*.

BARN Floor, in *Rural Economy*, the space or floor on which the grain is threshed out by the flail. It is for the most part made in the middle of the barn, and should be so formed as to be perfectly close, firm, and strong. It is sometimes termed threshing-floor. In constructing these floors, various sorts of materials are employed; such as compositions of earthy kinds, stones, bricks, and wood. The last, when properly laid and put together, is probably the best and most secure from such causes as are liable to injure grain. The floors of barns, when made of wood, are sometimes so contrived as to be moveable at pleasure, which is a great convenience in many cases. Barn floors are made of different dimensions, but from twelve to fourteen by eighteen or twenty feet may be considered as good sizes.

As the floor or threshing-place, is the principal part of every barn, the greatest care ought to be taken in making it. In order to this, in some places the surface of the intended threshing-place is dug away to the depth of about six inches; and the earth thus taken out, when of a proper kind, after being well cleared of stones, is mixed with the strongest clay that can be procured, and with the dung of cattle. This mixture is then worked together with water till it is of the consistence of stiff mortar, and the compost thus made is spread as smooth and even as possible with a trowel upon the spot from whence the earth was taken. As it cracks in drying, it must frequently be beaten down with great force, or rolled with a heavy roller, until all the crevices are filled up; and this must be continued till it is quite solid, hard, and firm. Earthen floors are not however to be recommended, except where the materials are ex-

tremely good, and the method of forming them well understood, which is but seldom the case.

The best barn floor, both for threshing upon, and for keeping corn, is that which is the driest, smoothest, most completely solid, and consequently the most free from cracks and holes in which insects and vermin may shelter themselves and breed. The ancients were remarkably careful in this last respect, as is evident from the writings of Cato, Varro, and Columella. The last of these relates particularly the great pains they took, first to dig up the ground to some depth, in order to moisten it with fresh lees of oil, but not with any that had saline matters in them; then to mix it thoroughly with chaff, and ram it down as close as possible; afterwards, as it dried, to stop all the cracks and crevices that appeared; to continue beating it down with great force to render it quite level; and, lastly, to strew it again with chaff, which they trod in, and then left it to be completely dried by the sun. All of them agree, that the lees of oil thus used prevent the growth of weeds in the floors, and contribute to preserve the corn from being plundered by the mice and ants. In this they were, however, probably mistaken. Their barns were always seated high, and as dry as possible. A floor made in the above manner, though not good, was probably preferable to either stone or the earthen floors formerly common in many parts of this country, from which such dampness has been communicated to the corn, as has rendered wheat, for example, sixpence or a shilling a bushel worse either for keeping or exportation. Bricks, when hard and well laid, may form a tolerable floor for many purposes; but, from their attracting moisture, are not by any means to be recommended where grain is to remain much upon them. And most sorts of stone are liable to the same objection.

Wood is by much the best for this use. Boarded threshing floors, made of sound, thick, well-seasoned planks of oak, are excellent for threshing upon, will last a long time, and may be converted into good floorings for rooms, by planing them down after they are become too uneven for the purpose originally intended.

There are various ways of laying and constructing barn-floors, when made of wood. The most common method is that of nailing the planks, after their edges have been shot true and well joined, down to wooden sleepers firmly placed on the ground. But in the midland counties another method is followed, which, Mr. Marshall says, is that of first having the floors laid with bricks, and then covering them over with the planks, without any other confinement than that of their being doweled together, or ploughed and tongued and their ends let into sills or walls placed in the usual manner on each side of the floors. The advantages of this method of making the floors are, that when the brick work is well executed and made perfectly level, vermin cannot be concealed underneath them, nor damp air be communicated; besides, floors formed in this way are found to wear better than those laid simply upon sleepers. The planks employed in this way should, however, always be well seasoned. It is evident, notwithstanding, that where barn floors can be made hollow, they must be much better for the purpose of threshing upon than such as are either placed on brick work or the ground, from their greater elasticity; the grain is of course threshed out with more ease and certainty. But in whatever manner these floors are constructed, they become expensive, and do not last any great length of time. Such as are laid on the common ground, upon three sills, with two-inch oak planks, will in general cost from eighteen to twenty pounds, and only last fifteen or twenty years; and such as are made hollow, and placed wholly on brick work,

or only on brick quoins, with two-inch and half oak planks, are still considerably higher, being often from twenty-five to thirty-five pounds or more, and not much more durable. Beech floors, which were lately introduced instead of oak, have been found not to last more than seven or eight years; consequently to be by no means advantageous.

In order therefore to obviate the continued heavy expences of these floors, as well as the great consumption of timber in the construction of them, and also to guard against the great waste of grain in threshing upon them after they begin to decay, another kind of barn floor has been invented by Mr. Upton of Petworth in Suffex, which has been found on trial to prevent these inconveniences in a great measure, and at the same time to afford other great advantages, such as those of being more easily drawn upon by loaded waggons or carts; providing, when down, comfortable shelter for hogs; and, when turned up, being capable of being employed as a stable, ox-stall, hovel, or cart-house. This is the *moveable barn floor*, which, it is said, can be placed or displaced in a few minutes by two persons.

This new-constructed hollow floor, is composed of oak planks five feet eight inches in length, and one inch and an half in thickness, and costs from twenty-three to twenty-four pounds. By these dimensions being considerably less than those used in common barn floors, much advantage is gained in respect to timber; besides, planks of deal, beech, or elm, may be made use of, as they will not be liable to decay from there being little or no dampness, and in this way the expence be lessened; and when timber from the estate is employed, it may be still further diminished, as these floors may be composed of stuff of small scantlings, which may be had from short timbers of but little value in comparison to those made use of in other kinds of barn floors. It is supposed that floors constructed in this method will last an hundred years, or as long as the barns; as they are perfectly free from damp, from their being so much raised from the ground when down; also from their being moveable; when there are more barns than one in the same yard, they may be conveyed from one to another, and by that means save the expence of having different floors.

At *fig. 7. Plate II. of Agriculture*, may be seen the representation of a barn floor of this kind; one part of which affords a view of the floor as laid down for threshing upon, and the other part is raised up, with racks for feeding cattle, &c.: *a* rack boards, *b* slip boards for admitting air, *c* wooden floor fills for the slip boards *b* to rest upon, *d* moveable floors, to one part of which are wooden legs serving to support it when it is necessary to put the displaced timbers into the recesses *e*; *e* a recess for receiving the threshed grain before it is winnowed or for containing the moveable timbers; *f* an iron hook to lift the floor up with when not used for threshing upon; there are two of these hooks employed in the barn; *g* the moveable timbers that support the floor, having grooves along their surfaces to prevent the loss of grain; two of these timbers are represented larger at *gg*; one being the cross piece with a leg and tenon for fixing in the stone mortises, the other intended to lie lengthwise, and level with the floor of the barn; in the ground are fixed stones with mortises in them to receive the tenons of the timbers described above: *h* the ground, which should be made of materials sufficiently hard to prevent the horses, carts, or waggons from making depressions in it; *i* posts with iron halps, to support the floors when out of use; *k* racks for feeding cattle at, when the barn is applied to other purposes than threshing upon. When the floor is not wanted for threshing upon, the floors may be first turned up and fixed with the iron pins, bolts, and halps; then the middle tim-

bers be taken out and placed on the ground, on the side opposite to the recess where they were to be deposited when out of employ; afterwards that part of the floor which has legs to support it must be let down, putting the timbers into the recesses, and turning the floor up again.

Though floors of this kind may be highly convenient and useful in particular instances of large barns, where much threshing by the flail is required, yet from their complexity, and their requiring much room when out of use as floors, they do not seem well calculated for those of the smaller kinds.

BARN, or *White, Owl*, in *Ornithology*, is in England the common name of that species of *STRIX*, which is found about barns and out-houses, and which is specifically called *flammea* by Gmelin, and some other naturalists.

BARNABAS, SAINT, in *Biography*, a teacher of Christianity cotemporary with the apostles, was a Levite of the country of Cyprus. His original name seems to have been "Joseph;" and the appellation of "Barnabas," signifying "Son of Consolation or of Exhortation," was conferred upon him by the apostles. He was one of those Christians who, soon after the resurrection of Christ, sold their property and laid the money at the apostles' feet. *Acts*, iv. 36, 37. By him St. Paul was presented to the other apostles three years after his conversion, or about the year 37 of the vulgar æra; and he was appointed a missionary to Antioch, in order to confirm the disciples. From thence he went to meet Paul at Tarsus, and they resided together a year at Antioch; and were afterwards entrusted with the conveyance of alms to the Christian brethren at Jerusalem. *A. D.* 44. Here he was declared joint apostle of the Gentiles with Paul, whom he accompanied to various places and with whom he co-operated in preaching the gospel. At length a dissension occurring between them with respect to Mark, whom Paul refused to accept as a companion, they separated, probably in friendship and mutual good will, and Barnabas with Mark as his associate went to Cyprus. St. Luke bears this honourable testimony to Barnabas, that he "was a good man, and full of the Holy Ghost, and of faith." Such is the substance of the account given of him in the New Testament. Some of the ancients, however, have supposed that he was one of Christ's seventy disciples, whom he employed during his ministry as a preacher in the land of Judæa. It has been said that he suffered martyrdom, being stoned to death by the Jews of Cyprus at Salamis; that he was buried by Mark in a cave near that city, and that his body was discovered in this island in the reign of the emperor Zeno about *A. D.* 488, with the gospel of St. Matthew written in Greek with his own hand, upon his breast. Lardner's works, vol. ii. p. 11, &c.

BARNABAS, *Epistle of*, in *Ecclesiastical History*, an epistle still extant, ascribed to St. Barnabas. It consists of two parts; the first being an exhortation to constancy in the belief and profession of the Christian doctrine, particularly as to its simplicity without the rites of the Jewish law, and the second part containing moral instructions. Learned men have differed with regard to the genuineness of this epistle. It is cited by St. Clement of Alexandria and by Origen. Eusebius reckons it among those books that are spurious, meaning probably by the term, contradicted. St. Jerom says, that it was read for edification among the apocryphal scriptures. Amongst the moderns, Pearson, Cave, Du Pin, Wake, Dr. Clarke, and many other learned men, suppose it to be a genuine epistle of Barnabas the companion of Paul. Some are doubtful, as Cotelierius, who inclines to think that it was not written by Barnabas. The objections against the genuineness of it are strongly urged by Easnage,

Basnage, and also by Mr. Jeremiah Jones. To this purpose he alleges that it is not in any of the ancient catalogues of sacred books; that it is not cited in scripture by any of the fathers; that it was not read in the assemblies of the primitive Christians; that it contains contradictions, notorious falsehoods, and gross mistakes; and also many things that are trifling and silly.

Mosheim says that it was the production of some superstitious Jew, whose attachment to Jewish fables, as well as mean abilities, shew that, notwithstanding the uprightness of his intentions, he must have been a very different person from the true Barnabas who was St. Paul's companion. Mr. Jones supposes that it was written by a person who had been originally a Gentile or Pagan.

Dr. Lardner thinks it most probable, that it was written by Barnabas, soon after the destruction of Jerusalem by Titus, in the year of our Lord 71 or 72; and that it was addressed not to Jews, as archbishop Wake supposes, but to Gentiles, or perhaps rather to Christians in general, and intended to abate their respect for the peculiar rites and institutions of the Jewish laws and to shew that they were not binding upon Christians. It was written in Greek; but the four first chapters or sections, and a part of the fifth, are wanting in the Greek copies. It is however entire in an ancient Latin version. This epistle has no inscription, as it is not directed to the Christians of any particular place; and on this account it has been sometimes called a Catholic epistle. Lardner's works, vol. ii. 12, &c. Jones's New and Full Method of settling the Canonical Authority of the New Testament, vol. ii. p. 500, &c. Mosheim's Eccl. Hist. vol. i. p. 113.

BARNABAS, ST., *Gospel of*, a spurious gospel mentioned by pope Gelasius, in his decree against apocryphal books. The Turks have a gospel under this name, in which there are many things injurious to Christ and honourable to Mahomet. It was composed in Arabic, as M. de la Croix thinks, under the emperor Frederic II., A.D. 1211 to 1245, and was translated into Italian about the middle of the 15th century. Professor White has given extracts from this gospel at the end of his "Sermons at the Bampton Lectures."

BARNABAS'S ST., Day, in the *Calendar*, a Christian festival celebrated on the 11th of June.

BARNABAS, Cape, in *Geography*, lies in the north-west of America, in N. lat. 57° 13', between Trinity island and Cape Greville.

BARNABE, ST. Island, is situated at the mouth of a small river of this name which falls into the river St. Lawrence, and most remote to the north-east on the southern or starboard shore in coming down from Quebec.

BARNABITES, in *Ecclesiastical History*, an order of religious thus called from the church of St. Barnabas at Milan, where they were first established, and which was bestowed upon them in the year 1545; and not as some have imagined because St. Barnabas was their patron: in reality, St. Paul is the patron of the Barnabites.

The Barnabites are regular priests of the congregation of St. Paul. Their habit is black, and the same with what they wore when first established, in 1533, by the express bulls of pope Clement VII. and afterwards confirmed by Paul III. Their office is to instruct, catechize, and serve in mission.

BARNACA, in *Geography*, a small island near the west coast of Ireland, situate in Black Sod Bay.

BARNACIS, in *Ancient Geography*, a town of Hispania Tarragonensis, in the territory of the Carpetani. Ptolemy.

BARNACLE, or **BERNACLE**, in *Conchology*, is the

common name of the species of *LEPAS* called *Anatifera*; and is applied also in a general manner to all the shells which belong to the *LEPAS* genus.

BARNACLE-GOOSE, or **BERNACLE-Goose**, in *Ornithology*, the common English name of that kind of goose which was deemed the offspring of the *Lepas Anatifera* in the sixteenth century. See *ANATIFERA*, and *ANAS ERYTHROPUS*, the latter being the Linnæan name of the Barnacle goose.

BARNADESIA, in *Botany*, a shrub so named by Mutis, from Michael Barnades, a Spanish botanist. Linn. Gen. Schreb. 1260. Supp. 55. Juss. 178. Class, *syngenesia polygamia equalis*. Nat. Ord. *Compositæ discoidæ*—*Corymbifera* Juss.

Gen. Ch. *Cal.* common, somewhat ventricose, spreading at the tip, imbricate; scales numerous, gradually longer from the base to the tip; the inferior or exterior, ovate, closely imbricate, sharp, pungent; the superior or interior, subulate, flat, spreading, pungent. *Cor.* compound, rayed; corollæ hermaphrodite, tubular, very few (three or four), remote, in the disk ligulate, in a simple series, in the ray. Proper to the former, funnel-form; tube very short; border hairy, five-parted; parts converging. Proper to the latter, ligulate, lanceolate, spreading at the base, incurved at the tip, and split, outwardly very hairy; tube longer than the calyx. *Stam.* filaments five; anthers cylindric, tubular. *Pist.* germ ovate; style filiform, longer than the stamens; stigma bifid; clefts spreading, ovate-rounded. *Per.* none; calyx converging; seeds very many, ovate, hairy; hairs reversed. Down of the flowers of the disk bristly; rays subulate, stiff, broken backwards, naked or covered with minute hairs; of the radial flowers long, erect, spreading, many-rayed, feathery, soft. Recept. flat, villose, without chaff.

Ess. Gen. Ch. *Cal.* naked, imbricate, pungent. *Cor.* radiate; down of the ray feathered, of the disk bristly, broken backwards.

Species. *Barnadesia spinosa* is a shrub with very smooth branches, set with a pair of thorns at their origin, which at first were stipules; they are petalous, brown, smooth; leaves alternate, simple, ovate, entire, sharp, flat, veined, somewhat hairy on both sides, whitish underneath; petioles very short; stipules in pairs, small, subulate; flowers in panicles, terminating; calyx pubescent. The flower is singular in having two sorts of down. This, which is the only species of this genus, is a native of South America, where it was discovered by Mutis.

BARNARD, or **BERNARD, JOHN**, in *Biography*, was born at Castor in Lincolnshire, and educated at Queen's college in the university of Cambridge. In 1648, he was admitted, by order of the visitors appointed by parliament, fellow of Lincoln college at Oxford. After the restoration, he conformed, and was promoted to be prebendary in the church of Lincoln. He died at Newark, on a journey to the Spa, in 1683. He was in good repute for his learning and orthodox principles, and was author of the following books; viz. "Censura Clerior, against Scandalous Ministers, &c." 4to. 1660; "Theologo-Historicus, or the Life of Dr. Heylyn," whose daughter he married, 8vo. 1683; "An Answer to Baxter's false accusation of Heylyn;" and a "Catechism" for the use of his parish. Biog. Brit.

BARNARD, Sir JOHN, a patriotic citizen and distinguished magistrate of London, was born at Reading in Berkshire, in 1685, of parents who were quakers, and educated at a school belonging to persons of this persuasion at Wandsworth in Surry. In early life he was distinguished by the integrity and candour of his mind, so that all differences among his school-fellows were submitted to his decision. In the fifteenth year of his age, his father, who was now settled in

London in the wine trade, introduced him into his own business; and his conduct was such as fully to justify the confidence that was reposed in him. Amidst other avocations that occupied his thoughts and time, he directed his particular attention to religion; and without doubt from conviction, renounced the profession of his parents, and became a profelyte to the established church. Accordingly he was baptized by Dr. Compton, bishop of London, after several previous conferences, at his chapel in Fulham, in 1703. It was the uniform practice of Mr. Barnard, from his earliest youth, to associate with persons of riper age than his own, and with such as were distinguished by their talents, learning, and religion; and his improvement in knowledge and virtue corresponded to the selection he made of his companions and friends. In this course of sedulous application to mental culture as well as to secular employment, Mr. Barnard persevered till he had attained the thirty-sixth year of his age; and he was only known in private life by the excellencies of his character. About this time a bill that materially affected the wine trade had passed the commons, and was depending in the upper house. The merchants that were likely to be injured by the operation of this bill, appointed Mr. Barnard to state their objections before the lords; and such were the abilities which he manifested on this occasion, and such was the success that attended his exertions, that in 1721 he was proposed, without his knowledge, as a candidate to represent the city of London at the next election, which took place in the following year. The contest was as warm as any that had ever been known in the city; but Mr. Barnard, though he declined all personal solicitation, succeeded by the zeal and activity of his friends. His parliamentary conduct, during a period of forty years, was in the highest degree independent and respectable; and he derived from his character as well as talents singular influence. He distinguished himself by his opposition to the measures of administration, then conducted by sir Robert Walpole, and particularly to the extension of the excise, which he condemned both in a commercial and political light, and which, by his vigorous and assiduous efforts, he induced the minister at length to abandon. Heedless of popularity in measures which in his judgment concerned the good of his country, he attempted to reduce the interest of the national debt from four to three per cent.; and by his endeavour incurred a temporary odium. In 1732 he had obtained the honour of knighthood, on occasion of presenting a congratulatory address to king George II.; and in 1737 he was raised to the dignity of the chief magistrate of the city of London; an office which he executed with singular reputation to himself and advantage to the public. So attentive was he to the duties of this office, that he would not sleep a single night in his house at Clapham, lest any person should be injured by his temporary absence. No magistrate was ever more vigilant in his attention to the internal police of the city over which he presided; and blended lenity with severity in the administration of it with so much discretion. He would never suffer any person to be committed to prison for a single night, till the accusation against him had been fairly heard; for he well knew the danger to which ungarded youth would be exposed even by a short abode in those receptacles of infamy. The state of our gaols had been the object of his particular investigation, and he was fully apprized of those abuses that needed correction and restraint. In 1745 sir John Barnard took the lead in signing an agreement to take bank notes in lieu of cash, and in thus supporting public credit at a period of peculiar danger. In 1749, he became the father of the city; and the London merchants

had previously, viz. in 1747, testified their veneration of him by erecting his statue in the Royal Exchange. This token of respect, however, he disapproved; as he thought that no character was entitled to it, till its perseverance in integrity had been sealed by death: and such was his modesty, that he never after transacted business within this edifice. In 1754 he was for the last time, without solicitation and in opposition to his own wishes, elected a representative of the city; but his infirmities increasing, he thought proper, in 1758, to resign his alderman's gown. After some years of honourable retirement, he died at Clapham in 1764, leaving one son (distinguished by his taste in the polite arts, and by his admirable collection of pictures) and two daughters. Few persons ever sustained a character so uniformly respectable as sir John Barnard. He was not only blameless, but eminently exemplary in the various relations and offices of life. To the faithful and active discharge of the personal and social duties, he added a most devout sense of religion. The first hour, at least, of every day was employed in the exercise of devotion and the study of the scriptures. He attended public worship twice on a Sunday, and was constant in receiving the communion. He had such a high reverence for the bible, that he always expressed a great dislike of any attacks which were made upon its sacred original and authority. Although he relinquished the profession of his youth, he retained, in a considerable degree, that simplicity of manners and plainness of dress which distinguish the respectable body to which his family belonged. But though he was modest in his deportment, he was firm and fearless in the discharge of his duty. His language was clear, concise, and unaffected; and his wisdom and knowledge were recognized by persons of the first character in his time; inasmuch that he was urged in 1746, by king George the second, to accept the office of chancellor of the Exchequer, which he refused. Lord Granville and Mr. Pulteney frequently consulted him on affairs of moment; and lord Chatham, when Mr. Pitt, has been known to stile him the great commoner. The muse of Pope, by exhibiting him in contrast to worthless wealth and title, has immortalized his name.

"Barnard in spirit, sense, and truth abounds;
Pray then what wants he? Fourscore thousand pounds."

Biog. Brit.

BARNARD, in *Geography*, a township of America, in Windfor county and state of Vermont, containing 673 inhabitants. It gives rise to the northern branch of Waterqueche river, and is distant 65 miles N.E. from Bennington.

BARNARD CASTLE, or CASTLE BERNARD, a town of Durham, in England, 246 miles N.N.W. from London, and 26 from Durham. The town is about a mile in length, and consists of several streets; the principal of which is upwards of forty yards in width, and is mostly filled with handsome modern buildings. The air of this part of the country is remarkably salubrious, the market is abundantly supplied, and the situation possesses every advantage to render it pleasant. The woollen manufactory has declined of late from the great use of cotton goods; much business is done by the tanners; and the stocking trade is particularly flourishing. This town is mentioned as existing soon after the conquest; though it was then probably but an insignificant place, as it derived its chief consequence as well as its name from the magnificent castle founded here by Bernard Baliol about the year 1178. This fortress is situated on the summit of a high rock to the westward of the town, and was anciently of much importance; maintaining a number of officers, and being vested with high privileges.

leges by its different possessors. We find the names of John Baliol father to the king of Scotland, the celebrated Guy Beauchamp earl of Warwick, and Richard duke of Gloucester afterwards Richard III., occur among the proprietors of the castle. The latter founded a college for a dean, 12 secular priests, 10 clerks, and 6 choristers; but it is presumed that his intentions were in part frustrated by the subsequent troubles of his reign, as no traces of this foundation are now discernible. In the reign of Charles I., this castle, after being several years in the possession of the crown, was purchased by an ancestor of the present earl of Darlington, and gives a title to his lordship's eldest son. In the year 1699, it was created a barony by king William III. The present remains cover about six acres of ground. The parts of chief strength stand on the brink of a steep rock about eighty perpendicular feet above the river Tees, and every way command a most beautiful prospect. Many fragments of the ruins have the arms of Richard the third, who is supposed to have considerably contributed to this building. Though we can readily ascertain from the above that this fortress must have been a place of great strength and extent, yet it is not possible to form any competent idea what it was in its original and perfect state. Leland in particular mentions parts of which there are not the least remains. The environs of the town are remarkably beautiful; the vale of the Tees abounding with a great variety of picturesque, pastoral, and august scenery. From the castle cliffs northward, the river is bordered by a hanging forest of oaks on one hand, and on the other by fine meadow land. The extended battlements, the circular tower and the most stately parts mantled with ivy, the brown rocks fringed with brush wood, the brighter yellow towers, and the dark and shaded battlements, are contrasted by the azure lake on whose surface they are reflected. Near the path on the margin of the river is a fine new bridge of one arch, lately erected by Saurey Morrit, esq. of Rokeby Park. The number of houses in the township is 312, and its inhabitants 2966. Hutchinson's History of Durham, vol. iii. 4to.

BARNARDO ISLANDS, are five islands on the north coast of South America, laid down in modern charts off the north point of the entrance into Morosquillo bay. They lie S.S.W. from the harbour of Carthagea, in the direction of the coast. To the west of south from them is the opening into the gulf of Darien, which is the limit between North and South America. These islands form a large bay and harbour in N. lat. $9^{\circ} 35'$, and W. long. $77^{\circ} 20'$. The outermost island is called St. George's, the innermost is St. Gilbertus, and Goeree island lies between them. The river Chenu is to the west of these islands.

BARNASNE, mountains of Ireland, in the county of Kerry, 8 miles S. W. of Killarney.

BARNAUL, a town of Siberia, on the west side of the Oby, 100 miles S.S.E. of Kolyvan. It is situated on the Oby, in the government of Kolyvan, famous for its silver and copper mines, which also produce gold. These mines are much more productive than those of Nerthinsk; for the pits hitherto opened in the latter have no continued or steady veins, are never powerful, and seldom terminate in large nests, are always poorer as they proceed in depth, and change their contents at every fathom. The mines of Barnaul belong to the crown. About 48,000 boors earn their capitation tax in working at them, over and above the miners and other workmen properly belonging to them. The quantity of gold produced at Barnaul and the Shlangenbergh from 1745 to 1780, amounted to 686 pood, 16 pounds, 49 solotniks of pure gold.

BARNEGAT INLET, called in some maps *New Inlet*,

is the passage from the sea into Flat-bay sound, on the south-eastern coast of New Jersey, 68 miles N.E. from cape May. N. lat. $39^{\circ} 47' 30''$. W. long. $74^{\circ} 13'$.

BARNER, JAMES, in *Biography*, born at Elbing, in West Prussia, in 1641, applied himself early to the study of chemistry, in which he made such progress, that in 1670 he was engaged to give lectures in that art at Padua. After residing some years in that university he went to Leipzig, where he practised medicine with success. Retiring at length to Elbing his native country, he died there in 1686. Barner left several works on the subject of chemistry, but that by which he is principally known is his "*Chymia philosophica, cum doctrina salium, medicamentis sine igne culinari parabilibus*;" published at Nuremberg 1689, three years after his death, a work rather curious than useful. Haller Bib. Med. Eloy Dict. Histor.

BARNERA, in *Geography*, a small island of Scotland, near the west coast of Lewis, separated from the main land by a strait, called Loch Barnera, about a mile wide. N. lat. $58^{\circ} 25'$. W. long. $7^{\circ} 3'$.

BARNES, JOSHUA, in *Biography*, an English divine and classical scholar, was born in London in 1654, and educated in grammar-learning at Christ's hospital, where he was distinguished by his proficiency in Greek, and by some Latin and English poems. In 1671, he was admitted a servitor of Emanuel college in Cambridge; and in 1678, he was elected a fellow of the same college. In his numerous writings, which were critical, poetical, and historical, he displayed more industry and fancy than taste and judgment. His memory was singularly retentive, so that he could write and converse in the Greek tongue with great readiness; though Dr. Bentley sarcastically remarked of him, that he understood as much Greek as a Greek cobbler. But if he excelled in tenaciousness of memory, he was notoriously deficient in solidity of judgment; and therefore some person recommended this pun to be inscribed upon his monument:

"Joshua Barnes,

"Felicitis Memoriae, Judicium expectans."

The enthusiasm of his temper was manifested in various singularities of opinion and conduct. Believing that charity never fails in this life of obtaining due recompence, he has given his only coat to a common beggar; and he used to recite strange stories of some unexpected remuneration which he had derived from charities of this kind. Of his talents and learning, and particularly of his acquaintance with the Greek language, he was vain and boastful; and at the same time he was prone to depreciate and abuse others. Of his works the most respectable were his editions of the Greek classics; and these he dedicated, without much appropriate selection, to persons of high rank. In 1695, he was elected Greek professor of the university of Cambridge. In 1700, he married a widow with a handsome jointure, who is said to have made the first advances; and, with a view to her amusement, and in order to induce her to supply him with money towards defraying the expence of his edition of Homer, he wrote a copy of English verses, designed to prove that Solomon was the author of the poems under Homer's name. He died in 1712, and was buried at Hemingford in Huntingdonshire, where a curious monument was erected to him by his widow, with an inscription partly in Latin and partly in Greek Anacreontics. The following memorandum is annexed: "Mr. Barnes read a small English bible, that he usually carried about him, one hundred and twenty-one times over at leisure hours." Of his numerous publications, the principal are the following: "*A Poetical Paraphrase on the History of Esther*," intitled, "*Αυλικαὶ κατὰ τὴν ἱστορίαν*," or "*The Courtier's Looking-glass, &c.*" The story is paraphrased in Greek

Greek verse, with a Latin translation in the opposite page and Greek scholia; to which is added, "An Homeric Parody on the same Story." "The History of that most victorious monarch Edward III. &c.;" Camb. fol. 1688. This historical work, for which the author's talents seem to have been very ill adapted, abounds in false inferences and tedious digressions; and in long and elaborate speeches, after the manner of Thucydides and other ancient historians, which seem to be the result of his own imagination; the whole displaying neither the judgment of a politician, nor the taste of a good writer. "Euripidis quæ extant omnia, &c." Camb. fol. 1694. Besides a correction of the text of Euripides, this edition contains a preliminary dissertation on the ancient Greek tragedy, and another on the life and writings of Euripides. "Anacreon Teius, &c." Camb. 1705. In this edition, the poems of Anacreon are corrected, and much enlarged by the addition of several whole pieces and fragments. The life of Anacreon is annexed; and in the Prolegomena, the author treats of the antiquity and invention of lyric poetry, and the peculiar character and metre of that poet. The dedication to the duke of Marlborough is followed by a Greek Anacreontic ode upon the victory at Blenheim. The editor has also subjoined the epigrams of the ancients and moderns upon Anacreon, and some odes of his own composition under the title of "Anacreon Christianus." "Homeri Ilias et Odyssea, &c.;" 2 vols. 4to. Camb. 1710. This edition is furnished with an exact Latin translation, with the ancient Greek scholia, many notes upon the text and scholia, and various readings; to which are subjoined the "Batrochomyomachia," the "Hymns and Epigrams," the "Fragments," and "Two Indexes." This edition of Homer has been generally esteemed as correct and complete; though in the *Acta Eruditorum* for Jan. 1711, there are some objections against it, which have been ascribed to Dr. Bentley. Barnes's editions of the Greek classics have of late years been sinking into disrepute; and modern critics place little confidence in his judgment or sagacity. He has been charged, in some of his various readings, by the learned Dr. Clarke, with audacity and unskilfulness.

As for his other works, both in prose and verse, it would be tedious to enumerate even their titles; and this is the less necessary, as they are now consigned to total oblivion. Biog. Brit.

BARNET, denominated also *High and Chipping Barnet*, in *Geography*, a town of England, situated in the hundred of Cassho and county of Hertford, 11 miles north of London. It has a market on Mondays, which has existed since Henry II.; and here are also three fairs annually. At this town, which is a great thoroughfare, the north road divides for York and Liverpool. Being situated upon an eminence, the prospects are extensive and agreeable; but there are no public buildings worth notice, except the church and a grammar school. The latter was founded by queen Elizabeth, and afterwards endowed by alderman Owen of the Fishmongers' company of London, for the education of nine children gratis. There are likewise alms-houses for widows, founded by James Ravencroft Esq. and his wife, in 1672. At the twelfth mile stone beyond the town, is erected a pillar to commemorate a signal battle fought on that spot on Easter day, April 14, 1471, between the house of York headed by Edward IV., and that of Lancaster conducted by the stout earl of Warwick, who, with many of the nobility and nearly 10,000 men, were slain. This was a decisive victory for the Yorkists, as it firmly established Edward IV. on the throne; although in a subsequent battle at Tewkesbury, the queen of Henry VI. and her son were taken prisoners. Barnet is governed by a magistrate, high constable, and

other officers; and a court leet is held at Easter. In the town are 225 houses, inhabited by 1258 persons. Salmon's History of Hertfordshire.

BARNET, a township of America, in Caledonia county, and state of Vermont, containing 477 inhabitants, and distant 112 miles N. E. from Bennington.

BARNEVELDT, JOHN-OLDEN, in *Biography*, a minister of Holland, eminently distinguished by his abilities and patriotism, was born in 1547. In his early negotiations on behalf of the states general with France, England, and the neighbouring powers, he gave great satisfaction to those who employed him, and gained equal credit and esteem in the judgment of Henry IV. and queen Elizabeth. As grand pensionary of the states of Holland, he obtained extensive influence; and firmly attached to the liberty of his country, he observed the growing power of the house of Orange, directed by the warlike and aspiring prince Maurice, with jealousy and apprehension. Amidst the collision of different parties, he was regarded as the leader of the opposition to the measures of that prince. The authority of Maurice depended in a great measure, on the continuance of the war with Spain, and Barneveldt was very desirous of terminating it. By his zealous endeavours to effect this purpose under the mediation of the king of France, he incurred the violent odium of the adverse party. At length, however, he succeeded by obtaining, in 1609, a truce for 12 years; the first article of which recognized the independency of the united states. Soon after this event, the disputes between the Arminians and Calvinists, or Remonstrants and Contra-remonstrants, furiously agitated the Dutch provinces. Barneveldt, inclined to the former, and the advocate of toleration, exerted himself in procuring for the Arminians or Remonstrants that liberty of conscience to which they had an equitable claim. Prince Maurice placed himself at the head of the other party, which was the most numerous; and probably took pleasure in the opposition and calumny encountered by Barneveldt in his endeavours to promote the cause of religious freedom and moderation. At this time, notwithstanding the suspicious excited against Barneveldt, as if he wished to subject his country again to the yoke of Spain, he was essentially serving it by negotiating with James I. the restoration of the towns of Flushing, Rammekens, and the Brille, which had been put into the hands of Elizabeth as security for the money which she had lent to the states. Barneveldt's success in this negotiation added James to the number of his enemies.

The religious disputes, which had been appeased in the province of Holland by the influence of Barneveldt, prevailed so much in the other provinces, that a national synod was assembled at Dordrecht in 1618 in order to bring them to a termination. To this synod the kings of England and France, and most of the Protestant states of Europe, sent deputies; and the Arminians, who did not comply with the citation to appear before this assembly, incurred a formal condemnation. On this occasion, Barneveldt, Grotius, and other Remonstrant chiefs of the anti-Orange party, were arrested and imprisoned in the castle of Louvenstein. Barneveldt, however, was the devoted victim. Many accusations were alleged against him, as the fomentor of the disturbances that had occurred at Utrecht, and as an enemy to the public liberty; and being tried by a court, composed chiefly of his enemies, and admitting inadequate proofs, he was capitally condemned. Prince Maurice, to whom application was made from various quarters in his favour, remained inexorable; as he would only promise a pardon upon condition of its being solicited by the family of Barneveldt: but they refused to do an act, which would imply the guilt of their

their venerable chief. Barneveldt prepared for death, and without asking any favour for himself, merely solicited the protection of his children. On the morning of execution, Barneveldt proceeded to the scaffold with a serene countenance; but being somewhat disturbed by the arrival, he exclaimed, with uplifted eyes to heaven, "O God! what is man!" Having prayed with the minister who attended him, he rose from his knees with composure, declared his innocence to the spectators, and desired the executioner to perform his office. His head was struck off at a blow, in his 72d year, May 13th 1619. The popular hatred soon subsided; his memory was revered as that of the purest of patriots, and most respectable of men, and his death left a stain on the character of prince Maurice, which all his great qualities and services were not sufficient to efface. The states of Holland, in the register of his death, added these words, which may serve as a testimony to his character; "He was a man of great conduct, industry, memory, and prudence; yes, singular in all. Let him who standeth, take heed lest he fall. God be merciful to his soul! Amen." "Never (says the French ambassador De Maurier) was there so wise and virtuous a man as M. de Barneveldt. He had a majestic presence, and said much in few words, with a grave and succinct eloquence." Barneveldt left two sons in considerable employments; who being deprived of them by prince Maurice, engaged in a conspiracy against his life. One was beheaded, and the other made his escape. When the mother of him, who was taken and condemned, fell at the feet of Maurice supplicating his life, the prince expressed his surprise that she who had refused to ask her husband's pardon, should condescend to intercede on behalf of her son. "I did not ask pardon for my husband," said the mother with a noble spirit, "because he was innocent. I ask it for my son, because he is guilty." *Mod. Un. Hist. Gen. Biog.*

BARNEVELT'S Islands, in *Geography*, are two small flat islands, close to each other, on the west side of Terra del Fuego, partly surrounded by rocks, and 24 leagues distant from the straits of Le Maire. S. lat. 55° 49'. W. long. 66° 58'.

BARNEVILLE, a town of France, in the department of the Channel, and chief place of a canton in the district of Valognes, $5\frac{1}{2}$ leagues S.S.W. of Cherbourg. The place contains 840 and the canton 8576 inhabitants; the territory includes 215 kilometres, and 19 communes.

BARNFIARD, in *Ornithology*, is an aquatic bird, of which Oviedo speaks in his "*Hist. des Indes*," book 14, c. 2; but which it is impossible to ascertain from what that author has said of it.

BARNSELEY, in *Geography*, a small market town of England, in the west riding of Yorkshire, 15 miles from Doncaster, and 176 north-west from London. It is situated on the side of a hill, and about five furlongs in extent. The town, though well built of stone, is called Black Barnsley; probably from its smoking furnaces, or rather from the sooty soil of the moors with which it is surrounded. The land is very prolific in wheat and other grain, and coal is also exceedingly plentiful. The abundance of stone, timber, ironstone, &c. and the cheap living necessary for population, render this place very appropriate for any kind of trade. At present its wire works are supposed the best in the kingdom: and the wire is of two sorts; the hard, made into teeth for cotton and wool cards, the soft for stocking-frame needles. Processes of a lesser kind are weaving of linen, in which 500 looms are employed, and a glass manufactory of black bottles. Barnsley has a well built church, which is a chapelry under Silkeston, a free grammar school, a mar-

ket on Wednesday, and three fairs: the population of this township consists of 722 houses, inhabited by 3606 persons.

BARNSTAPLE, a very ancient corporate town and sea-port in the county of Devon, is situated in a broad and fertile vale on the eastern bank of the river Taw, and bounded by a semicircular range of hills. It is one of the neatest and most reputable towns in the north of the country; the streets being spacious and regular, and the buildings respectable. Before the conquest, Barnstaple was a royal demesne; and king Athelstan is reported to have constituted it a borough, and to have erected a castle near the confluence of the rivers North Yeo and Taw: no remains, however, of this fortress continue, except a high artificial mound. In Domesday book it is noticed as containing "forty burgesses within the borough, and nine without;" and the inhabitants were exempted from serving on any expedition or being otherwise taxed, but in equal proportion with Exeter and Totness. The town was reincorporated by Henry I. but still retaining some of its ancient feudal privileges, which 250 of the common burgesses at this day possess; namely, a right to vote with the corporation for two members of parliament.

The corporation is composed of a mayor, high steward (at present earl Fortescue), two bailiffs, two aldermen, a recorder, twenty-two common-council men, and other officers. King James I. ratified and confirmed the privileges of the town by a charter in the eighth year of his reign; and we find by authentic documents, that the first return for members to parliament was made in the 23d of Edward I.

Respecting the trade of Barnstaple, its harbour is so shallow that vessels of more than 200 tons cannot enter; yet the baize, silk-stockings, and waistcoat manufactories still give life to the place, and in a great degree compensate the loss of its former woollen trade; added to this, the beautiful scenery and pleasantness of the neighbourhood, and the cheapness of living, have induced many independent families to make it their sole residence.

A noble quay along the river is terminated by a handsome portico, over the centre of which is placed a statue of queen Anne. Over the river is a stone bridge of sixteen arches. The church is a stately building, with a handsome spire and a good organ; formerly it contained several chantries. We find also that in the town Judhall de Totness founded a priory for Cluniac monks, which, at the dissolution, was valued at 123l. 6s. 7d. per annum.

The grammar school is famous for having upon its foundation several eminent characters; bishop Jewel and his opponent professor Harding, the poet Gay, Dr. Musgrave, &c. For the useful education of the lower class of inhabitants, a charity school is erected over the north gate; near which is a pleasant walk, denominated Northern Hay, from the fine prospects it commands, as well as an agreeable promenade.

The number of houses in the whole parish is estimated at 653, and the inhabitants at 3748. N. lat. 51° 15'. W. long. 4° 5'.

BARNSTAPLE Bay, is an opening in the Bristol channel, formed by the union of the rivers Taw and Towridge. This is the common bay or road to the town of Barnstaple and Biddeford, on their respective rivers.

BARNSTAPLE, a county of America, lying upon the peninsula, the point of which is cape Cod, the south-eastern point of Massachusetts's bay, opposite cape Ann. This county is about 65 miles long, and in various parts from 3 to 6 and 9 miles broad. It contains 11 townships, and the plantation of Marshpee, having 2343 houses, and 17,354 inhabitants.

inhabitants. Barnstable was made a shire in 1685. See *Cape Cod*.

BARNSTABLE, the *Mattacheese* or *Mattacheeset* of the ancient Indians, is a port of entry and post town, and the shire town of Barnstable county in North America. It extends across the peninsula, and is washed by the sea on the north and south, having Sandwich and the district called Marshpee or Mashpee on the west; and is about 5 miles broad and 9 long; 67 miles S. E. from Boston. Sandy-neck on the north shore, running east almost the whole length of the town, forms the harbour, and embosoms a large body of salt-marsh. The harbour is about a mile wide and four long; and the tide rises in it from 8 to 14 feet. Its bar, running off N. E. from the neck several miles, prevents the entrance of large ships; but small vessels may pass any part of it at high water. There is another harbour on the south, called Lewis's bay. Its entrance is within Barnstable, and extends almost 2 miles into Yarmouth. This harbour is commodious and safe, and is completely land-locked. In Barnstable there are but 20 or 30 ponds. The land here produces about 25 bushels of Indian corn to an acre, and rye and other grain in proportion. Wheat and flax are cultivated; the latter with success. From 12 to 18,000 bushels of onions are raised for the supply of the neighbouring towns. The fishery, which is annually increasing, employs about 100 men. The people who are in number about 2610, are generally healthy; and many instances of longevity occur. Many of the farmers are occasionally seamen, and many mariners and masters of vessels, who sail from other parts, are furnished by this town. N. lat. $41^{\circ} 43'$.

BARNSTEAD, a township of America, in Strafford county, New Hampshire, containing 807 inhabitants; 32 miles N. W. of Portsmouth, and 16 E. by S. from Canterbury on Connecticut river.

BARNSTORF, or **BERNDORF**, a town of Germany, in the circle of Westphalia, and county of Diepholz, 8 miles north of Diepholz.

BARNTRUP, a town of Germany, in the circle of Westphalia, and county of Lippe, 4 miles N. E. of Blomberg.

BARNWELL, a village situated about half a mile north-east of Cambridge, in England, was formerly of great consequence from its ancient priory, which, at the dissolution, was valued at 351 *l.* 15 *s.* 4 *d.* The village has suffered very much by fire. Barnwell has a fair kept in its neighbourhood, commencing annually on Midsummer-day, and continuing a fortnight. This fair derives its origin from a custom of the children in the neighbourhood assembling on Midsummer-eve at Barn's-well. A number of pedlars resorted to the spot, and exposed their merchandize for sale, so early as the reign of Henry I.: the articles brought being mostly pottery, the festival obtained the appellation of *Pot Fair*. It appears, however, to have assumed its legal form in the reign of Henry III. by whom it is said to have been chartered and granted to the priory. The fair is still proclaimed on Midsummer-eve, and the field in which it is held, is called Midsummer Green. But Barnwell is most famous for the great assemblage of merchandize annually held in a large meadow, called *Sturbridge Fair*; the origin of which Dr. Stukely was induced to ascribe to his hero Carausius: it is however evident that King John granted the whole for the use and maintenance of an hospital for lepers, who had an ancient chapel here; and the chaplain claimed the dues, till Hen. VIII. in consideration of 1000 marks paid by the corporation of Cambridge, gave them the grant of the fair, which was confirmed by Elizabeth. The field in which it is held is about half a mile square, having the rivers

Cam and Sture on its northern and eastern sides. The booths are built in regular order, each row being particularly named, as Ironmonger's row, Bookseller's row, &c.; the centre is called the Duddery, and chiefly occupied by drapers, mercers, and wholesale dealers in cloaths. Sturbridge fair is solemnly proclaimed on the 18th of September, by the vice-chancellor, proctors, and other officers of the university; and afterwards by the mayor and aldermen. The stated time for its continuance is fourteen days. Dramatic exhibitions are forbidden within nine miles of the university, except during this fair, and the week preceding. This was formerly the greatest mart in England; but its business declining, owing to the circulation of commerce throughout the country, its consequence is very much diminished. *Beauties of England and Wales*, vol. ii.

BARO, or **BARON**, **PETER**, in *Biography*, a professor of divinity in the university of Cambridge, was born at Estampes in France, and educated for the law at Bourges; but driven from his country to England by the persecution of the Protestants in the reign of queen Elizabeth. By the recommendation of lord Burleigh, he was elected professor at Cambridge in the year 1574. He was attacked by the rigid Calvinists on account of the reputed laxness of his sentiments concerning the doctrines of predestination and justification; and a complaint was preferred against him as an encourager of the spread of Pelagianism in the university, to archbishop Whitgift in 1595, which produced the *Lambeth Articles*, that were made use of to silence him. But as he continued to preach his former doctrines, he was cited before the vice-chancellor, and several articles were exhibited against him. The proceedings against him, however, were prevented by the interference of the chancellor, lord Burleigh, and he was recommended by his learning and character to the protection of the archbishop Whitgift. At length wearied by the persecution of his enemies, he retired from the university to London, where he died three or four years afterwards. A collection of his theological works in Latin was published at London in 1579, fol.; as were also some detached pieces in that language, and some sermons, &c. in English. *Biog. Brit.*

BAROACH, **BROACH**, or **BARUH**, the ancient *Barygaza*, in *Geography*, a town of Hindoostan, in the country of Guzerat, lying in the route from Surat to Amedabad, and seated on the great river Nerbuddah, about 25 miles from its mouth. Baroach has been, in different ages, a port common both to Nehrwahel, the capital of Guzerat, and Tagara, supposed to be the modern Dowlatabad. The former was eight journies, the latter ten, from Baroach. It is situated about 217 British miles north from the Plithana of Arrian, or the modern Pultana; and all kinds of mercantile goods throughout the Deccan were anciently brought to Tagara, and from thence conveyed on carts to Baroach or Barygaza across the Balla-Gaut mountains. Baroach is famous for its manufacture of very fine bafts and other cottons; and the water of the river Nerbuddah is said to have a peculiar property for bleaching of cloth to a perfect whiteness. Agates are likewise an article of trade in this place; which are brought from the mountains near Brampour, and are mostly disposed of at Cambaya. The fortress of Baroach is large and square, standing upon a hill, which is the only eminence for many miles, and might be made very strong. The Dutch factory was established here in 1617, but is in a low state. N. lat. $21^{\circ} 45'$. E. long. $72^{\circ} 58'$.

BARROCCIO, **FREDERICK**, in *Biography*, an eminent painter of history and portrait, was born at Urbino in 1528, and instructed in the principles of painting by Battista Vene-
tiano, and in those of perspective by his uncle Bartolomeo Genga. Having availed himself of these instructions till his

20th year, he removed to Rome, and pursued his studies with such assiduity and success, that he became one of the most graceful painters of his time. At Rome he was particularly encouraged by the protection of cardinal della Rovere, and by the commendation of Michael Angelo. On his return to Urbino he gained great applause by several pictures, and more especially by that of a St. Margaret, which induced pope Pius IV. to invite him to Rome, and to employ him, in conjunction with Federigo Zuccherò, in the decoration of his palace of Belvedere. It has been said that his superior merit excited the jealousy of his brother artists to such a degree, that they gave him poison at an entertainment. Whether this be true or not, his health declined; and for the recovery of it, he was under a necessity of recurring to his native air, and of intermitting his labours. However, by due attention, his life was prolonged to the advanced age of 84 years. His genius principally inclined him to the painting of religious subjects; and his works evince that it was his chief ambition to imitate Correggio in his colouring, and Raphael in his manner of designing. It is easy to observe, that he endeavoured to resemble the former illustrious artist in the sweetness of his tints, in the harmony of his colouring, in the graceful airs of the heads, in the disposition of his draperies, and the forms of his Bambinos, though he sometimes expressed the muscular parts of the human body too strongly. He seldom painted any historical figure without having either modelled it in wax, or placed some of his disciples in such attitudes as he wished to represent: his sister was the model for the Madonnas, and her child for his Bambinos. He is said to have employed seven years in painting at Assise, the birth-place of St. Francis, a picture called the "Pardon," in which the figure of the saint kneeling, by the force of shade, seems to rise from the canvas. The works of this master are numerous; the principal of which are at Rome, in the Belvedere, and several churches; at Urbino, Assise, Cortona, Arezzo, and other towns in Italy: in the gallery of Florence; the Escorial; and the duke of Orleans's collection. Baroccio engraved four of his own pieces with peculiar spirit, and more than thirty more have been published by different engravers. Pilkington and Strutt.

BAROCHE, LA, in *Geography*, a town of France, in the department of the Orne, and chief place of a canton in the district of Domfront; 4 miles S.S.E. of Domfront.

BAROCO, in *Logic*, denotes the fourth mode of the second figure of syllogisms.

A syllogism in baroco has the first proposition universal and affirmative, but the second and third particular and negative; and the middle term, the attribute or predicate in the two first.—For example:

"BA Every virtue is attended with discretion:

RO Some kinds of zeal are not attended with discretion:

CO Therefore some kinds of zeal are not virtues."

"BAR Nullus homo non est bipes:

OC Non omne animal est bipes:

O Non omne animal est homo."

BAROLITE, in *Mineralogy*. See **WITHERITE**.

BAROMETER, compounded of *βαρος*, weight, and *μετρον*, measure, an instrument for measuring the weight of the atmosphere and its variations, in order chiefly to determine the changes of weather, and the heights of mountains, &c.

The barometer is frequently confounded with the *baroscope*, though somewhat improperly; the latter, in strictness, being an instrument that barely shews an alteration in the weight of the atmosphere: but it is one thing to know that the air is heavier at one time than another, and another to

measure how much that difference is: which is the business of the barometer.

The barometer is founded on the Torricellian experiment, as it is called from its inventor Torricelli, who, in consequence of the previous suggestion of Galileo, with regard to the ascent of water in a pump, upon drawing up the piston, proceeded, in 1643, to fill with mercury a glass tube, hermetically sealed, or close at one end, the other end being open and immersed in a basin of stagnant mercury. Judging that, in the former case, the water was sustained in the pump by the pressure of the air on the water in the vessel, in which its open end was immersed, and that it was the measure of this pressure, he hence concluded that mercury would in like manner be supported by it in the tube, and at a height which was also the measure of the air's pressure, or about 13 times less than water. His experiment was completely verified; for he observed that the mercury descended in the tube, and finally settled at the perpendicular height of $29\frac{1}{2}$ Roman inches, whether the tube was vertical or inclined, according to the known laws of hydrostatical pressure. This famous experiment was repeated and diversified in various forms, with tubes filled with other fluids, such as water, wine, oil, &c.; and the result being the same, the weight and pressure of the air were established beyond contradiction or doubt. Those who had any remaining doubts were completely satisfied by a beautiful experiment exhibited by M. Azout. He provided a small box or phial EFGH (*Plate IX. Pneumatics, fig. 74.*) into which he inserted two glass tubes, A B, C D, each three feet long, in such a manner that they were firmly fixed at one end, and reached nearly to the other end. The tube A B was open at both ends, and C D was closed at D. This apparatus being completely filled with mercury, by unscrewing the tube A B, and filling the box and the tube C D, and then screwing in the tube A B and also filling it, was inverted, whilst a finger was held on the orifice A, and set upright in the manner exhibited in *Fig. 75*, immersing the orifice A of *Fig. 74*, or *a* of *Fig. 75*, in a small vessel of quicksilver. Upon this, the mercury ran out at the orifice *a*, till its surface *mn* within the phial descended to the top of the tube *ba*. The mercury began also to descend in the tube *dc* (*Fig. 75.*) corresponding to DC in *Fig. 74*, and flowing over into the tube *ba*, escaped at *a*, till that in *dc* was very nearly on a level with *mn*. In *ba*, the mercury stood at *b*, $29\frac{1}{2}$ inches above the surface *op* of the mercury in the cistern, as in the Torricellian tube. Indeed, this whole apparatus may be first considered as a Torricellian tube of an uncommon form, from which the mercury would flow out at *a*. But when any of it escaped, a vacant space would be left above *mn*, and the mercury in the tube *dc* would also descend, and running over into *ba*, supply its waste, till *dc* became almost empty, and could no longer supply *ba*. The inner surface being therefore depressed as much as possible, till it became level with *b*, no more mercury could enter into *b*, and yet its column being too heavy to be supported by the pressure of the air on the mercury in the cistern *op*, it must descend in *ba*, till it finally settled at the height *bc*, equal to that of the mercury in the Torricellian tube. In this state if a small hole *g* were made in the upper cover of the box, the external air would rush in by its weight, and press on the mercury in the box. This pressure would immediately cause the mercury to rise in the tube *dc* to *b*, $29\frac{1}{2}$ inches above *mn*. It likewise presses on the mercury at *b* in the tube *ba*, balancing the pressure of the air on the mercury in the cistern. The mercury in the tube, therefore, must descend to the bottom by its own weight. By this experiment the doctrine of the gravity and pressure

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of the air is decisively established. See *AIR, Weight of*, and *Experiments with the AIR-Pump*.

Notwithstanding the satisfactory demonstration of the air's pressure, afforded by the Torricellian experiment, some attempts were made by the advocates of a plenum for evading it, and for explaining the phenomena of this experiment by some other hypothesis. Accordingly Linus contended, that in the upper part of the tube there is a film, or "rope of mercury," whence his hypothesis was called "the funicular hypothesis," which extended through the seeming vacuity; and that, by means of this rope, the rest of the mercury was suspended, and kept from descending into the basin. In proof of this absurd and ridiculous hypothesis he alleged the following experiment. Take, says he, a small tube, about 20 inches long, open at both ends; fill it with mercury, and stop the lower orifice with your thumb. Then closing the upper end with your finger, immerse the lower end in stagnant mercury; and upon the removal of your thumb, there will be a sensible suction of the finger into the tube; and both the tube and mercury will adhere to it so closely, that they may thus be carried about the room. Hence he infers, that the internal cylinder of mercury in the tube is not sustained by the pressure of the external air; for this, he argues, would not account for the strong suction, and the adhesion of the tube to the finger. If the tube be not quite filled with mercury, but a small interval of air left at the top, after the tube is immersed in stagnant mercury, a considerable suction will be perceived. From these experiments, which actually furnish evidence of the air's pressure, the funicular hypothesis of Linus derived support for some time; but it has been long since exploded. When it was perceived that the mercury on the top of a high mountain subsided, and stood at a lower height than on a plain, and that in the vacuum of an air pump it descended to the bottom of the tube, this hypothesis could have no advocates. However, an experiment mentioned by Mr. Huygens, in which mercury well purged of its air remained suspended in a tube at the height of 75 inches, suggested a more considerable difficulty, which has been variously solved. See an account of it, under the article *TORRICELLIAN*. For an explication of the phenomenon of a siphon, which discharges water under the exhausted receiver of an air-pump. See *SIPHON*.

BAROMETER, Common, the Construction of it.—A glass tube (A B, *Plate IX. Pneumatics*, fig. 76.) open at one end, and hermetically sealed at the other A, having its diameter about one-third or one-fourth of an inch, and its length thirty-three or thirty-four inches, is filled with mercury so justly as not to have any air over it, nor any bubbles adhering to the sides of the tube; which is best done by means of a small paper or glass funnel, with a capillary tube. If a small bubble of air be moved backwards and forwards in the tube, it will help to clear the mercury; which will appear, when pure, like a polished rod of steel. The orifice of the tube, filled after this manner, so as to overflow, is then closely pressed by the finger, so as to exclude any air between it and the mercury, and thus immersed in a vessel of a convenient diameter, so however as not to touch the bottom: at the distance of twenty-eight inches from the surface of the mercury are fixed two plates, C E and D F, divided into three inches, called "the scale of variation," and these again subdivided into any number of small parts. Lastly, the tube is inclosed in a wooden frame, to prevent its being broken; the basin, though open to the air, secured from dust; and the barometer is complete. As the lowest station of the mercury in this country is about 28 inches, and the highest

about 31 inches above the surface of the mercury in the basin, the former point is the lowest in the scale of variation, and in the common barometers, called "weather-glasses," it is marked *stormy*; and the latter is marked on one side *very dry* for the summer, and on the other *very hard frost* for the winter. To the next half-inch below this highest point are annexed *set fair* on the one side, and *set frost* on the other. At the height of 30 inches, the word *fair* is marked on one side, and *frost* on the other; at 29½ is marked the term *changeable* both for summer and winter; at 29 are inscribed on the one side *rain*, and on the other *snow*; and at 28½ inches are the words *much rain* on one side, and *much snow* on the other. Each of these larger divisions is usually subdivided into ten parts, and by means of a small sliding index adapted to the instrument, the ascent or descent of the mercury may be ascertained for any number of divisions. Each of these tenths is again sometimes divided into ten more, or hundredths of an inch, by means of a sliding piece of brass, with a scale called *NONIUS* and *VERNIER*; for the use of which see these terms, and the sequel of this article.

As the common barometer is the best, and most to be depended upon in accurate observations, it may be proper to add some directions for preparing it: they are collected chiefly from the publications of Muschenbroek, Desaguliers, and De Luc on this subject. It appears from many experiments, that the mercury stands higher in tubes of a larger, than in those of a narrower bore; and therefore when observations are made with different barometers, some regard should be paid to the difference of their diameters, and it would be desirable to have them constructed of tubes of the same diameter. The bore of the tube should be large, in order to prevent the effects of the attraction of cohesion; not less than one fourth of an inch; but if they are one-third of an inch diameter, they are better. If a cistern be used as a reservoir for the stagnant mercury, it should be large in proportion to the diameter of the tube, at least ten times greater; that the addition or subtraction of the mercury, contained between the greatest and least altitudes, may not sensibly affect its depth; for the numbers marked on the scale annexed to the tube, shew their distance from a fixed point, and cannot truly indicate the height of the column above the mercury in the cistern, unless its surface coincide with this point, and be immovable. In order more effectually to preserve the lower surface at the same height from divisions on the scale affixed to the instrument, the father of the late Mr. George Adams first applied to the barometer a floating gage, by means of which the same screw that renders the barometer portable, regulates the surface of the mercury in the cistern, so that it is always at the place from whence the divisions on the scale commence. See *Portable BAROMETER*.

The tube should be preserved free from dust till it is used; and for this purpose it may be hermetically sealed at both ends, and one end may be opened with a file, when it is filled. If this precaution has not been observed, the inside should be well cleansed, by washing it with alcohol highly rectified, and rubbing it with a little piston of shammy leather fastened to a wire. The mercury should be pure; and may be purged of its air, by previously boiling it in a glazed earthen pipkin covered close; and when the tube has been uniformly heated and rendered electrical by rubbing it, the hot mercury should be poured into it in a regular current, through a glass funnel with a long capillary tube, so that the air may not have room to pass between the parts of the quicksilver. M. De Luc directs, as Mr. Orme had practised many years ago in the construction of his improved diagonal barometers, that the mercury should be boiled in the tube,

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tube, as the most effectual method of purging it of its air and moisture. The process is briefly this: he chuses a tube of $2\frac{1}{2}$ lines or 3 lines bore, and not exceeding half a line in thickness; he fills it with mercury within two inches of the top, and holds it with the sealed end lowest in an inclined position over a chafing dish of burning charcoal, presenting first the sealed end to the fire, and moving it obliquely over the chafing-dish. As the mercury is heated, the air bubbles appear like so many fluds on the inner surface of the tube, and gradually running into one another, ascend towards the higher parts of the tube, which are not heated; here they are condensed and almost disappear; and after successive emigrations, they acquire a bulk by their union, which enables them at length to escape. When the mercury boils, its parts strike against each other, and against the sides of the tube, with such violence, that a person unaccustomed to this operation is ready to apprehend their force to be sufficient to break the tube. The mercury is thus freed from all the heterogeneous particles contained in it, together with their surrounding atmospheres, and the air which lines the inside of the tube, which cannot be easily expelled in any other way, is discharged; when this last-mentioned stratum of air is thus expelled, the tube may be afterwards emptied, and filled even with cold mercury, and will be found nearly as free from air as before. The mercury in the tubes thus prepared by a determinate quantity of heat, will rise higher than in those of the common sort, and the barometers will more nearly correspond with each other; whereas there will be a difference of six or eight lines in the ascent of the mercury in common barometers. When this operation is completed, the mercury generally remains suspended at the top, and will not descend to its proper level without shaking the tube to bring it down. The tubes, which should be chosen not less than three feet long, may now be filled to their proper length.

Barometers of this kind rose uniformly in a heated room; whilst the mercury in those that had been prepared in the common way descended, and in different proportions. When the room cooled, the former descended uniformly, and corresponded with each other; the latter rose with the same irregularity with which they had before descended, nor were they found, at the close of the experiment, to stand at the same relative heights as they did at the beginning of it. The reason of which is obvious, from the effects of heat on the air remaining in unequal quantities in the tubes in the one case, and on the purer mercury in the other.

Another circumstance that requires attention in the construction and use of barometers is the temperature of the air; for unless this remains the same, the dimensions of a given quantity of mercury will be variable; and the altitude of the mercury will be an uncertain measure of the weight of the atmosphere, because it is dilated by heat, and contracted by cold, when probably its weight and pressure are unchanged. M. De Luc attended particularly to this circumstance, and contrived to estimate the effects of heat on the quicksilver in the barometer, when it is used for accurate observations, by means of a thermometer; the scale of which is divided in such a manner as to indicate, with little labour of calculation, the correction to be made on account of heat. As an increase of heat that is sufficient to raise the mercury in the thermometer from the point of melting ice to that of boiling water, will lengthen the column of mercury in the barometer six lines, he divides each line in the scale of the barometer into four parts, each of which may be easily subdivided into four lesser parts, or sixteenths of a line. The scale of the thermometer marking the interval between the freezing and boiling points, and answering to the six lines

of the barometer, is divided into ninety-six equal parts; each of which will correspond to the sixteenth of a line in the motion of the mercury in the barometer dilated by heat which must be added to or subtracted from the height of the mercury in the barometer, for every degree of the variation of the thermometer so graduated. A scale of this kind, continued above boiling or below freezing water, is annexed to his *Portable BAROMETER and THERMOMETER*. M. de Luc prepared two barometers with their respective thermometers graduated in the manner above explained; he placed one pair in the cellar of one house, and the other pair in the upper room of another house in a lower situation, so as to be exactly on a level with the cellar: he found that the thermometer in the room rose nine degrees, and the barometer $\frac{2}{3}$ of a line higher than those in the cellar; whence he shews, that without allowing for the effect of heat, the difference in the heights of these two barometers would have indicated a difference of about forty-five feet in the heights of these two places, though they were exactly on the same level. M. De Luc's *Recherches, &c.* vol. i. p. 193—199. See *ATMOSPHERE*, and the sequel of this article.

M. Prius, an artist in Holland, has made an improvement in the reservoir of the simple barometer, by means of which the mercury contained in it is constantly kept at the same level; but the construction is difficult, and therefore it has not been generally adopted. De Luc's *Recherches, &c.* vol. i. p. 35.

The *common barometer* is a kind of chamber barometer, and serves for observing in a fixed place the changes of the atmosphere; but is not adapted for removal from one place to another, and in this respect differs from the portable barometer. It is sometimes combined with a thermometer, and sometimes also with a hygrometer, and in this form prepared by the mathematical instrument makers. An *Instrument of this kind* constructed by Messrs. Jones, opticians in London, is exhibited in *fig. 8*; and consists of a barometer *d*, thermometer *a a*, and hygrometer *c*, all in one machine frame. The thermometer or hygrometer of this apparatus may be conveniently separated from the frame, and occasionally used apart, if it be necessary. The thermometer is separated by means of two screws *aa*; and the hygrometer, by unscrewing a brass pin at the back of the frame. The index of the hygrometer is set at any time, merely by moving with the finger the brass wheel seen at *c*; and the two sliding indexes of the barometer and thermometer are moved by rack-work, set in action by the key *g* placed in the holes *b* and *i*. The divisions of the barometer plate *b* are in tenths of an inch from 28 to 31 inches; and these are subdivided into hundredths, by the Nonius or Vernier scale, placed on a sliding slip of brass, similar to that of the common barometers.

This Vernier (*fig. 85*.) is divided into ten equal parts, all of which are equal to eleven of those on the scale of inches or to eleven tenths. By this artifice, the height of the mercury at *E* is evident merely by inspection to the one hundredth part of an inch. For understanding this, it should be considered that $\frac{1}{10}$ th part of $\frac{1}{10}$ th of an inch is the $\frac{1}{100}$ th part of an inch. But every tenth of an inch in the scale *B* is divided into ten equal parts by the slip or Vernier *A*; for since ten divisions on that exceed ten on the scale by one division, than is, by one tenth of an inch, one division on the Vernier will exceed one division on the scale by one tenth part, and two divisions on the Vernier will exceed two on the scale by two tenths, and so on; therefore every division on the Vernier will exceed the same number of divisions on the scale by so many tenths of a tenth, or by so many hundredth parts of an inch. Consequently the ten equal divisions of an inch on the scale *B* must be considered as fo

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many ten hundredth parts of an inch, and numbered accordingly, 10, 20, 30, 40, &c. parts of an inch; then the Vernier gives the unit to each ten, thus: set the index very accurately to the top of the surface of the mercury E; and if at the same time, the beginning of the divisions at C coincide with a line of division in the scale B, then it shews the altitude of the mercury in inches and tenths of an inch exactly. But if the index line C of the Vernier fall between two divisions or tenths on the scale B, then there will be a coincidence of lines in both at that number of the Vernier, which shews how many tenth parts of that tenth the index of the Vernier has passed the last decimal division of the scale. E. G. Suppose the index of the Vernier were to point somewhere between the sixth and seventh tenth above 30 on the scale; then, if by looking down the Vernier, you observe the coincidence at number 8, this shews that the altitude of the mercury is 30 inches, and 68 parts of a hundredth of another inch, or simply thus, 30.68 inches. See **VERNIER**. The screw *f*, in *fig.* 84. serves to press the mercury up into the tube, when the instrument is to be moved, and thus to render the instrument a *portable barometer*.

The barometer belonging to the house of the Royal Society is of the cistern kind; and the Hon. Mr. Cavendish prefers this form to that of the syphon kind, because both the trouble of observing and the error of observation are less, as in the latter we are liable to an error in observing both legs. Moreover he remarks, that the quicksilver can hardly fail of settling more exactly in the former than in the latter; for the error in the settling of the quicksilver can proceed only from the adhesion of its edge to the sides of the tube. In the latter the adhesion may take place in two legs, but in the former only in one; and besides, as the air has necessarily access to the lower leg of the syphon barometer, the adhesion of the quicksilver in it to the tube will most probably be different according to the degree of dryness or cleanness of the glass. It is true, as M. De Luc observes, that the cistern barometer does not give the true pressure of the atmosphere; the quicksilver in it being a little depressed on the same principle as in capillary tubes. But it appears by calculation, that in the barometer of the society, the error arising from the alteration of the height of the quicksilver in the cistern can scarcely ever amount to so much as $\frac{1}{100}$ of an inch. In this barometer, the height of the quicksilver is estimated by the top of its convex surface, and not by the edge where it touches the glass; the index being properly adapted for that purpose; and this manner of observing is more accurate than the other. *Phil. Trans.* vol. lxxvi. p. 381.

As soon as it was discovered that the different heights of the mercury indicated by the barometer were in some degree connected with the state of the weather, and that it might be applied to the purpose of a "weather glass," many attempts were made to render the changes in it more sensible, and so to measure the variations of the weight of the atmosphere more accurately; and these attempts have given rise to a great number of barometers of different structures, deviating from the simplicity of the common barometer, and at the same time less accurate. Hence the wheel barometer, diagonal barometer, horizontal barometer, pendant barometer, &c.

Des Cartes suggested the first method of increasing the apparent sensibility, or enlarging the scale of variation, of the barometer, though he did not live to execute it. He proposed a tube AB (*Plate IX. Pneumatics, fig. 77.*) about twenty-seven inches long, terminating in a cylindric vessel CD: one half of which vessel, connected above with a long tube of a very small bore, sealed at top, and exhausted of its air,

was to be filled with water extending up into the small tube; the other part of the vessel, and the lower part of the tube, were to be filled with mercury. Whenever the mercury rose in the cylinder, it would force up a proportional quantity of water into the narrow tube, where it would have a considerably larger range than that of the mercury in the cylinder: neglecting the weight or pressure of the water, the motion of the water and of the mercury would be in the inverse ratio of the squares of the diameters of the vessels containing them. But the water presses on the mercury according to its height; and therefore if the whole range of the mercury in the cylinder, or in a common barometer, were supposed to be two inches, the specific gravity of water to that of mercury as 1 to 14, and the difference between the diameters of the cylinder and tube a *maximum* or infinite, then the entire scale of variation in this instrument would be twenty-eight inches; or the extent of this scale would be to that of the common barometer in the inverse ratio of the specific gravity of water to that of mercury. It is evident that in practice it would be somewhat less than twenty-eight inches. Huygens constructed a barometer of this kind; but here, though the column suspended was larger, and consequently the variation greater, yet the air imprisoned in the water getting loose by degrees, filled the void space in the top, and so ruined the machine.

Huygens then thought of changing the construction of the barometer, and of placing the mercury at top, and the water at bottom, in the following manner: ADG (*fig. 78.*) is a bent tube hermetically sealed in A, and open in G; the cylindric vessels BC and FE are equal, and about twenty-nine inches apart; the diameter of the tube is about a line, that of each vessel fifteen lines, and the depth of the vessels is about ten; the tube is filled with mercury (the common barometer standing about twenty-nine inches) which will be suspended between the middle of the vessel FE, and that of the vessel BC; the remaining space to A being void both of mercury and air: lastly, common water, tinged with a sixth part of *aqua regis* to prevent its freezing, is poured into the tube FG till it rises a foot above the mercury in DF.

When the mercury rising above the level of that contained in FE, through the tube AD, becomes a balance to the weight of the atmosphere; as the atmosphere increases, the column of mercury will increase, consequently the water will descend; as the atmosphere again grows lighter, the column of mercury will descend, and the water ascend. This *double barometer*, as it was called, which is nearly the same with that of Dr. Hooke, will therefore discover much minuter alterations in the air than the common one; for, instead of two inches, the fluid will here vary two feet; and by enlarging the diameters of the cylinders, that variation may be still increased; but it has this inconvenience, besides others, that the water will evaporate, and so render the alterations precarious; though the evaporations be in some measure prevented by a drop of oil of sweet almonds swimming at top: the column of water will likewise be sensibly affected by heat and cold.

The *double barometer* of Dr. Hooke was invented in the year 1663, and is described in the *Phil. Trans.* N^o 185. The invention was claimed by Huygens and De la Hire; but it sufficiently appears, that Hooke was the original inventor. (See De Luc's *Recherches*, vol. i. p. 18.) This consists of a compound tube ABCDEFG (*fig. 79.*), of which the parts AB and DE are equally wide, and EFG as much narrower as it is proposed to enlarge the scale. The parts AB and EG are made as cylindrical as possible.

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The part HBCDI is filled with mercury, having a vacuum above in AB. IF is filled with a light fluid, and FG with another light fluid, which will not mix with that in IF. The cistern G is of the same diameter with AB. It is plain that in this instrument the range of the separating surface at F must be as much greater than that of the surface I, as the area of I is greater than that of F; and this ratio may be selected at pleasure. This barometer is the best of those with an enlarged scale; it is most delicately moveable, and is the best adapted to a chamber for the purpose of amusement, by observations on the changes of the atmospheric pressure. It rises or falls by the slightest breeze, and is continually in motion. The most accurate method for graduating such a barometer would be to make a mixture of vitriolic acid and water, which should have $\frac{1}{10}$ of the density of mercury. Then, let a long tube stand vertical in this fluid, and connect its upper end with the open end of the barometer by a pipe with a branch to which the mouth may be applied. By sucking through this pipe, the fluid will rise both in the barometer and the other tube; and the rise of ten inches in this tube will correspond to a descent of one inch in the common barometer. Thus every point of the scale may be adjusted in due proportion to the rest. But nothing except actual comparison can determine what particular point of the scale corresponds to some determined inch of the common barometer. When this is done, the whole becomes equally accurate. It is liable, however, to several inconveniences. Although the heights of the contained fluids are always the same in a constant temperature, nevertheless their weight or pressure on the base is not always the same on account of the difference of their specific gravity; and though there be no sensible difference in the action of these fluids against the sides of the tube, yet there is a continual action, and therefore the movements of this barometer cannot be so free as those of the simple barometer. These differently coloured liquors mingle with one another, and form a deposit on the sides of the tube, so that their respective boundaries cannot always be ascertained with precision. The fluid of this barometer is also subject to evaporation; and heat acts upon the fluids which it contains. On account of these and such defects, others have had recourse to an

Horizontal or rectangular barometer ABCD (*fig. 80.*); the tube whereof is bent in form of a square BCD: at the top of its perpendicular leg it is joined to a vessel or cistern AB; and its variations accounted on the horizontal leg CD. Now here the interval, or space of variation, may be made of any extent at pleasure, and so the minutest change in the air become sensible. For the diameter of the tube CD being given, it is easy to find the diameter of the vessel AB, so as that the scale of descent in the tube DC shall have any given proportion to the scale of ascent in the vessel AB; the rule being that the diameter of the vessel is to that of the tube in a subduplicate reciprocal ratio of their scales.

The diameters then of CD and AB being given, together with the scale of ascent of the mercury in the vessel, the scale of mercury in the tube is found thus: as the square of the diameter of the tube is to the square of the diameter of the vessel, so reciprocally, is the scale of mercury in the vessel, to the scale of mercury in the tube.

Cassini was the first inventor of this kind of barometer, though the same construction had been thought of, and first published by M. J. Bernouilli, in the year 1710.

This and the preceding contrivance of Huygens are founded on a theorem in hydrostatics; viz. that fluids, having the same base, gravitate according to their perpen-

dicular altitude, not according to the quantity of their matter; whence the same weight of the atmosphere supports the quicksilver that fills the tube ACD, and the cistern B, as would support the mercury in the tube alone.

This last, however, with its excellencies, has great defects: for, by reason of the attraction between the parts of the glass and of the mercury (which Dr. Jurin has shewn to be considerable), with the length of the scale (consequently the quantity of motion), and the attrition against its sides, especially in sudden rises and descents, the mercury breaks, some parts of it are left behind, and the equability of its rise and fall ruined. Some therefore prefer the

Inclined barometer, or diagonal, of sir Samuel Moreland, where the space of variation is considerably larger than in the common one, and yet the rise and fall more regular than in the others.—Its foundation is this; that in a Torricellian tube BC (*fig. 81.*) inclined at any angle to the horizon, the cylinder of mercury equivalent to the weight of the atmosphere, is to a cylinder of mercury equivalent to the same in a vertical tube, as the length of the tube BC to the perpendicular height DC.

Hence, if the height DC be subtriple, subquadruple, &c. of the length of the tube, the changes in the diagonal barometer will be triple or quadruple, &c. of the changes in the common barometer. This barometer will scarce allow its tube to be inclined to the horizon at a less angle than 45° , without undergoing the inconveniency of the horizontal one.

Mr. Orme, in order to obviate some of the objections to which the diagonal construction of the barometer is liable, purified the quicksilver from its dross and earthy particles by distillation; and when the tube was filled with a certain quantity of mercury, discharged the remaining air by an intense heat sufficient to make the mercury boil; and he continued this operation for four hours. In the process, an innumerable quantity of small particles were emitted, and when no more bubbles rose in the tube, the mercury appeared extremely bright, but sunk lower in the tube than when it was first put in, by two inches. *Phil. Trans. Abr. vol. viii. p. 455.*

The *wheel barometer* was a contrivance of Dr. Hooke, in 1668, to make the alterations in the air more sensible; the foundation of this is the common vertical barometer, with a large ball above, and turned up at the lower end, with the addition of a couple of weights A and B (*fig. 82.*) hanging on a pulley, the one of them playing at liberty in the air, the other resting on the surface of the mercury in the inverted tube, and rising and falling with it.

Thus is the motion of the mercury communicated, by means of the pulley, to an index which turns round a graduated circle; and thus the three inches of vertical ascent are here improved to five, six, or more, at pleasure.

But the friction of the axis of this index, and more especially when it has contracted some rust, generally renders this sort of barometer useless; and, at best, the graduation of inches on the circle can only be considered as a scale of motions of the mercury in its tube; for the great variation of the height of the surface of the mercury in the tube below will perpetually falsify the inches and tenths upon the plate above. In a just or standard barometer, the inferior surface of the mercury in the cistern or tube below should either be invariable, or reducible by a pressing screw to a fixed or determinate gauge point.

The wheel barometer has lately been obtruded upon the public by the strolling Italian hawkers in our streets; but the imperfect manner in which these barometers are constructed,

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fructed, as well as their defective principle, renders them mere mechanical pictures, and not scientific instruments, in the parlour.

An instrument of this kind, with considerable improvements, has been constructed by Mr. Fitzgerald, F. R. S. It is furnished with two pulleys that move on friction-wheels; each of which turns an index on the centre of a graduated circle. The smaller circle is four inches in diameter, and divided into three equal parts, each of which is again subdivided decimally; and the changes corresponding to the rise or fall of the mercury from 28 to 31 inches, are marked on the margin of it, as they are on the scales of common barometers. The larger circle is divided into 300 equal parts; and being about 30 inches in circumference, the index belonging to it will mark distinctly the 600th part of an inch in the rise or fall of the mercury. On the centre of this circle two registers are fixed, which are placed along the index when the instrument is adjusted; one of them is carried round with the index, and left behind on its return; so that their distance will determine the limits of the variation from one observation to another. Phil. Transf. vol. lii. part i. No. 29. Ibid. vol. lx. No. 10.

The *pendant barometer*, invented by M. Amontons, in 1695, is a machine rather pretty and curious than useful (fig. 83.) It consists of a conical tube, placed vertically, its upper and smaller extreme hermetically sealed; it has no vessel or cistern, its conical figure supplying that defect; for when filled, like the rest, there will be as much mercury sustained as is equivalent to the weight of the atmosphere; and as that varies, the same mercury takes up a different part of the tube, and so becomes of a different weight.

Thus, when the weight of the atmosphere is increased, the mercury is driven up into a narrower part of the tube, by which means its column is lengthened, and for the reason just given, its weight increased. Again, the atmosphere decreasing, the mercury sinks into a wider part of the tube; by which means its column is again shortened, and its pressure accordingly weakened. Thus, the same mercury is still a balance to the atmosphere under all its variations. The inconvenience in this barometer is, that to prevent the mercury and air from changing places, the bore of the tube must be very small; which smallness of the bore renders the friction so sensible as to impede its playing.

The *marine barometer* is a contrivance of Dr. Hooke, in 1700, to be used at sea, where the motion of the waves renders the others impracticable; it resembles that of Amontons invented in 1705. This is nothing more than a double thermometer, or a couple of tubes half filled with spirit of wine; the one hermetically sealed at both ends, with a quantity of common air inclosed; the other sealed at one end, and open at the other.

Now the air, we know, is able to act on the spirit of wine, and raise it, two ways; partly by its gravity, as in the Torricellian tube; and partly by its heat, as in the thermometer. If then the two tubes be graduated, so as to agree with each other at the time when the air is inclosed, it will easily follow, that, wherever the two agree afterwards, the pressure of the atmosphere is the same as at the time when the air was inclosed. If in the thermometer open to the air the liquor stand higher, considering at the same time how much the other is risen or fallen from the other cause of heat or cold, the air is heavier; on the contrary, when it is lower, compared with the other, the air is lighter than at the time when the instrument was graduated. Here the spaces answering to an inch of mercury will be

greater or less, according to the quantity of the air inclosed, and the smallness of the tubes; and they may be increased almost in any proportion. But it must be remembered, that the density and rarity of the air, on which this machine is founded, do not only depend on the weight of the atmosphere, but also on the action of heat and cold. This, therefore, can never be a just barometer; but may properly enough be called a manoscope, or instrument to shew the density of the air. See MANOMETER.

Nevertheless, the instrument is said to be of good use in giving notice of all bad weather at sea, as also of veerable winds, and of the neighbourhood of ice. Phil. Transf. No. 429. p. 133.

Improved marine barometers. In the best of these barometers, Messrs. W. and S. Jones apply a small ivory floating gage, or index, to an aperture in the cistern of mercury below; the index floats on the mercury; a mark is cut on its stem, and another on the socket in which it moves; these two marks are brought to a coincidence by turning the screw below; and thus the surface of the mercury in the cistern is made to be just to the divisions of the plate above.

Mr. Nairne, an ingenious artist in London, constructed a marine barometer for captain Phipps, in his voyage to the north pole; the upper part of which was a glass tube, about three-tenths of an inch in diameter, and four inches long, to which another glass tube was joined, with a bore about $\frac{1}{4}$ th of an inch diameter. These two glass tubes formed the tube of this barometer, which was filled with mercury, and inverted into a cistern of the same. The instrument was fixed in gimbals, and kept in a perpendicular position by a weight fastened to the bottom of it, and was not liable to the inconvenience attending the common barometer at sea. Voyage to the North Pole, p. 123.

The *marine barometer*, as it is commonly constructed, differs from the common one merely in having the bore of the tube small for about two feet in its lower part, but above that height it is enlarged to the common size. Through the small part of the instrument the mercury is prevented from ascending too hastily by the motion of the ship, and the motion of the mercury in the upper wide part is consequently lessened. Much depends upon the proper suspension of this instrument; and Mr. Nairne has found by experiment the point from which it may be suspended so as not to be affected by the motion of the ship.

We shall here subjoin the description of two kinds of *marine barometers*, which are constructed by Messrs. W. and S. Jones of London, and which seem to be well adapted to marine purposes. In Plate X. fig. 86. one of these barometers is represented as supported on its stand in the cabin of a ship, ready for observation; *abc* are the folding mahogany legs, about three feet each in length; *A* is a circular brass plate, with two hollow brass tubes fixed perpendicularly upon it; a gimbal brass ring with its axis is made to turn between these tubes; and on two spiral springs placed in the tubes, the axis of the gimbal ring acts. The barometer frame *B* is attached inwards to this ring by an axis and two screws, in a position at right angles to the axis in the uprights, yet left free to move; the three legs are screwed down to the floor of the cabin. Whatever heave or motion the ship may receive, the barometer, by its action on the gimbal, on the springs in the tubes, and on its axis, will always tend to keep its vertical position, and as speedily as possible attain to a state of quiescence; *d* is a screw that serves to move the sliding Nonius scale upon the plate above; *e* is a small mahogany door that is shut over the tube and plate, to defend them when this instrument is not in use. On the top of the frame there is a pendent brass ring *g*, by which the barometer,

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rometer, without the stand, may be hung on a neck against the wall of a room or side of a cabin: the screw *f* at the bottom of the frame serves to compress the mercury in the cistern, in order to force it up to the top of the tube, as in the common barometers. By the barometer's being moveable from its stand, and the stand folding up into a small extent, the whole apparatus may be packed up in a convenient narrow deal case for carriage.

The principal inconvenience that has been found to attend this barometer has been the ground occupied by the feet in the cabin when the instrument is in use, this being sometimes more than a mariner can spare; and besides, it is liable to be stumbled against by a heedless by-stander. To obviate this inconvenience, another principle of mounting has been adopted (see *fig. 87.*) The barometer in this figure is in every respect the same as the preceding, but its mode of suspension is as follows: on the sides of the frame, at its centre of gravity, are fixed two iron centres; as an axis to these there is fixed a brass frame *a*, and brass pillar; one end of this pillar is framed on a vertical joint, having only one motion upwards, and checked by a brass socket shoulder below, to keep the pillar and arm in an horizontal position; thus causing the barometer to be suspended in a vertical direction. The length of the pillar and arm together is about 14 inches; the joint socket at the end of the pillar is attached to a strong round brass plate *b*, about 3 inches diameter, with four countersunk holes for receiving screws, by which the whole instrument may be screwed securely to the side of a cabin, in any convenient or safe situation. When the instrument is in a state of suspension for observation, it will be about 15 inches from the side of the cabin, and being also free to act on its axis of suspension at *a*, it is evident that notwithstanding any common motion or reel of the ship, the barometer will tend to keep a vertical position, or to recover it after having been agitated. The only circumstance to be apprehended is the possibility that, by a violent motion, the bottom of the barometer should strike against the side of the cabin, and endanger the glass tube; but this is easily avoided by fixing a temporary leathern cushion against that part of the cabin against which alone it could strike. When the instrument is not wanted for any observation, while the ship is in motion, it may be moved upwards upon the joint, and it will close to the side of the cabin or wall, and may be buckled fast by a leather strap and buckle, *c*, attached for that purpose (see *fig. 86.*), and thus be out of any danger from any person suddenly or unguardedly coming to it; and it will answer the purpose of the common chamber barometer.

M. Passement, an ingenious artist at Paris, accommodates the barometer to nautical uses, by twisting the middle part of the common barometer into a spiral, consisting of two revolutions: by this contrivance, the impulses which the mercury receives from the motions of the ship, are destroyed by being transmitted in contrary directions. De Luc's *Recherches*, &c. vol. i. p. 34.

The *statical barometer*, or *baroscope*, used by Mr. Boyle, Otto de Gueric, &c. consisted of a large glass bubble, about the size of a large orange, and blown so thin as to weigh only 70 grains. This being balanced by a brass weight, in a nice pair of scales, that would turn with the 30th part of a grain, was found to act as a barometer; for this obvious reason, that the surface of the bubble was opposed to a much larger portion of air than that of the brass weight, and consequently was liable to be affected by the varying specific gravity of the atmosphere; so that when the air became specifically light, the bubble descended, and *vice versa*. Thus (says Mr. Boyle) he could perceive variations

of the atmosphere no greater than such as would have been sufficient to raise or depress the mercury in the common barometer an 8th part of an inch. Nevertheless, the two bodies being of equal gravity, but unequal bulk, if the medium in which they equiponderate be changed, there will follow a change of their weight; so that if the air grows heavier, the greater body, being lighter in specie, will lose more of its weight than the lesser and more compact; but if the medium grow lighter, then the bigger body will outweigh the less.

The barometer of Mr. Caswell, described in the *Philosophical Transactions*, has been much commended for its accuracy; the structure of it is as follows: suppose *ABCD* (*fig. 88.*) a bucket of water, wherein is the barometer *xyzosm*, consisting of a body *xrsm*, and a tube *ezyo*. The body and tube are both concave cylinders, communicating with each other, and made of tin, or rather glass. The bottom of the tube *zy* has a lead weight to sink it, so that the top of the body may just swim even with the surface of the water, by the addition of some grain weights on the top. The water, when the instrument is forced with its mouth downwards, gets up into the tube to the height *yo*. There is added on the top a small concave cylinder, which we call the *pipe*, to distinguish it from the other at bottom which we call the *tube*: this pipe is to sustain the instrument from sinking to the bottom; *md* is a wire, *ms* and *de* two threads oblique to the surface of the water, performing the office of diagonals. Now, while the instrument sinks more or less by the alteration of the gravity of the air, there where the surface of the water cuts the thread is formed a small bubble, which ascends up the thread as the mercury of the common barometer ascends, and *vice versa*.

This instrument, as appears from calculation which the author gives, shews the alterations in the air more accurately than the common barometer, by no less than 1200 times. He observes, that the bubble is seldom known to stand still a minute; that a small blast of wind that cannot be heard in a chamber will make it sink sensibly, and that a cloud always makes it descend, &c.

Mr. Rowning, (*Phil. Trans. N° 427.* and *System of Philosophy*, part ii. diff. 4.) has described a barometer, in which the scale of variation may be infinitely extended. *ABCD* (*fig. 89.*) is a cylindrical vessel, filled with a fluid to the height *W*, in which is immersed the barometer *SP*, consisting of the following parts: the principal one is the glass tube *TP* (represented separately at *tp*), whose upper end *T* is hermetically sealed; this end does not appear to the eye, being received into the lower end of a tin pipe *GH*, which in its other end *G* receives a cylindric rod or tube *ST*, and thus fixes it to the tube *TP*. This rod *ST* may be taken off, in order to put in its stead a larger or a lesser as occasion requires. *S* is a star at the top of the rod *ST*; and serves as an index by pointing to the graduated scale *LA*, which is fixed to the cover of the vessel *ABCD*. *MN* is a large cylindrical tube made of tin (represented separately at *mn*), which receives in its cavity the smaller part of the tube *TP*, and is well cemented to it at both ends, that none of the fluid may get in. The tube *TP*, with this apparatus, being filled with mercury, and plunged into the basin *MP*, which hangs by two or more wires upon the lower end of the tube *MN*, must be so poised as to float in the liquor contained in the vessel *ABCD*; and then the whole machine rises when the atmosphere becomes lighter, and *vice versa*. Let it now be supposed that the fluid made use of is water; that the given variation in the weight of the atmosphere is such, that by pressing upon the surface of the water at *W*, the

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the surface of the mercury at *X* may be raised an inch higher (measuring from its surface at *P*) than before; and that the breadth of the cavity of the tube at *X*, and of the basin at *P*, are such, that by this ascent of the mercury there may be a cubic inch of it in the cavity *X* more than before, and consequently in the basin a cubic inch less. Now, upon this supposition, there will be a cubic inch of water in the basin more than there was before, because the water will succeed the mercury to fill up its place. Upon this account the whole machine will be rendered heavier than before by the weight of a cubic inch of water; and therefore will sink, according to the laws of hydrostatics, till a cubic inch of that part of the rod *WS*, which was above the surface of the water at *W*, comes under it. Then if we suppose this rod so small that a cubic inch of it shall be 14 inches in length, the whole machine will sink 14 inches lower into the fluid than before; and, consequently, the surface of the mercury in the basin will be pressed more than it was before, by a column of water 14 inches high. But the pressure of 14 inches of water is equivalent to one of mercury; this additional pressure will make the mercury ascend at *X* as much as the supposed variation in the weight of the air did at first. This ascent will give room for a second cubic inch of water to enter the basin; the machine will therefore be again rendered so much heavier, and will subside 14 inches farther, and so on *in infinitum*. If the rod was so small that more than 14 inches of it were required to make a cubic inch, the variation of this machine would be negative with respect to the common barometer, and instead of coming nearer to an equilibrium with the air by its ascent or descent, it would continually recede farther from it: but if less than 14 inches of rod were required to make a cubic inch, the scale of variation would be finite, and might be made in any proportion to the common one.

The same author has also contrived a *compound barometer*, in which the scale of variation shall bear any proportion to that of the common one. *ABC* (fig. 90.) is a compound tube hermetically sealed at *A*, and open at *C*; empty from *A* to *D*, filled with mercury from thence to *B*, and from thence to *E* with water. It appears from the nature of a siphon, that if *H, B, G*, be in the same horizontal line, the column of mercury *DH* will be in equilibrio with the column of water *GE*, and a column of air of the same base, and will therefore vary with the sum of the variations of these. He has subjoined a calculation, whence it appears, that if the tubes *AF* and *FC* are of an equal bore, the variation in this is less than that of the common barometer, in the proportion of 7 to 13; but if the diameter of *AF* be to that of *FC* as 5 to 1, the variations will be to those in the common barometer, as 175 to 1; but if the proportion of the diameters be greater, the variations will be infinite in respect to those of the common barometer. Of the practical utility of this construction the author had no experience. Rowning's Nat. Phil. part. ii. diff. 4.

Another contrivance for enlarging the scale of the barometer is exhibited in fig. 91. *AB* is the tube of a common barometer, open at *B*, and sealed at *A*, suspended at the end of a lever which moves on the fulcrum *E*. *D* is a glass tube fixed, and serving for a cistern, which is wide enough to admit the free motion of the barometrical tube *AB*. *AB*, when filled with mercury, is nearly counterbalanced by the long end of the lever. When the atmosphere becomes lighter, the mercury descends in the long tube; and the surface of the mercury rising in the cistern, pushes up the tube *AB*, which causes the lever to preponderate, and to point out by its index moving along a circular arc, the most minute variations. This apparatus, however, is subject to the

inconvenience of the friction as well as weight of the lever, when put in motion by the rise or fall of the tube *AB*.

— Whilst some have endeavoured to enlarge the variations of the barometer, others have endeavoured to make it more convenient, by reducing the length of the tube. M. Amontons, in 1688, first proposed this alteration in the structure of barometers, by joining several tubes to one another, alternately filled with mercury and with air, or some other fluid; and the number of these tubes may be increased at pleasure: but the contrivance is more ingenious than useful.

M. Mairan's reduced barometer, which is only three inches long, serves the purpose of a *manometer* in discovering the dilatations of the air in the receiver of an air-pump; and instruments of this kind are now generally applied to this use. See *Air-Pump*, and *GAGE*.

For an account of a self-registering barometer by the Rev. Arthur M'Gwire, see *Irish Transactions*, vol. iv. p. 141.

The barometer lately invented by Alexander Keith, Esq. F. R. S. and F. A. S. Edinb. marks the rise and fall of the mercury from two different times of observation. This instrument consists of a glass tube *ABCD* (fig. 92.) bent in the manner represented in the figure, open at *D*, and hermetically sealed at *A*. The length from *A* to *B* is 8 inches, and its calibre about $\frac{3}{4}$ of an inch; from *B* to *C* it is $31\frac{1}{2}$ inches long, and about $\frac{1}{4}$ inch calibre; and from *C* to *D* $4\frac{1}{2}$ long, and $\frac{1}{2}$ inch calibre. The tube is filled with mercury, the length from *A* to *E* being $29\frac{1}{2}$ inches. When the tube is hung perpendicularly, the mercury will fall from *B* towards *E*, leaving a vacuum from *A* to *B*. When the atmosphere becomes heavier, the mercury falls in the tube *DC*; and when lighter, it rises. The range of the scale is about 3 inches, being equal to that of a common barometer of the best construction, which has a basin with a very broad surface. This instrument moves in a direction contrary to that of the common barometer, the one rising while the other falls. The tube *DC* is represented on a larger scale in fig. 93.; *F* is the float, having the float-wire fixed to it, terminating in a knee at a right angle between the indexes *L, L*, where it embraces a very small wire stretched along the scale, and thereby raises or lowers them as the mercury rises or falls in the tube *DC*. The barometer is prepared for observation, by bringing down the one and raising the other index, till both touch the knee of the float-wire. When next observed, the upper index will point out the greatest depression of the mercury, or lightness of the atmosphere; and the lower the greatest rise of the mercury, or weight of the atmosphere since the scale was prepared. By these means, the variations of the atmosphere are more truly pointed out than by the common barometer; for it often happens that during tempestuous weather, or before it, the mercury both rises and falls within a few hours, or during the night time; which variations cannot be noticed by any of the barometers now in use. The sudden fall and rise, or even the rise and fall of the mercury, always denote an extraordinary agitation in the atmosphere. In a common barometer the mercury may be at the same height in the morning that it was the night before; which leads to a conclusion that as there has been no agitation of the mercury, there will be calm or settled weather: but this new barometer will often shew in such cases, that the one float has been raised $\frac{1}{4}$, and the other depressed as much; which instead of indicating calm weather denotes that tempestuous weather may be expected.

The weight of the atmosphere at great heights might be discovered by suspending this instrument to an air balloon. Edinb. Transf. vol. iv. 1798.

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The *portable barometer* is so contrived, that it may be carried from one place to another without being disordered; and since it has been applied to the mensuration of altitudes, it has undergone many improvements in its construction and appendages. The most common instrument of this kind consists of a tube of a proper length accurately filled with mercury; the lower end of the tube is glued to a wooden reservoir, the bottom of which is formed of leather; the superfluous mercury descends into this reservoir, and the air, by pressing upon the flexible leather, keeps the mercury suspended at its proper height. This reservoir is concealed from the eye by a neat mahogany cover or box; through the bottom of which passes a screw, having upon its end a round plate, which presses upon the leather bag and forces the mercury to the top of the tube, so that it is prevented from shaking or breaking the tube by dashing against the top of it when the instrument is removed from one station to another. This apparatus is placed in a frame, having on its upper part a silvered brass plate with a scale of inches and tenths reckoned from the surface of the mercury in the cistern; and close to the line of inches is a slit or groove for sliding the nonius scale up and down. On the left hand side of the plate are engraved the words *fair, changeable, and rain*. When this barometer is used, the screw at the bottom of the frame is to be so turned that the mercury may fall to its proper height, and indicate the corresponding changes in the weight of the air. The upper edge of the index is adjusted so as to coincide with the surface of the mercury in the tube, and then the nonius scale will shew the height of the column. Before every observation, the frame should be gently struck with the knuckles in order to disengage the quicksilver from the tube. This barometer does not admit of being adjusted in such a manner, that the divisions on the scale may be at that height from the mercury in the cistern, which is expressed by the numbers affixed to them; because the mercury as it falls in the tube rises in the reservoir, and when it rises in the tube it sinks in the reservoir; and thus its distance is perpetually varying from the divisions on the scale. Besides the tension of the leather occasions a considerable resistance to the pressure of the atmosphere. The portable barometer has of late received a variety of improvements, the principal of which are here recited.

The portable barometer of Mr. Ramsden is constructed with his usual accuracy. The principal parts of this instrument are a simple straight tube, fixed into a wooden cistern, which for the convenience of carrying is shut with an ivory screw; and that being removed, it is open when in use. Fronting this aperture is distinctly seen the coincidence of the gage-mark with a line on the rod of an ivory float, swimming on the surface of the quicksilver, which is raised or depressed by a brass screw at the bottom of the cistern. From this, as a fixed point, the height of the column is readily measured on the scale attached to the frame, always to $\frac{1}{1000}$ th part of an inch, by means of a nonius moved with rack work. A thermometer is placed near the cistern, whose ball was usually inclosed within the wood work; but that defect has been since remedied. The three-legged stand, supporting the instrument when in use, serves as a case for it when inverted and carried from place to place. Two of these barometers after the quicksilver in them hath been carefully boiled, being suffered to remain long enough in the same situation, so as to acquire the same temperature, usually agree in height, or rarely differ from each other more than a few thousandth parts of an inch, which are to be allowed for in calculating altitudes, as well as in estimating the rate of expansion.

The next instrument of this kind which we shall mention and minutely describe, is that of M. de Luc. This portable

barometer consists of a tube composed of two pieces, or of two tubes (see *fig. 94.*): one of these tubes is thirty-four French inches in length, and straight from the top but bent at the bottom in form of a siphon; the other tube is eight inches long, open at both ends, of the same diameter with the former, and communicating with its open end by means of a cock. When this barometer is carried from one place to another, it is inverted very slowly to prevent the intrusion of any air; the quicksilver retires into the long tube on which the key of the cock is turned; and to preserve the cock from being too much pressed by the mercury, the barometer is conveyed in this inverted posture. When an observation is to be made, the cock is first opened; the tube is then turned upright very slowly, to prevent, as much as possible, such vibration of the mercury as would disturb the observation; and according to the weight of the atmosphere, the mercury will fall in the longer branch, and rise up through the open cock into the shorter. The cock is wholly made of ivory, except the key; and is composed of two small ivory cylinders *a* and *b*, open through their whole length, and admitting the free passage of the tube, and of a square piece of ivory *c*, thirteen lines long, as many broad, and nine lines thick, having two holes, one for receiving the key *f d e*, and the other in a vertical direction with two short tubes, *b, i*, at its extremity, adapted to the holes in the small ivory cylinders above mentioned. The most essential part of the cock is the key, which serves to open and close the communication between the two glass tubes. The part of the key that turns within the cock and passes through the opening in *c* to *f*, is formed of cork, and the outward part or handle *d e*, is made of ivory. The cork is firmly fastened to the ivory by means of a broad thin plate of steel, which cuts both the ivory and cork, lengthwise, through the centre, and reaches within to the hole of the key. This plate serves to counteract the flexibility of the cork, and to make it yield to the motion of the handle, although it is compressed in a very considerable degree by the ivory, in order to preserve it tight. But that this compression may not contract the diameter of the hole of the key, it is lined with a thin hollow ivory cylinder of the same diameter with the tubes. The extremities of the tubes are wrapped round with the membrane employed by the gold-beaters covered with fish-glue in order to fix them tight, the one in the lower, and the other in the upper end of the vertical canal of the cock. On the upper end of the shorter tube is fixed, during the intervals of observation, a kind of funnel, with a small hole in it which is shut with an ivory stopple. This is intended for keeping the tube clean, for replacing the mercury that may have escaped through the cock in consequence of any dilatation; and also for replacing the mercury taken out of the shorter tube, after shutting the cock, when any observation is completed; because when the mercury is left exposed to the air, it contracts on its surface a dark pellicle that sullies both itself and the tube. The shorter tube should be cleansed occasionally, by a little brush of sponge fixed to the end of a wire adapted to the purpose.

The barometer thus constructed, and described more in detail by the author (*Recherches*, vol. ii. p. 6, &c.) is placed in a long box of fir, the two ends of which are lined within with cushions of cotton covered with leather. This box may be carried on a man's back like a quiver in its natural position, though the inverted position is to be preferred, either walking or riding; and

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should be defended from the rain by a cover of wax-cloth. In order to prevent its being unduly affected by heat, it should be kept at a distance from the body of the man who carries it, and be protected from the sun by an umbrella, when it is near the place of observation. To the apparatus a plummet should be annexed, in order to ascertain its vertical position, and a three-legged frame or tripod will serve to keep it firm in that position at the time of observation. The scale of this barometer is annexed to the long tube; it commences at a point on a level with the upper end of the short one, and rises in the natural order of the numbers to 21 inches. Below the above point, the scale is transferred to the short tube; and descends upon it in the natural progression of the numbers to 7. The interval of 27 inches, comprehended between the point marked 20 in the upper tube, and that which corresponds to 7 in the lower, is divided into 27 parts, which are inches. These inches are again divided into lines, fourths, sixteenths, and even thirty-second parts of lines. The adhesion and friction of the mercury in the tubes will not allow of a more minute subdivision. As the mercury falls in the one tube, it will rise in the other; and therefore the total altitude will be found by adding that part of the scale which the mercury occupies in the long tube, to that part of it which the mercury does not occupy in the short one. In estimating, however, the total fall or rise in the long tube, every space must be reckoned twice; because in barometers of this kind, half the real variation only appears in one of the branches.

One of the thermometers, exhibited in *fig. 95*, is designed for ascertaining the corrections that are to be made in the height of the mercury on account of any variation in the temperature of the air by heat and cold. For this purpose it is placed near the middle of the longer tube, that it may partake as much as possible of its mean heat. The ball is nearly of the same diameter with that of the tube of the barometer, that the dilatations or condensations of the fluids contained in them may more exactly correspond; and this ball should also be enclosed in wood that it may participate, as well as the barometer, of the heat of the bottom of the box. The scale of the thermometer is divided into 96 parts, between the points of boiling water and melting ice. M. de Luc, having found that an increase of heat, sufficient to raise the thermometer through this interval, augmented the height of the mercury in the barometer, when it was at 27 French inches, precisely six lines, was led to divide it into 96 equal parts; so that one of these parts corresponded to $\frac{1}{16}$ th of a line in the height of the barometer: and this quantity therefore must be added to or subtracted from the said height, for every degree of variation of the thermometer thus graduated. He placed the term 0, one eighth part of the above interval above the lower point: so that there are 12 degrees below, and 84 above it; because as 27 French inches express the mean height of the barometer, so the 12th degree above freezing is nearly the mean altitude of the thermometer. Hence by taking these two points, the one for the mean altitude and the other for the mean heat, there will be fewer corrections necessary for reducing all observations to the same state, than if any higher or lower points had been taken. The divisions above 0 or zero, are considered as positive and denoted by +, and those below as negative and expressed by —.

If the barometer remains at 27 French inches, and the thermometer at 0, according to the above explained graduation, no corrections are necessary. But if, while the barometer continues at 27 inches, the thermometer should rise any number of degrees above 0, so many sixteenths of a line must be subtracted from the 27 inches, in order to obtain the true height of the barometer produced by the weight of

the atmosphere, and to reduce this observation to the state of the common temperature. On the other hand, if the thermometer should fall any number of degrees below 0, while the barometer remains at 27 inches, so many sixteenths must be added to that height in order to obtain the true altitude. These corrections are very simple and easy when the height of the barometer is at or near 27 inches. But if it fall several inches below this point, as the portable barometer frequently must, according to the stations in which it is placed for the purpose of measuring altitudes, the dilatations will no longer correspond with the degrees of heat, after the rate of $\frac{1}{16}$ th of a line for every degree of the thermometer; because the columns of mercury being shortened, the quantity of fluid to be dilated must be diminished; and, according to a general statement, the quantity of dilatation for the same degree of heat will be as much diminished as the column is shortened. If, then, it should be still found convenient to reckon the dilatations by sixteenths of a line, these sixteenths must be counted on a scale, of which the degrees should be as much longer than the degrees of the first scale, as the shortened column of mercury is less than 27 inches, the height to which the length of the degrees of the first scale was adapted. E. G. Let the mercury descend, in consequence of the elevation of the barometer, to $13\frac{1}{2}$ inches, or half the mean column, and let the thermometer ascend ten degrees above the mean heat; then according to the rule $\frac{1}{16}$ ths should be deducted from the mean column for this temperature; but ten half-sixteenths only or $\frac{5}{8}$ ths must be subtracted from the column of $13\frac{1}{2}$ inches, because the sum of dilatations will be half that of the former; the quantities of fluid being to one another in that proportion. As it would occasion considerable embarrassment to subdivide the sixteenths of correction into smaller fractions proportional to every half inch of descent in the barometer, the same end may be obtained in a much more easy manner by reckoning the corrections on different scales of the same length, with the degrees longer as the columns of the barometer are shorter. E. G. The degrees of correction on a scale applicable to the column of $13\frac{1}{2}$ inches will be double in length to those of the same degrees adapted to the column of 27 inches, and consequently the number of corrections will be reduced to likewise one half. M. de Luc constructed, in the manner which he has minutely described (*Recherches*, vol. ii. p. 26, &c.), on a piece of vellum, scales with these properties for no less than 23 columns of mercury, being all those between 28 inches and 29 inclusive, reckoning from half inch to half inch, within which extremes every practical case will be comprehended. This vellum he wrapped on a small hollow cylinder, including a spring, like a spring curtain, and he fixed it on the right side of the thermometer. The vellum was made to pass from right to left, behind the tube of the thermometer, and to move along its surface. The observer, in estimating the necessary corrections, draws out the vellum till the scale corresponding to the observed altitude of the barometer, touches the thermometer, and he counts them on that scale. The vellum is then let go, and it is gently furled up by the screw.

M. de Luc, having provided the necessary apparatus for the accurate mensuration of heights, proceeded to establish by experiment the altitudes corresponding to the different descents of the mercury; and he made choice of Saleve, a mountain near Geneva, about 3000 French feet high, for the scene of his operations. The height of this mountain was twice measured by levelling, and the result of the mensuration, at the interval of six months, gave a difference of only $10\frac{1}{2}$ inches. On this mountain he selected no less than 15 different stations, rising at the rate of nearly 200 feet one above another; and here he proposed to make such a number of observations as would

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would serve either to establish a new rule of proportion between the heights of places and the descents of the mercury, or to justify the preference of some one of those that had been formerly discovered.

Soon after he had commenced his observations, an unexpected phenomenon occurred. Having observed the barometer, at one of the stations (*Recherches*, vol. ii. p. 49, &c.) twice in one day, he found the mercury higher in the second observation than in the first; and this variation he naturally ascribed to a change in the weight of the atmosphere, which must have affected his other barometer stationed on the plain in the same manner. But he was not a little surprized when, on examining the state of the latter barometer, he found that it had pursued a contrary course, and that it had fallen while the other rose. As this difference could not proceed from any inaccuracy in the observations, it was so considerable as to discourage his progress and to disappoint his hope of success, unless he should be able to explore its cause, and to make due allowance for its effects. The experiment was carefully repeated at different periods. An observer on the mountain, and another on the plain, took their respective stations at the rising of the sun, and continued to make their respective observations, both of the barometer and thermometer, every quarter of an hour till the sun set. It was found, that the lower barometer gradually descended for the first three quarters of the day; after which it re-ascended, till in the evening it stood at nearly the same height as in the morning. But the higher barometer ascended for the first three quarters of the day, and then descended, so as to regain likewise about sun-set the altitude of the morning. The following theory seems to afford a satisfactory solution of this phenomenon. When the sun rises above the horizon of any place, his beams penetrate the whole section of the atmosphere of which that horizon is the base; but falling very obliquely on the greater part of it, they communicate little heat, and consequently produce little dilatation of its air. As the sun advances, his rays become more direct, and the heat and rarefaction of course increase. However, the greatest heat of the day is not felt when the sun is in the meridian and his rays are most direct, but it increases after mid-day while the place receives more heat than it loses; just as the tide attains not its highest altitude till the moon has proceeded a considerable way to the west of the meridian. Besides the heat of the atmosphere is greatest at the surface of the earth, and seems not to ascend to any great distance above it; and therefore the dilatations of the air occasioned by the sun will be found principally, if not solely, near the earth. A motion of the adjacent air, in all directions, must take place in order to allow the heated air to expand itself. The heated columns, extending themselves vertically, will become longer, and also specifically lighter in consequence of the rarefaction of their inferior parts. As the motion of air, till it rises into wind, is not rapid, these lengthened columns will take some time to dissipate their summits among the adjacent less rarefied columns that are not so high; at least they will not do this as speedily as their length is increased by the rarefaction of their bases.

In order to apply this theory to the solution of the phenomenon above mentioned, it should be considered, that the barometer on the plain begins to fall a little after morning, because the column of air that supports it becomes specifically lighter on account of the rarefaction occasioned by the heat of the sun. It continues to fall during the three first quarters of the day, because the heat and consequent rarefaction are continually increasing. After this period it rises again, because the cold and condensation coming on,

the specific gravity is augmented by the rushing in of the adjacent air. Thus the equilibrium is destroyed, and the mercury returns to the altitude of the morning. The barometer on the eminence rises after morning, and continues so to do for three fourths of the day, for two reasons. The density of the columns of air is greatest near the earth, and decreases as the distance from it increases. The higher therefore we ascend in the atmosphere, we find air specifically lighter. But by the rarefaction of the base of the column that supports the mercury of the barometer on the eminence, the denser parts of that column are raised higher than they would naturally be if left to the operation of their own gravity. On this account, the higher barometer is pressed with a weight nearly as great as it would sustain, if it were brought down in the atmosphere to the natural place of that denser air now raised above it by the prolongation of the base of the column. The other reason is, that as the rarefaction does not take place at any great distance from the earth, little change is produced in the specific gravity of the portion of the column that presses on the higher barometer, and the summit of that column dissipates itself more slowly than it increases. Thus we see how this barometer must ascend during the first three fourths of the day, and pursue a course reverse of that on the plain. The condensations returning after this time, the denser air subsides, the equilibrium takes place, and the mercury descends to its first position.

This phenomenon suggested to M. De Luc (*Recherches*, vol. ii. p. 54, &c.) the idea of a second pair of thermometers, in order to measure the mean heat of the column of air intercepted between the barometers. These thermometers are extremely delicate and sensible, their tubes being the finest capillary, the glass very thin, and the diameters of the balls only three lines; the balls are insulated or detached from the scales, which are fixed to the tubes only by ligatures of fine brass wire covered with silk: by this contrivance the air has free access to the balls on all sides; and if the direct rays of the sun be intercepted at some distance by a scrap of paper or by the leaf of a tree, the thermometers will quickly mark the true temperature of the air. For the necessity and utility of these appendages to the author's apparatus, see the sequel of this article.

A new kind of *portable barometer* for measuring heights has been invented by Dr. J. A. Hamilton, and described in the transactions of the Royal Irish Academy (vol. v. p. 95). Instead of the leather bag which confines the mercury in the common portable barometer, Dr. Hamilton substitutes a cylindrical cistern of ivory, about two inches long and upwards of one inch in diameter, with a screwed bottom and open top, somewhat contracted into a shoulder that receives internally a sound, clean and porous cork, about $\frac{3}{4}$ of an inch in length, and one in diameter, through which the glass tube is nicely inserted and pushed down midway. The construction depends upon this principle, that spongy cork affords a ready passage through its pores to the particles of air, but prevents the escape of quicksilver, unless a very powerful pressure be applied. Nevertheless, as it is not through the pores of that substance, but through the minute interstices between the cork and the inside of the ivory cylinder, that the air insinuates itself, some caution and experience are requisite to prevent the stopper from being fitted too tight: nor can the observer be always assured, that the confinement of the cork will occasion no inaccuracy in the results; for it will evidently require a considerable time, through the extremely slender communications, to restore the balance between the external and internal air, if ever that balance can rigorously obtain. Dr.

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Hamilton gives very copious and circumstantial directions, together with an annexed engraving, for the construction, adjustment, and application of this instrument. AB (fig 96.) represents a section of the barometer longitudinally, when put together and ready for use. F the ivory cylinder, CD the scale, with a vernier that slides so as to cover the aperture when the instrument is put by. E the attached thermometer in its case, and GG the brass caps that secure the ends. AB (fig. 97.) represents a section of the ivory cylinder with its cork C, and its tube T; SS is the surface of the mercury; M its mass; EE the shoulders that keep the cork C in its place; and FF is the bottom that screws in tight.

Dr. Hamilton remarks, that mercury is best cleansed by shaking it repeatedly in a phial with fresh portions of water; and the remark deserves attention. For correcting the errors of altitude caused by the fluctuation of the surface of the mercury in the basin, he recommends the computation of tables from the proportion which the aperture of the tube bears to that of the cylinder. His paper contains practical precepts for calculating heights from observations of the barometer, in a form adapted to practice; and he proposes to delineate vertical sections of a country, by means of a series of such observations, made during settled weather. In the same volume (p. 117, &c.) we have remarks and hints for the further improvement of barometers, by Dr. H. Hamilton, dean of Armagh, occasioned by the preceding communication. He observes, that the pores of cork may in time become cloaked with dust or moisture; and he therefore proposes, that instead of cork the box should have a top of ivory with a hole to drop in a floating gage, which might be occasionally stopped with a peg or screw, to render the instrument safely portable: or, which would be better, to have a cover screwed over the top of the box, and a hole in it corresponding with that in the box. When these two holes are connected, the box is open; and it is shut, when the holes are removed from each other by turning the cover and screwing it tight to the top of the box; and if there be a plate of soft leather between them, it will be sufficient to keep in the mercury when the instrument is agitated by carriage. The dean had a barometer made in this form, and found it to answer all the purposes of an open and of a portable one. Instead of making tables for correcting the error occasioned by the variation of the level of the mercury in the basin, he thinks it would be more convenient to contract proportionally the divisions of the scale. This obvious plan is illustrated at length. It is suggested, that these close barometers would serve just as well at sea as on land; and the hint merits attention, as a marine barometer is still an important desideratum.

Various improvements in the construction and use of the *portable barometer*, with its annexed apparatus, have been suggested by sir George Shuckburgh and Gen. Roy; and they have been adopted by several instrument-makers in London. An instrument of this kind, possessing all the advantages of those by Mr. Ramsden and M. de Luc, and from its principle free from some inconveniences and error to which theirs is liable, is constructed by Mr. William Jones, an ingenious artist in Holborn. It is represented in (Pl. XII. fig. 100.) as inclosed in its mahogany case by means of three metallic rings, *b, b, b*. This case is in the form of a hollow cone divided into three arms or legs from *a* to *c*, and is so carved in the inside as to contain steadily the body of the barometer; and the arms, when separated, form three firm legs or supports for the barometer, when it is used for making observations. (See fig. 101.) The instrument is suspended at the part *g* of the case, by a kind of improved gimbals, and thus, by its own weight, it will be sufficiently

steady when exposed to the weather. In that part of the frame where the barometer tube is visible, *ae*, there is a long slit or opening, so that the altitude of the mercury may be seen against the light, and the vernier piece *a* brought down to coincide with the edge of the mercury to the greatest possible exactness. When the instrument is placed on its support, the screw *f* is to be let down, that the mercury may subside to its proper height; and also a peg at *p* must be loosened, to give admission to the action of the external air upon the mercury contained in the box *b*. The adjustment, or mode of observing what is called the *zero*, or 0, division of the column of mercury, is by means of a small floating ivory index or stem that rises up through the brass box from the cistern below in a hole made for that purpose. This will rise and shew itself directly under a small plate and screw fixed over as a cover, and is unscrewed to move upwards. With one eye even with the upper surface of the box, the hand at the regulating screw at the bottom of the frame must so turn the screw till the top of the index is very exactly even with the surface: thus will the adjustment for reading off be made after the stations. The vernier piece at *a* that determines the altitude of the column of mercury is to be brought down by the hand to a near contact, and then accurately adjusted by a small adjusting screw attached to the top of this vernier scale. This barometer has usually two different sorts of scales inserted on it: that on the right at *ae* is a scale of French inches from 19 to 31, measured from the surface or *zero* of the mercury in the box *b* below, divided into twelve parts or lines, and each line subdivided by the vernier into ten parts, so that the height of the column of mercury may be ascertained to the 120th part of a French inch. The scale which is on the other side, or the left of observation, is of the same length; but divided into English inches, each of which is subdivided into 20ths of an inch, and the vernier subdivides each 20th into 25 parts; so that the height of the mercury is thus ascertained to the 500th part of an English inch (viz. $20 \times 25 = 500$). But this vernier is figured double for the convenience of calculation: the first 5 divisions are marked 10, the 20 marked 40, and the 25 marked 50: then each exact division is reckoned as the two thousandths of an inch, which amounts to the same; for $\frac{5}{3200}$ is the same in value as $\frac{2}{1280}$ of an inch. A thermometer is always attached to the barometer, and indeed it is indispensably necessary: it is fastened to the body at *c*, counter sunk beneath the surface of the frame, which makes it less liable to be broken; the degrees of the thermometer are marked on two scales, one on each side; viz. that of Fahrenheit and Reaumur, scales generally known; the freezing point of the former being at 32, and the latter at 0. On the right hand side of these scales there is a third, called a scale of *correction*: it is placed opposite to that of Fahrenheit, with the words *add* and *subtract*; and it serves as a necessary correction to the observed altitude of the mercury at any given temperature of the air shewn by the thermometer. There are several other valuable appendages to this instrument that cannot be distinctly represented in the figure: but its nature and use may be apprehended from the above statement. In complete observations, such as those to which we now refer, the observer should be provided with two barometers, or rather three, for fear of danger, and two or three separate thermometers. See the sequel of this article.

By very small additional contrivances this instrument may be rendered equally useful for making observations at sea with any marine barometer that has hitherto been invented.

The editor has been furnished with the following description

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tion of the cistern, &c. of the portable barometer, according to the construction of Mr. Hawes, lately an eminent instrument-maker in London. A section of the cistern is represented in *Plate XII. of Pneumatics, fig. 102.* AAAABB is the cistern: the part AAAA, which contains the quicksilver, is made of wood, with a bottom of leather C, glued on the wooden ring DD, and pressed close against the wooden cylinder by means of the screw at EE, which screws on the brass cover or collar FF that covers the cylindric cistern AA. This collar has a stop at the top, as seen at G, to prevent its slipping, while it presses the ring DD against the wooden cylinder AA. When screwed tight, the quicksilver IIII is prevented from escaping. II is part of the tube of the barometer, drawn nearly to a point, and covered with an ivory cap KK for defending it against injury. LL is a screw with a broad circular top Q, by means of which the leather C forces up the quicksilver so as to fill the tube, when the instrument is carried from one place to another. In order to prevent the oscillations of the quicksilver from breaking the tube by sudden jerks, a pin *a* with a head *b* passes through the screw LL; this pin has on the under side of the head a spiral spring to counteract the violence of a sudden motion. The two nuts M, N, are used to raise or depress the screw LL, and consequently the quicksilver; the proper height of which is indicated by the floating gage. OO, the top of whose stem P corresponds to the top and outside of the cistern. When the barometer is not in use, the gage and aperture are covered by the plate *e*, which effectually confines the quicksilver, the under side of *e* being covered with leather. The lower end of the screw LL is slit up as high as *c*, and carries a cross pin *d* passing through the bottom of the pin *a b* to prevent it from rising too high. *Fig. 103.* represents a square frame to be screwed on the part BB *fig. 102*, and connected by wires from the angles to the legs as seen in the perspective view in *fig. 101.* This is used to prevent the barometer from vibrating.

The nonius is exhibited at large in *fig. 104.* A is a screw with a milled head tapped into the piece B, and also let into and moveable in the piece C in the manner represented at D in *fig. 105.* which is a side view.

B and C in *fig. 106.* are horizontal sections of B and C, *fig. 104.* The spring *a* of the piece B is considerably stronger than that of C; so that it requires much greater force to make it slide up and down, whilst C, which slides very easily, is moved by turning the milled head E; and thus the lower surface of C is made to coincide with the upper surface of the mercury at F; and, besides, both the piece B and the nonius C may be depressed or raised at pleasure as occasion requires, for a due adjustment of the nonius. Behind the plate *a b*, in the respective view *fig. 101.* hangs a pendulum suspended at the point *a* which serves for setting the instrument vertical; and when it is brought into this position, a mark on the bob coincides with another on the plate, as seen at *b.* When the instrument is not in use, a fork connected with the screw *c* is pushed up, and prevents the pendulum from shaking.

In order to adapt the portable barometer more completely to the purpose of measuring heights, in which use of it peculiar accuracy of observation is necessary, it should be furnished with two microscopes or magnifying glasses, one of which should be placed at the beginning of the scale; and either this should be moveable, so that it may always be brought to the surface of the mercury in the cistern; or the cistern should be so contrived that its surface may always be brought to the beginning of the scale. By this glass the coincidence may be accurately perceived. The other microscope must be moveable, so as to be set opposite to the surface

of the mercury in the tube; and the scale should be furnished with a vernier, which divides an inch into 1000 parts, and constructed of materials, the expansion of which is precisely ascertained. For an account of many ingenious contrivances to make the barometer accurate, portable, and commodious, the reader may consult Magellan's "*Diff. de Diverses Instr. de Phys.*" *Phil. Transf.* vol. lxvii. vol. lxviii. *Journ. de Phys.* xvi. 392. xviii. 391. xix. 308. 346. xxi. 436. xxii. 390. Sulzer, *Act. Helvet.* iii. 259. De Luc, *Recherches, &c.* ubi supra. Cardin. de Luynes, *Mem. Par.* 1768. Van Swinden's *Positiones Physicæ. Com. Acad. Petrop.* i. Id. Nov. ii. 200. viii.

Mr. Magellan, in his edition of "*Cronstedt's Mineralogy,*" has shewn that great errors may arise in barometrical measurements for want of due attention to the specific gravity of the mercury with which barometers are filled. If two barometers each 30 inches high, and in every other respect similarly circumstanced, be filled with mercury of different specific gravity, that of the one being 13,62, and that of the other 13,45, the error in the result would be no less than 327 feet: because the heights of the mercurial column in each barometer must be in the inverse ratio of their specific gravities; viz. 13,45 : 13,62 :: 30 : 30,379. But the logarithm of 30 is 4771,21, and that of 30,379 is 4825,73, neglecting the indices, and their difference is 54,52, which shews that there is a difference of 54,52 fathoms or 327 feet in the altitudes of the two places, where the barometers should have been stationed, though in reality they were on the same level. But if the specific gravity of the mercury in the two barometers were according to the different statements of Bergman and Fourcroy, the one 14,110 and the other 13,000, (and this may happen to be the case, as the heaviest is commonly reputed to be the purest mercury,) the error must have amounted to 355,76 toises, or 2134½ feet, because 13,000 : 14,110 :: 30 : 32,561. But the logarithm of 30 is 4771,21, and that of 32,561 is 5126,97, and the difference, or 355,76, shews that the error should amount to so many fathoms, or 2134,5 feet. See the sequel of this article.

BAROMETER, *Phænomena of the.* These are the variations of height in its mercurial column, for ascertaining which many contrivances in the structure of the barometer have been proposed; the principal of which have been detailed in the preceding articles; and the subject will be further pursued in the sequel. The uses to which these phænomena have been subservient, are the prediction of the weather from the variable weight of the atmosphere, indicated by the rise and fall of the mercury in the barometer, and the measurement of altitudes, to which they have been lately applied with singular assiduity and success.

The phænomena of the barometer, considered as a "weather-glass," have been very differently stated and explained by various writers; and they are so precarious, that it is extremely difficult to form any fixed and general rules concerning them. Although we have reason to believe, that the barometer never fails to indicate a storm, or any very great change of weather, for some hours before it occurs; yet its variations afford no indications or prognostics that are absolutely certain, with respect to those less considerable changes, to which the weather is subject in our variable climate. With certain restrictions, they afford some ground for probable conjecture; and these restrictions are to be determined merely by the sagacity of long-continued observation and experience. Strictly speaking the height of the mercury in the barometer hath no immediate and necessary connection either with rain or fair weather. That its variable height is the immediate consequence of the variable

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variable pressure of the atmosphere, is a fact that admits of no doubt; but the causes of this variable pressure have not yet been fully and satisfactorily ascertained; and how far the state of the weather, in all its minute and sudden changes, depends upon it, is a question that still remains to be determined. M. Pascal was one of the first persons who particularly observed the variations of the barometer, and referred them to corresponding changes in the weight of the air; but he acknowledges, that it is very difficult to explain both the one and the other, as well as the connection that subsists between them. He observes, in general, that the mercury is commonly highest in winter and lowest in summer; that it is least variable at the solstices, and most variable at the equinoxes: and he adds, in direct contradiction to later experience, that the mercury usually falls in fine weather, and that it rises when the weather becomes cold or the air is loaded with vapours. M. Pascal was followed by Perrier, Beal, Wallis, Garcin, Gardin, Lister, Halley, Gersten, De la Hire, Mariotte, Le Cat, Woodward, Leibnitz, De Mairan, Bernouilli, Muschenbroek, &c.; all of whom have given different solutions of the phenomena of the barometer.

The principal observations, that have been made on the variations of this instrument, are summed up by Mr. Kirwan (Irish Transf. vol. ii. p. 46, &c.) in the following particulars.

I. The more considerable elevations and depressions of the mercury in the barometer happen at a very short interval of time in places very remote from each other. This correspondence was observed by Mr. Derham in 1699 between the heights of the mercury at Upminster in Essex, and Townly in Lancashire; and afterwards by Mr. Maraldi between the variations at Paris and Genoa, at the distance of nearly four degrees of latitude, who adds, during these variations different winds prevailed at these places. But Mr. Kirwan observes, that where there is a considerable difference of longitude, the like agreement is not found.

II. The deviations of the mercury from its mean annual altitude are far more frequent and extensive in the neighbourhood of the poles than in that of the equator. At Petersburg, in 1725, the mercury once stood at the stupendous height of 31.59 inches, if we may credit Mr. Consett; and yet it has been seen so low as 28.14 inches. In the northern parts of France the variations are greater than in the southern: at Naples they scarcely exceed one inch. In Peru, under the equator, and at the level of the sea, they amount only to two or three tenths of an inch; but in other parts, within a few degrees of the line, on the approach of the rainy season or of hurricanes, the barometer falls an inch or more.

III. The variations without the tropics are greater and more frequent in the winter than in the summer months.

IV. The variations are considerably smaller in very elevated situations than on the level of the sea. Thus M. Bouguer observed, that on the coast of Peru the variations extended to $\frac{1}{4}$ of an inch: at Quito, elevated 9374 feet above the sea, they comprehend only 0.083 of an inch. M. Saussure made similar observations in Savoy, as did Mr. Lambert in Switzerland.

V. The mean height of the barometer on the level of the sea in most parts of the globe hitherto examined, is about 30 inches. M. Bouguer, under the line, observed it at 29.908 inches; but as his barometer was not purged of air by fire, it stood lower than it should have done. Sir George Shuckburgh (Phil. Transf. vol. lxvii. p. 586.), on a mean of several observations on the coasts of Italy and England,

found it at 30.04, when the temperature of the mercury was 55°, and that of the air 62°. The mean height of the barometer in London, upon an average of two observations in every day of the year, kept at the house of the Royal Society, for many years past, is 29.88; the mean temperature or height of the thermometer, according to the same, being 58°. The greatest height observed by Sir G. Shuckburgh, Dec. 26, 1778, in London, was 30.948 inches, the thermometer being at 47°; and reduced to the heat of 50°, it was 30.957: and this, he says (Phil. Transf. vol. lxix. p. 370.), is the greatest height, which, as far as he has been able to collect, it has ever been seen to stand at in any country, where observations have been made and recorded, since the first invention of this instrument. In the proximity of the poles, says Mr. Kirwan, the annual mean heights of the barometer differ much more from the above standard than in the more southern parts of our hemisphere.

In estimating the connection of the variations of the barometer with the weather, Dr. Halley has proposed the following rules:

I. In calm weather, when the air is inclined to rain, the mercury is commonly low.

II. In serene and settled weather, and also in calm and frosty weather, the mercury is generally high.

III. Upon very high winds though not accompanied with rain, the mercury sinks lowest, regard being had to the point of the compass from which the wind blows.

IV. The greatest heights of the mercury are found upon easterly and north-easterly winds, other circumstances being alike: to which it may be added, that under a southerly wind it is commonly low. The above four observations made by Dr. Halley in England, seem to be most universal, as they were found by Mr. Melander (Schwed. Abhand. 1773, S. 255) to apply to lat. 39°, and by M. de Luc to lat. 46°.

V. After very great storms of wind, when the mercury has been very low, it generally rises again very fast.

VI. The more northerly places have greater alterations of the barometer than the more southerly.

VII. Within the tropics, and near them, there is little or no variation of the mercury in all weathers. At St. Helena it is little or nothing; at Jamaica $\frac{3}{16}$ ths of an inch; whereas in England it amounts to $2\frac{1}{2}$ inches, and at Petersburg to $3\frac{1}{2}$ nearly.

Dr. Beal, who adopted the opinion of M. Pascal, observes that, *ceteris paribus*, the mercury is higher in cold weather than in warm; and usually in the morning and evening higher than at mid-day: that, in settled and fair weather, it is higher than either a little before or after or in the rain; and that it generally descends lower after rain than it was before it. And he ascribes these effects to the vapours with which the air is charged in the former case, and which are dispersed by the falling rain in the latter. If it chance to rise higher after rain, it is generally followed by a settled serenity. He adds, that there are frequently great changes in the air, without any settled alteration in the barometer.

An ingenious author observes, in relation to this use of barometers, that, by their means, we may regain the knowledge, which still resides in brutes, and which we have forfeited by not continuing in the open air as they generally do, and by our intemperance corrupting the crasis of our organs of sense.

Mr. Patrick's rules for judging of the weather by the rise and fall of the mercury in the barometer, have been much approved, and are to be accounted for on the same principles with those of Dr. Halley. They are as follow:—1. The rising of the mercury presages, in general, fair weather; and

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and its falling, foul weather; as rain, snow, high winds, and storms.

2. In very hot weather, the fall of the mercury indicates thunder.

3. In winter, the rising presages frost; and in frosty weather, if the mercury falls three or four divisions, there will certainly follow a thaw: but in continued frost, if the mercury rises, it will certainly snow.

4. When foul weather happens soon after the falling of the mercury, expect but little of it: and on the contrary, expect but little fair weather, when it proves fair shortly after the mercury has risen.

5. In foul weather, when the mercury rises much and high, and so continues for two or three days before the foul weather is quite over, then expect a continuance of fair weather to follow.

6. In fair weather, when the mercury falls much and low, and thus continues for two or three days before the rain comes; then expect a great deal of wet, and probably high winds.

7. The unsettled motion of the mercury, denotes uncertain and changeable weather.

8. You are not so strictly to observe the words engraved on the plates (though for the most part it will agree with them), as the mercury's rising and falling; for if it stands at much rain, and then rises up to changeable, it presages fair weather, although not to continue so long as it would have done, if the mercury were higher: and so, on the contrary, if the mercury stood at fair, and falls to changeable, it presages foul weather, though not so much of it, as if it had sunk down lower.

From these observations it appears, says Mr. Rowning (Nat. Philos. part ii. diff. 4.), that it is not so much the height of the mercury in the tube that indicates the weather, as the motion of it up and down: wherefore in order to pass a right judgment of what weather is to be expected, we ought to know whether the mercury is exactly rising or falling, to which end the following rules are of use:

1. If the surface of the mercury is convex, standing higher in the middle of the tube than at the sides, it is generally a sign that the mercury is then rising.

2. If the surface of the mercury is concave, or hollow in the middle, it is sinking. And,

3. If it is plain or level, or rather if it is a little convex, the mercury is stationary; for mercury being put into a glass tube, especially a small one, will naturally have its surface a little convex; because the particles of mercury attract each other more forcibly than they are attracted by glasses. Farther,

4. If the glass be small, shake the tube; and if the air be growing heavier, the mercury will rise about half the tenth of an inch higher than it stood before; if it is growing lighter, it will sink so much. This proceeds from the mercury sticking to the sides of the tube, which prevents the free motion of it, until it is disengaged by the shock. Therefore, when an observation is to be made by such a tube, it ought always to be shaken first; for sometimes the mercury will not vary of its own accord, until the weather it ought to have indicated be present.

To the preceding rules we may subjoin the following, deduced from the later and more accurate observation of the motions of the barometer, and the consequent changes in the air of this country:

1. In winter, spring, and autumn, the sudden falling of the mercury, through a large interval, denotes high winds and storms; but in summer it denotes heavy showers, and often thunder; and it always sinks lowest of all for great

winds, though not accompanied with rain; though, however, it falls more for wind and rain together, than for either of them alone. Also, if, after rain, the wind change into any part of the north, with a clear and dry sky, and the mercury rise, it is a certain sign of fair weather.

2. After very great storms of wind, when the mercury has been low, it commonly rises again very fast. In settled fair and dry weather, except the barometer sink much, expect but little rain; for its small sinking then is only for a little wind, or a few drops of rain; and the mercury soon rises again to its former station. In a wet season, suppose in hay-time and harvest, the smallest sinking of the mercury must be regarded; for when the constitution of the air is much inclined to showers, a little sinking in the barometer then denotes more rain, as it never at this time stands very high. And if, in such a season, it rises suddenly, very fast, and high, expect not fair weather more than a day or two, but rather that the mercury will fall again very soon, and rain immediately follow. The slow gradual rising, and keeping on to do so for two or three days, are most to be depended upon for a week's fair weather; and the unsettled state of the quicksilver always denotes uncertain and changeable weather, especially when the mercury stands any where about the word *changeable* on the scale.

3. The greatest heights of the mercury, in this country, are found upon easterly and north-easterly winds; and it may often rain or snow, the wind being in these points, and the barometer may sink but little or not at all, or it may even be in a rising state, the effect of those winds counteracting. But the mercury sinks for wind, as well as for rain, in all the other points of the compass; but it rises as the wind shifts about to the north or east, or between those points: but if the barometer should sink with the wind in that quarter, expect it soon to change from thence; or else, if the fall of the mercury should be considerable, a heavy rain is likely to ensue, as it sometimes happens.

BAROMETER, Cause of the Phenomena of the. Those which have been enumerated, are the chief phenomena of the barometer; to account for which, the hypotheses that have been framed are almost innumerable. It would far exceed our limits to detail them all; we must content ourselves with briefly reciting some of the principal, and refer the reader who is desirous of further information to De Luc's "*Recherches*," vol. i. ch. iii.

Some, as Pascal, Beal, Wallis, and Garcin, have accounted for the change in the weight of the air by the augmentation of the atmosphere in consequence of the introduction of vapours, and its diminution by their fall; others, as Perrier, Garden, Le Cat, and De Mairan, have ascribed it to the variations of heat; and others, as Garden, to the alterations of the specific gravity of the air; and Dr. Halley refers it to the accumulation or dispersion of the air by contrary winds. Wallis, Halley, and De Mairan have supposed that there is a difference in the vertical pressure of the air, when in motion and at rest. Wallis, and some other philosophers, have conceived that the height of the barometer depends upon the variations that occur in the elasticity of the air, and that it is directly proportional to these variations. Some have also had recourse to the contractions and dilatations of the mercury itself, as Wallis and Lister; others, as Gersten, suppose vibrations produced in the particles of air by the winds. De la Hire and De Mairan imagine that air is removed from the south to the north, and from the north to the south: Mariotte supposes that the inclination of the winds to the surface of the earth is sometimes greater and sometimes less. Woodward and Hamberger conceive that there is a shock of vapours against the air, when they rise, and that this ceases when they are at rest. Leibnitz sup-

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poses that there is a diminution in the weight of the air when rain falls; and De Mairan apprehends, that an agitation of the air is occasioned by vapours; and Bernoulli is of opinion, that an augmentation of the atmosphere is produced by a dilatation and discharge of the air inclosed within the bowels of the earth, and that there is a diminution of it when the contrary happens. To these several causes acting separately or conjointly, and to several circumstances attending their different operation, the vibrations of the barometer have been attributed. But these causes may all be reduced to three general classes: viz. variations of temperature; the velocity and other qualities of different winds; and the agency of vapour.

Dr. Lister accounts for the changes in the barometer from the alterations of heat and cold. This, he says, he has often observed, that in storms, &c. when the mercury is at the lowest, it breaks, and emits small particles, which he calls a kind of fretting: and argues, that in all times of its descent, it is more or less on the fret. In this disorder, he thinks, its parts are contracted, and brought closer together; and for that reason, descend: besides, in the fretting they let go little particles of air, before inclosed in them, and these rising into the top of the tube, the mercury must sink, both from the column's being shortened by their escape, and by their lying upon it. Mercury therefore, he adds, rises either in very hot or very cold weather, between the tropics, &c. as being then in its natural state; and again, in the intermediate degrees of heat and cold it falls, as being contracted, and as it were convulsed, and drawn together. Phil. Transf. N° 165. But his account, however ingenious, yet comes far short of accounting for the phenomena; nay, in some respects it contradicts them.

The changes in the weight of the atmosphere, therefore, must be laid down as the cause of those in the barometer; but then, the cause of that cause, or whence those alterations arise in the atmosphere, it will be no easy matter to determine; there being, perhaps, no one principle in nature that will account for such a variety of appearances, and those too so irregular. It is probable the winds, as driven this or that way, have a great share in them; some share too, vapours and exhalations, rising from the earth, may have; some, the changes in the air of the neighbouring regions; and some, the flux and reflux occasioned in the air by the moon; and also some chemical causes operating between the different particles of matter.

Dr. Halley thinks the winds and exhalations sufficient; and, on this ground, gives us a rationale of the barometer. The substance of what may be said on that head, is as follows:

1st, then, The winds must necessarily alter the weight of the air in any particular country; and that, either by bringing together and accumulating a greater quantity of air, and so loading the atmosphere of any place; which will be the case, as often as two winds blow at the same time, from opposite points towards the same point: or by sweeping away a part of the air, and removing some of the load, and thus giving room for the atmosphere to expand itself; which will be the case when two winds blow at the same time, and from the same point, opposite ways: or lastly, by cutting off the perpendicular pressure of the atmosphere; which happens as often as any single wind blows briskly any way; it being found, by experiment, that a strong blast of wind, even made by art, will render the atmosphere lighter; and accordingly, the mercury, in a tube under which it passes, as well as in another at a distance from it, will subside considerably. See Phil. Transf. N° 292.

2dly, The cold nitrous particles, and even air itself condensed in the northern parts, and driven elsewhere, must load the atmosphere, and increase its pressure.

3dly, Heavy dry exhalations from the earth must increase the weight of the atmosphere, and heighten its elastic force, as we find the specific gravity of menstruums increased by dissolved salts and metals.

4thly, The air being rendered heavier from these and the like causes, is thereby the more able to support the vapours; which being likewise intimately mixed with it, and swimming every where equably through it, make the weather serene and fair: again, the air being made lighter, from the contrary causes, it becomes unable to support the vapours wherewith it is replete; these, therefore, precipitating, are gathered into clouds, and those in their progress, coalesce into drops of rain.

These things observed, it appears pretty evident, that the same causes which increase the weight of the air, and make it more able to support the mercury in the barometer, do likewise occasion a serene sky, and a dry season; and the same causes which render the air lighter, and less able to support the mercury, do likewise generate clouds and rain. Hence, 1st, When the air is lightest, and the mercury in the barometer is lowest, the clouds are very low, and move swiftly; and when, after rain, the clouds break, and a calm sky again shines forth, being purged of the vapours, it appears exceedingly bright and transparent, and affords an easy prospect of remote objects.

2dly, When the air is heavier, and the mercury stands higher in the tube, the weather is calm, though somewhat less clear, because the vapours are dispersed every where equally; if any clouds now appear, they are very high, and move slowly; and when the air is heaviest of all, the earth is frequently found enveloped in pretty thick clouds, which appear to be formed out of the grosser exhalations, and which the air is then able to sustain, though a lighter atmosphere could not.

3dly, Hence it is, that with us the mercury stands highest in the coldest seasons, and when the wind blows from the north or north-east corner: for in that case, there are two winds blowing towards us at the same time, and from opposite corners; there being a constant west wind found in the Atlantic ocean, at the latitude corresponding to ours. To which we may add, that in a north wind, the cold condensed air of the northern parts is brought hither.

4thly, Hence in the northern regions, the variation of the mercury is more sensible than in the southern ones; the winds being found more strong, more frequent, more various, and more opposite to each other in the former, than in the latter.

Lastly, Hence it is, that between the tropics, the variation of the mercury is scarcely sensible; the winds there being extremely gentle, and usually blowing the same way.

But this account, however well adapted to many of the particular cases of the barometer, seems to come short of some of the principal and most obvious ones: and is, besides, liable to several objections.

For 1st, If the wind were the sole agent in effecting these alterations, we should have no alterations without a sensible wind, nor any wind without some alteration of the mercury: both which are contrary to experience.

2dly, If two winds be supposed blowing from the same place, viz. London, opposite ways, viz. N.E. and S.W. there will be two others, blowing from opposite points, viz. N.W. and S.E. to the same place; which two last will balance the first, and bring as much air towards the point, as the others swept from it. Or thus, in proportion as the air

is carried off N.E. and S.W. the adjacent air will crowd in from the other points, and form a couple of new currents in the direction N.W. and S.E. to fill up the vacancy, and restore the equilibrium. This is a necessary consequence from the laws of fluids.

3dly, If the wind were the sole agent, the alterations in the height of the mercury would only be relative, or topical; there would be still the same quantity supported at several places taken collectively: thus, what a tube at London lost, another at Paris, or at Pisa, or at Zurich, &c. would at the same time gain. But we find the very contrary true in fact; for from all the observations hitherto made, the barometers in several parts of the globe rise and fall together; so that it must be some alteration in the absolute weight of the atmosphere that accounts for the rise and fall of the mercury.

Lastly, Setting aside all objections, these popular phenomena, the mercury's fall before, and rise after rain, seem to be inexplicable on the ground of this hypothesis: for suppose two contrary winds sweeping the air from over London, we know that few, if any, of the winds reach above a mile high; all, therefore, they can do, will be to cut off a certain part of the column of air over London: if the consequence of this be the fall of the mercury, yet there is no apparent reason for the rain's following it. The vapours indeed may be let lower, but it will only be till they come into an air of the same specific gravity with themselves; and there they will be suspended as before.

M. Leibnitz, about the year 1710, in a letter written to the abbé Bignon, endeavoured to supply the defects of this hypothesis with a new one of his own. The new principle, upon which Leibnitz's hypothesis is founded, was illustrated by M. Fontenelle in the History of the Royal Academy of Sciences at Paris for the year 1711. He asserts, that a body immersed in a fluid only weighs with that fluid while it is sustained by it; so that when it ceases to be sustained, i. e. when let fall, its weight ceases to make a part of that of the fluid, which by this means becomes lighter. Thus, adds he, the watery vapours, while sustained in the air, increase its weight; but when let fall, they cease to weigh along with it. Thus the weight of the air is diminished; and thus the mercury falls, and rain ensues.

But M. Leibnitz's principle, notwithstanding the experiment he brings to confirm it, is false, as has been evidently made appear by a counter experiment of Dr. Desaguliers. (See his Course of Exp. Philos. vol. i. p. 282, &c.) For a body, whether specifically equal or lighter or heavier than a fluid, while it is immersed in it, whether it be at rest, or in motion, adds to the fluid a weight equivalent to that of an equal bulk of the fluid; as follows from that law in hydrostatics, that fluids gravitate according to their perpendicular altitudes. However, were M. Leibnitz's principle true, yet it is defective; and that in the same respect with Dr. Halley's; nor would it account for the phenomena more than the other. For, supposing the vapours by being condensed, to be put in a motion downwards, and so ceasing to gravitate with the atmosphere; they will therefore fall, till they reach a part of the atmosphere of the same specific gravity with themselves; and there they will hang as before. If the mercury fall, it will only be during the time of that descent; for these once fixed, the former gravity is retrieved; or, were it not retrieved, yet no rain would succeed the fall of the mercury.

The hypothesis, proposed by Mr. Chambers, is somewhat similar to that of Leibnitz, and liable to the same objection. It is as follows: suppose any number of watery vesicles floating in any part of the atmosphere,

over any determinate portion of the globe; if the upper vesicles be condensed by the cold of the superior regions, their specific gravity will be increased, and they will descend; where meeting with other vesicles not yet precipitated, they will coalesce, or run into larger vesicles, by the known laws of attraction. Or, if we rather choose to have the wind act, let it drive either horizontally or obliquely, some vesicles will be driven against others; by which means likewise will the particles coalesce, and form new and larger vesicles as before; so that their number, which before was, suppose a million, will now be reduced, v. gr. to a hundred thousand.

But by the same coalition whereby their number is diminished, their specific gravity, if we may so call it, is increased, i. e. they come to have more matter in the same space, or under an equal surface; as may be easily proved from principles of geometry: for in augmenting the mass of any homogeneous body, the increase of surface does not keep pace with that of the solidity; but that of the former is as the square of the diameter, and that of the latter as the cube of the same.

But since the same quantity of matter is now in a less space or under less dimensions, it will lose less of its weight by the resistance of the medium. This is evident; for a body immersed in a fluid loses nothing of its weight but by the friction of its parts against those of the fluid; but the friction is evidently as the surface; therefore, when the surface is lessened, the resistance must be so too. Consequently, the vesicles, whose gravity before the coalition was equal to the resistance of the medium, now that resistance is diminished, will descend; and that with a velocity in the ratio of the increase of the mass to the increase of the surface.

In their descent, as they arrive at denser parts of the atmosphere, their mass and surface again will be increased by new coalitions; and thus, by constant fresh accessions, more than equal to the constant resistances, they will be enabled to pursue their journey through all the stages of the air, till they reach the earth; their masses exceedingly magnified, and in the form of rain.

Now that the vapours have got down, let us consider how the barometer must have been affected during their passage.

Before any of the vesicles began to subside, either from the action of the cold, or of the wind, they all floated in a certain portion of the atmosphere, and all gravitated towards the centre. Here now, each respectively residing in a part of the medium of the same specific gravity with itself, will lose as much of its weight as is equal to that of a part of the medium of the same bulk with itself, i. e. each will lose all its weight. But then, whatever weight each loses, it communicates to the medium, which now presses on the surface of the earth with its own weight and that of the vesicles conjointly. Suppose then this united pressure keeps up the mercury in the barometer at thirty inches: by the coalition of the vesicles from the causes aforesaid, their surfaces, and consequently their friction, are lessened; therefore, they will communicate less of their weight to the air, i. e. less than the whole; and consequently they will descend with the excess, i. e. with a velocity equal to the remainder, as before observed. Now, as the vesicles can act no otherwise on the surface of the earth but by the mediation of the interjacent air, in proportion as their action on the medium is less, their action on the earth will be less. It is also evident, that the surface of the earth must be now less pressed than before; and that in proportion as the vesicles reserve more of their weight uncommunicated to the medium, to promote their own descent, i. e. in proportion to the velocity of the falling vesicles; which is

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again in proportion to their bulks. Thus, as the vesicles descend, the bulks continually increasing, the friction, and therefore the pressure on the earth, and lastly the height of the mercury, will continually decrease, during the whole time of the fall.—Hence we see, both why the vesicles, when once beginning to fall, persevere; why the mercury begins to fall at the same time; and why it continues and ceases to fall together with them; which were the great desiderata in the philosophy of the barometer.

There is one objection that evidently lies against this theory, viz. that the vesicles being put in motion, and striking against the particles of the medium and one another with some moment, will meet with a considerable resistance from the *vis inertia* thereof; by which means their descent will be retarded, and the pressure of the atmosphere retrieved; the impetus of the moving vesicles being supposed to compensate for their loss of surface. Thus a heavy body sustained in a fluid by a hair, and moved up and down therein, presses more on the bottom than when held at rest; which additional pressure will be the greater as the velocity of the falling vesicles is greater; a greater impulse being required to break through the *vis inertia* of the contiguous particles in a less time than in a larger.

But it is alleged, that we have both reason and experiment against this objection; for the velocity of the vesicles, in these circumstances, must necessarily be very small, and their impulse inconsiderable; besides, the *vis inertia* of the air must be exceedingly weak, by reason of its extreme subtilty; and it must be a very improper vehicle to convey an impulse to a distance by reason of its elasticity; we also find that a piece of lead, which is a ponderous body, falling with great moment, gravitates considerably less, in its descent through water, which is a gross unelastic medium, than when sustained at rest therein; in which the several experiments of Reaumur, Ramazzini, and Desaguliers, all agree.

M. de Luc (Recherches, &c. vol. i. p. 138.) supposes that the changes observed in the weight of the atmosphere are principally produced by the presence or absence of vapours floating in it. Others have attributed the effect to vapours, but have given a different explication of it. It is his opinion, that vapours diminish the specific gravity, and consequently the absolute weight of those columns of the atmosphere into which they are received, which, notwithstanding this admixture, remain of an equal height with the adjoining columns that consist of pure or dry air. He afterwards more largely explains and vindicates this theory, and applies it to the solution of the principal phenomena of the barometer, connected with or produced by the varying density and weight of the atmosphere.

Dr. James Hutton, in his "Theory of Rain" (see RAIN), printed in the Edinburgh Transactions, vol. i. p. 41, &c. suggests several plausible reasons in favour of his opinion, that the diminution of the weight of the atmosphere by the fall of rain is not the cause of the fall of the barometer; but that the principal, if not the only cause, is to be sought for in the commotions of the atmosphere that are chiefly produced by sudden changes of heat and cold in the air. "The barometer," he says (p. 78.), "is an instrument necessarily connected with motions in the atmosphere; but it is not equally affected with every motion in that fluid body. The barometer is chiefly affected by those motions by which there are produced accumulations and abstractions of this fluid, in places or regions of sufficient extent to affect the pressure of the atmosphere upon the surface of the earth. But as every commotion in the atmosphere may, under proper conditions, be a cause for rain, and as the want of commotion in the atmosphere is naturally a cause of fair

weather, this instrument may be made of great importance for the purpose of meteorological observations, although not in the certain and more simple manner in which it has been, with the increase of science, so successfully applied to the measuring of heights."

In the "Encyclopædia Britannica," art. BAROMETER, we have another theory of changes in the barometer, as depending on the heat in the atmosphere, not as producing commotions in it, but as altering the specific gravity of the air by the variations of heat and cold. The preliminaries to this hypothesis are: 1st. That vapour is formed by an intimate union between the elements of fire and water, in consequence of which the fire or heat is so totally enveloped, and its action so entirely suspended by the watery particles, that it not only loses its properties of burning and of giving light, but becomes incapable of affecting the most sensible barometer, in which case, it is said by Dr. Black, the author of this theory, to be in a latent state. 2dly. If the atmosphere be affected by any unusual degree of heat, it thence becomes incapable of supporting so long a column of mercury as before, for which reason the barometer sinks.

From these primary principles or axioms it is inferred, that as vapour is formed by an union of fire with water, whether by an elective attraction or a solution of the water in the fire, the vapour cannot be condensed till this union, attraction, or solution be at an end. Hence it follows that the commencement of the condensation of the vapour, or the first signs of approaching rain, must be the separation of the fire which is latent in the vapour. This may at first be slow and partial, or it may be sudden and violent; in the first case the rain will come on slowly, and after a considerable interval; in the other it will come on very quickly and in a great quantity. But Dr. Black has proved, that when fire quits its latent state, however long it may have lain dormant and insensible, it always re-assumes its proper qualities, and affects the thermometer as if it had never been absorbed. The consequence of this must be, that in proportion as the latent heat is discharged from the vapour, those parts of the atmosphere into which it is discharged, will be sensibly affected by it; and in proportion to the heat communicated to those parts, they will become specifically lighter, and of course the mercury will sink. When the separation between the fire and water is gradual and slow, the barometer may indicate rain for a considerable time before it happens; or if the sensible heat should be absorbed by the colder parts of the atmosphere, or by any means be prevented from affecting the specific gravity of the air, the barometer will not be affected; and yet the water, deprived of the heat that is necessary for sustaining it, must descend in rain; and hence it happens, that the indications of the barometer are not always just. Hence it also appears, that though the specific gravity of the air is diminished, unless this diminution proceeds from a discharge of the latent heat contained in the vapours, no rain will follow; and thus the sinking of the barometer may prognosticate wind as well as rain, or sometimes no change at all. The great descent of the mercury in the barometer between the tropics in the time of hurricanes, noticed by Dr. Halley, is ascribed, as to its probable cause, to a great commotion in the electric fluid, by which the air is internally agitated, and its gravitation in part suspended.

In the fourth volume of the "Memoirs of the Literary Society of Manchester," we have a curious paper on this subject, viz. "Meteorological Observations made on different parts of the Western Coast of Great Britain;" arranged by T. Garnett, M.D. The materials of this paper were furnished by several observers; but those of Mr.

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Copland, surgeon at Dumfries, are of peculiar importance. This gentleman is of opinion that the changes of the barometer indicate approaching cold and hot weather, with much greater certainty than dry and wet. "Every remarkable elevation of the barometer, he says, when it is of any duration, is followed by very warm or dry weather, and moderate as to wind, or by all of them; but heat seems to have most influence and connection; and when it is deficient, the continuance of the other two will be longer and more remarkable; therefore the calculation must be in a compound ratio of the excess and deficiency of the heat and of the dryness of the weather in comparison of the medium of the season; and with regard to the want of strong wind, it appears to be intimately connected with the last, as they shew that no precipitation is going on in any of the neighbouring regions."

In his 14th and 15th remarks, he had said,

'14th, That the barometer being lower, and continuing so longer than what can be accounted for by immediate falls, or stormy weather, indicates the approach of very cold weather for the season; and also cold weather, though dry, is always accompanied by a low barometer, till near its termination.'

'15th, That warm weather is always preceded and mostly accompanied by a high barometer; and the rising of the barometer in the time of broken or cold weather, is a sign of the approach of warmer weather: and also if the wind is in any of the cold points, a sudden rise of the barometer indicates the approach of a southerly wind, which in winter generally brings rain with it.'

In the two following remarks Mr. Copland had explained certain phenomena from a principle similar to that on which Dr. Darwin has so much insisted. (*Botanic Garden*, l. notes p. 79, &c.)

'That the falling of the barometer may proceed from a decomposition of the atmosphere occurring around or near that part of the globe where we are placed, which will occasion the electricity of the atmosphere to be repelled upwards in fine lambent portions; or driven downwards or upwards in more compacted balls of fire; or lastly, to be carried along with the rain, &c. in an imperceptible manner to the surface of the earth; the precipitation of the watery parts generally very soon takes place, which diminishes the real gravity of the atmosphere, and also by the decomposition of some of the more active parts, the air loses part of that elastic and repulsive power which it so eminently possessed, and will therefore press with less force on the mercury of the barometer than before, by which means a fall ensues.

'That the cause of the currents of air, or winds, may also be this way accounted for: and in very severe storms, where great decompositions of the atmosphere take place, this is particularly evident, such as generally occur in one or more of the West India islands at one time, a great loss of real gravity, together with a considerable diminution of the spring of the air immediately ensues; hence a current commences, first in that direction whence the air has most gravity, or is most disposed to undergo such a change; but it being soon relieved of its superior weight or spring on that side, by the decomposition going on as fast as the wind arrives in the island, it immediately veers to another point, which then rushes in mostly with an increase of force; thus it goes on till it has blown more than half way round the points of the compass during the continuation of the hurricane. For in this manner the West India phenomena, as well as the alteration of the wind during heavy rains in this country, can only be properly accounted for.' See remark, No. 4.

Mr. C's 4th aphorism is, 'That the heaviest rains, when of long continuance, generally begin with the wind blowing easterly, when it gradually veers round to the south; and that the rain does not then begin to cease till the wind has got to the west, or rather a little to the northward of it, when, it may be added, it commonly blows with some violence.'

Mr. Kirwan, in an elaborate paper on this subject (see *Irish Transactions*, vol. ii. p. 49, &c.) examines the different causes to which the phenomena of the barometer have been ascribed. He begins with the influence of different temperatures. It appears, he says, by observation, that a variation of the mass of the atmosphere is not a necessary consequence of an alteration of the temperature; for the mercury is often at the same height at different seasons, and at different places in the same season; and even when the height of the mercury changes simultaneously with the temperature, the change is often directly contrary to that which the change of temperature would lead one to expect. Besides, great changes of temperature take place only in the lower atmosphere; but in the higher regions they are inconsiderable. Any increment or decrement of the mass of the lower atmosphere that can be ascribed to a change of temperature, is too small to produce any considerable alteration in the height of the barometer; for in winter the height to which any considerable variation of temperature may be supposed to extend, scarcely exceeds 5000 feet, as we learn from the testimony of aeronauts, and the height of the clouds; and indeed the winds that prevail on the surface of the earth, and which are the primary agents in producing a change of temperature, seldom reach higher, and in the more northern regions not so high. This cause, the effect of which is estimated by calculation, and compared with the actual variation, though not absolutely inefficient, on the supposition that the whole mass of the superincumbent column is increased by the accession of new air in proportion to the condensation, is nevertheless inadequate to the effect produced.

Mr. Kirwan next examines the efficacy of winds in producing the variations of the barometer; and these are such as reign in the lower regions of the atmosphere. If, according to Dr. Halley's theory, the rise of the barometer above its mean altitude were owing to the accumulation of air over the place of observation, occasioned by two contrary winds blowing towards that place, we should always have a calm when the mercury stands highest; but it is notorious, that the greatest mercurial heights are accompanied by an easterly or northerly wind, as Halley himself has observed. Nor can that equality of barometrical heights, which takes place in very distant countries, where very different winds prevail, be explained by this hypothesis. This hypothesis ascribes the descent of the mercury below its mean altitude to the rarefaction of the atmosphere over the place of observation, which rarefaction is owing to its exhaustion by two contrary currents; for instance, over England, if it should blow a westerly wind on the German, and an easterly wind on the Irish sea. But Mr. Kirwan thinks, that a rarefaction in such circumstances from such a cause is impossible; for if such currents took place, the northern or southern air would flow in to maintain the equilibrium in the same proportion; or if this did not happen, and that four contrary currents took place, the higher air should descend, and cause a sensible cold, which yet is seldom observed in England, when the mercury is low; on the contrary, a warm south wind commonly prevails, to whose temperature nevertheless the rarefaction cannot be ascribed. Dr. Halley's explication of the descent of the mercury on high winds in

storms appears to Mr. Kirwan to be unsatisfactory. "The region of the earth," says Halley, "wherein those winds rage, not extending round the globe, the stagnant air left behind and that on the sides cannot rush in fast enough to restore the evacuation made by so swift a current, so that the air must be attenuated where the said winds continue to blow."—"Add that the horizontal motion being so quick may take off some part of the perpendicular pressure." This last reason seemed to acquire some confirmation from an experiment made by Mr. Hawksbee; for having passed a stream of air through a box in which the lower shank of a barometer was inserted, he observed the mercury to fall while the current passed through the box; as also in another barometer which communicated with the box, over which the current of air did not flow. Allowing this, the phenomenon is not sufficiently explained; for Mr. Kirwan observes, that not only during the storm, but several hours, if not days, before it, the mercury descends considerably, as Halley himself, and all who recommend the marine barometer, attest; otherwise this instrument would be useless. Mr. Caswell observes (Phil. Trans. Abr. vol. viii. p. 458.), that two days before the great storm of January 1734-5, the mercury fell $\frac{1}{10}$ of an inch below 28 inches. But if the fall were concomitant with the storm, Dr. Halley's reasons would not prove their connection. In order to a body's moving through air with such a velocity as to leave a vacuum behind it, there is a necessity that it should move at the rate of 11 or 1200 feet per second, as appears by the observations of Mr. Brice and many others. (See Phil. Trans. for 1766, p. 266.) The insufficiency of the second reason alleged by Dr. Halley has been clearly shewn by M. de Luc; nor is the experiment of Mr. Hawksbee conclusive, as it appears that part of the air already confined in the boxes was forced out by the blast of air; and besides, Mr. Derham observed that during the greatest vehemence of storm, the mercury rises instead of falling lower. (Phil. Trans. Abr. vol. iv. pt. 2. p. 77.) Mr. Kirwan made the same observation on the 28th of February 1785, in London.

The third hypothesis is that of those who ascribe the variations of the barometer to the presence or absence of vapours in the atmosphere; but Mr. Kirwan infers, from a view of the nature of vapours, and the change they produce in the weight and elasticity of the atmosphere, that this theory does not fully account for the phenomena. If we suppose, says he, the atmosphere perfectly dry, the barometer at 30 inches, and the thermometer at 65, and then a column of it to be saturated with moisture, its elasticity being increased $\frac{1}{37}$, which, according to his computation, would be the case, it will contain $\frac{1}{37}$ of its volume less air than before saturation, since the increase of its elasticity arises from the introduction of a new elastic fluid amounting to $\frac{1}{37}$ of its bulk; and since the weight of the whole volume was at first equal to that of 30 inches of mercury, its weight will now be lessened by $\frac{1}{37}$ of 30 inches, that is nearly 0.59 of an inch. But on the other hand, it gained $\frac{1}{37}$ of its volume of vapour, and therefore its real loss of weight will be the difference of the weight of $\frac{1}{37}$ of air, and of $\frac{1}{37}$ of vapour; but the weight of air is to that of vapour as 12 to 10, therefore the gain here is 0.49 of an inch, which deducted from 0.59 the loss, leaves the loss $\frac{1}{10}$ of an inch. Accordingly, this is the variation which the barometer should undergo by the passage of a column of air from absolute dryness to complete saturation; a circumstance which never takes place, as the atmosphere is never absolutely dry; and yet previously to heavy rains, we often observe the barometer to fall 3, 4, or 5 tenths of an

inch; a fall which, from the above calculation, cannot originate from the saturation of the atmosphere with vapour. Nor is there any proportion between the ascent of mercury after heavy rains, and the weight of vapour condensed; for in such cases, the mercury frequently rises 3 or 4 tenths of an inch; and yet the heaviest rain seldom produces one cubic inch of water, and the weight of a cubic inch of water is not equal to that of even one tenth of a cubic inch of mercury.

Mr. Kirwan, having examined the causes to which the variable weight of the atmosphere and height of the barometer have been usually referred, and controverted their sufficiency, proceeds to explain that which alone seems to him adequate to the effects produced. This, in his opinion, is the accumulation of air over those parts of the globe in which the mercury exceeds its mean height; that is, the height suited to its situation; and the diminution or subtraction of the natural quantity of air over those regions in which the mercury falls beneath its mean height. In order to trace the origin of this accumulation and diminution, this ingenious author considers what may be called the natural state of the atmosphere, and how that state may be disturbed. The natural state of the atmosphere is that in which the barometer on the level of the sea would stand at 30 inches in serene weather, conformably to the fifth observation above mentioned. For producing this state, the weight of the atmosphere must be every where equal at the surface of the sea; and as its weight proceeds from its density and height, in order to obtain this equality of weight, it should be lowest where its density is greatest, and highest where its density is least; and these extremes of density take place in the equatorial and polar regions. Hence it follows, that if the height of the mercury be 30 inches under the equator and under the poles, the atmosphere must be highest under the equator and lowest under the poles, with several intermediate gradations. (See *Figure of the Atmosphere*.) But though the equatorial air be less dense to a certain height than the polar, yet at certain greater heights it must be more dense; for the mercurial heights at the level of the sea being equal, the masses of the corresponding atmospheric columns must be equal. The same observation applies to the extratropical columns with respect to each other, where great differences of heat prevail. Hence it follows, that in the higher regions of the atmosphere, the denser equatorial air, not being supported by the collateral extratropical columns, gradually flows to the north and south. If the affluence of the northern and southern air to the equator by the trade winds kept pace with the effluence of the superior air, some degree of equilibrium might still be maintained. But the trade winds move only at the rate of about 8 miles an hour; whereas without the tropics, or at least beyond latitude 30°, the currents of the upper atmosphere are incomparably more rapid. The mean heat of the whole space between latitude 0° and latitude 30° being only seven degrees less than the mean heat under the equator, the difference of density is not so great as to cause any rapid collision of the superior columns within that space; but from latitude 30° to latitude 60°, a much smaller space, the mean annual heat over the ocean differs from that of latitude 30° by nearly fourteen degrees; and, therefore, the rapidity of the upper current towards the polar regions is much greater, and will occasion frequent interruptions, during which the weight of the air will be diminished. Hence, notwithstanding the high winds that frequently prevail between the tropics, the barometer inconsiderably and but seldom varies; whereas, without them, the variations are frequent and considerable, nearly in proportion to the distance from the equator: and

thus

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thus the second observation is sufficiently explained. During the summer of the northern hemisphere, when it is winter in the southern, the density of the equatorial air becomes superior to that of the southern air at a much lower height than that at which it becomes superior to the northern, which is expanded by the presence of the sun in the northern tropic; the exuberance will therefore be poured on the southern regions, and a smaller quantity will flow over the northern; consequently the variations of the barometer are smaller with us in the summer season. In winter, on the contrary, the superior current is chiefly directed to the northern hemisphere, and hence the greatest mercurial heights are found in this season; and thus the third observation is illustrated and confirmed. This accumulation takes place where the columns of the inferior air are coldest and shortest, as over that part of Asia beyond latitude 35° , and east of the Caspian sea to the Frozen ocean, and over the continent of North America; and hence the barometer usually stands higher in North America, and varies less than with us even in Hudson's bay, latitude 59° . Accumulations are also found in the southern parts of the old continent; and when the rarefaction in the northern parts of Europe is frequent and considerable, the southern air flows from these tracts to restore the equilibrium, and while this current lasts, the barometer must fall in the intermediate regions; so that the descent of the mercury is never the effect of a southerly wind, but both it and this wind are the concomitant effects of a rarefaction in the northern parts. On the other hand, the mercury generally rises under a northerly or easterly wind, because the superior atmosphere is accumulated chiefly in those parts of our hemisphere from whence these winds issue, and this accumulated air passes with them to the southern regions. In the same manner, when the mercury falls before a storm, both the storm and this fall proceed from a great rarefaction of the air in the quarter towards which the storm blows, and this rarefaction is occasioned by the diminution or destruction of the superior atmosphere. As the superior accumulation is derived to us chiefly from North America, hence it is that the variations of the barometer generally begin to the westward with us in Europe, and are thence gradually propagated eastwards. In spring the current of superior air begins to flow to the south, and in autumn to return from it; hence the equinoctial storms and frequent variations of the barometer in those seasons. The quantity of equatorial air devolved on our hemisphere in different years is variable, and so is the quantity consumed in the northern regions; and hence the mean barometrical height is different in different years. In some years, the accumulation resting on the mountainous countries of the south of Asia and Europe, and the northern part of Africa, is greater than in other years; owing perhaps to a greater or earlier fall of snow; when this is the case, the northern air is lighter, and the southern colder than usual, and south winds principally prevail, which in the northern parts must seem to be comparatively warm; and hence, when the winter is remarkably severe in the south of Europe and Asia, it is often as remarkably mild in the northern parts, and the barometer low. Although clouds and a disposition to rain frequently follow the descent of the mercury, this descent is not the immediate consequence of either clouds or rain; on the contrary, the mercury frequently rises during rain. But the rarefaction of the atmosphere, which produces the descent of the mercury, and which arises from the removal of the superior accumulation, is favourable to the production of clouds; as a heavy atmosphere, though it supports vapours once formed, obstructs evaporation; when therefore its weight is diminished, and evaporation increased, it soon becomes saturated in the higher regions, and clouds are formed.

But rain seems to arise from a subtraction of the electrical fluid, which, when the air abounds with vapours, is easily conducted to the earth. In serene and settled weather the mercury is generally high, because the greatest disturbances of the atmosphere are connected with its rarefied state, which is commonly pretty distant when the superior accumulation is considerable.

That the variations of the mercurial heights should be greater at the level of the sea than at great elevations above that level, is very natural. For supposing the mercury at the level of the sea to stand at 30 inches, and at a certain elevation above that level at 25 inches, then if the weight of the atmosphere be diminished one hundredth part, the mercury at the level of the sea should fall one hundredth part of 30 inches = 0.3 of an inch, but that on the elevation should fall one hundredth of 25 inches, = 0.25 of an inch. But it has been observed, that the variation on high mountains is beyond all proportion smaller than on the level of the sea; and this proceeds from a property which they seem to possess of condensing and accumulating the air incumbent upon them in a greater degree than the air incumbent over plains is condensed at equal heights; and hence when the barometer on the plains falls, and that on the mountain also, it will be found, after allowing for the difference of temperature, that the fall is proportionably greater in the inferior than in the superior barometer; and, on the contrary, if the mercury ascends in both barometers, the ascent will be proportionably greater in the superior than in the inferior. To this purpose general Roy, found, on the 7th of August 1775, at 9 o'clock, the correct height of a barometer on Caernarvon quay 30.075, and on the peak of Snowdon 26.418 inches; at 12 o'clock, that on the quay fell to 30.043, and that on the peak to 26.405; the fall of the mercury on the plain was therefore $\frac{1}{602}$ of the whole, and the fall on the mountain was only $\frac{1}{332}$ of its original height. On the other hand, at 2 o'clock, the barometer on the quay rose to 30.045, while that on the peak rose to 26.415 inches correct height; therefore that on the quay ascended only $\frac{1}{562}$ of the whole, and that on the peak ascended $\frac{1}{233}$ part of its height. Yet as the descents of the mercury beneath its most usual mean height are much more frequent and considerable than its ascents above it, the variations on mountains are upon the whole proportionably smaller than at the surface of the sea. For a more particular illustration of the theory of Mr. Kirwan, and the collateral observations which he deduces from it, we must refer to his paper, *ubi supra*. See *ATMOSPHERE*, and *AURORA borealis*. For other prognostics of the weather, besides the variations of the barometer, see *WEATHER*.

Another important purpose to which the variations of the barometer have been applied, is the "measurement of altitudes." Whilst M. Pascal and M. Perrier were prosecuting experiments for ascertaining the weight of the air by means of the barometer, as early as the year 1648, they found that the mercurial heights varied according to the situations, either more elevated or more depressed, in which the barometer was placed; and hence they concluded, that this instrument might serve to determine how much one place was higher than another. M. Pascal was not unacquainted with the dilatibility of the air, and he was therefore apprized of one of the difficulties that have attended experiments of this nature. The first person who estimated the height of the atmosphere on these principles was Kepler; but having, from ill-conducted experiments, very erroneous ideas of the proportional specific gravities of mercury and air, he stated it at only two or three English miles. The Honourable Mr. Boyle, deducing from experiments the proportion of the specific gravity of mercury to that of air to be as 1 to.

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14000, and supposing the atmosphere to be equally dense, estimated its height to be twice as great as Kepler's measure or at least 35000 feet. But when the elasticity of the air was found to be in an inverse ratio of the space which it occupied, or that its condensation was proportional to the weight that compressed it, and of course that its dilatations were in the inverse proportion of the compressing weights, a property first discovered by Mr. Richard Townley, and demonstrated by Mr. Boyle, the height of the atmosphere was more accurately ascertained. Mr. Boyle's experiments to this purpose were published in 1661, in his "Defensio Doctrinae de Aëris Elatere contra Linum," and exhibited the preceding year before the Royal Society. The law of the dilatation of the air was discovered also by M. Mariotte; and he published an account of his experiments for ascertaining it, in 1676, in his "Essai sur la Nature de l'Air," and "Traité des Mouvements des Eaux." This law was generally admitted by philosophers, and it was confirmed by observation in all climates and at all altitudes. To this purpose, M. Bouguer (Mem. Acad. Roy. Sc. 1753.) gives us the result of the experiments made by himself and M. de la Condamine in America; and he says that he found, without any exception, that the elasticities of the same mass of air exactly corresponded to the ratio of the densities. M. Mariotte applied this general law to the investigation of the total height of the atmosphere. With this view, he collected many observations of the barometer made at small heights; and he was the first person who suggested the use of logarithms in estimating heights by the descent of the mercury in the barometer, though this method has been generally ascribed to Dr. Halley; and Halley indeed first employed tables of logarithms in the calculation of atmospheric altitudes. See Phil. Trans. No. 181, or Abridg. vol. ii. p. 14. Dr. Halley, assuming the specific gravity of the air to water, when the barometer stood at 30 inches, and in a mean state of heat and cold, to be as 1 to 800, and that of mercury to water as $13\frac{1}{2}$ to 1, (so that the weight of mercury to air is as 10800 to 1, or a cylinder of air of 10800 inches or 900 feet is equal to an inch of mercury,) inferred from these premises, that if the air were of equal density, like water, the whole atmosphere would be no more than 51 miles high; and that for an ascent of every 900 feet, the barometer would sink an inch. But the expansion of the air increasing in the same proportion as the incumbent weight of the atmosphere decreases, the upper parts of the air are much more rarefied than the lower, and each space corresponding to an inch of quicksilver is gradually enlarged, and therefore the atmosphere must be extended to a much greater height. As these expansions of the air are reciprocally as the heights of the mercury, they may be represented for any given mercurial height by means of the hyperbola and its asymptotes. Thus, in *Plate XI. Pneumatics fig. 98* the rectangles ABCE, AKGE, ALDE, &c. are always equal; and consequently the sides CB, KG, LD, &c. are reciprocally as the sides AB, AK, AL, &c. (See HYPERBOLA.) If then AB, AK, AL, &c. be supposed equal to the heights of the mercury, or the corresponding pressures of the atmosphere, the lines CB, KG, LD, &c. answering to them, will be as the expansions of the air under those pressures, or the bulks which the same quantity of air will occupy; and if these expansions be taken infinitely numerous and infinitely small, their respective sums will give the spaces of air between the several heights of the barometer: i. e. the sum of all the lines between CB and KG, or the area CBKG, will be proportional to the distance or interval intercepted between the levels of two places in the air, where the mercury would stand at the heights represented by the lines AB, AK; and, therefore, the spaces of the air answer-

ing to equal parts of mercury in the barometer are as the areas CBKG, GKLD, DLMF, &c.; but these areas are proportional to the logarithms of the numbers expressing the ratios of AK to AB, of AL to AK, of AM to AL, &c. Thus, by the common table of logarithms, the height of any place in the atmosphere, having any assigned height of the mercury, may very easily be found; for the line CB in the hyperbola, the areas of which represent the tabular logarithms, being 0.0144765, we shall have the following proportion: as 0.144765 is to the difference of the logarithms of 30 and of any lesser number, so is the space answering to an inch of mercury, if the air were equally pressed with 30 inches of mercury, and every where alike, or 900 feet, to the height of the barometer in the air, where it will stand at that lesser number of inches. By the converse of this proposition, the height of the mercury may be found corresponding to the given altitude of the place. It should be observed, that the number 0.0144765 is the mean between 0.0147232, the difference of the logarithms of 30 and 29; and 0.014204, the difference of the logarithms of 30 and 31. The first difference represents the mean density of the air between the heights of 30 and 29 inches indicated by the barometer; and the second difference represents the mean density between 30 and 31; and the density of the air at 30 inches is the mean between these two densities. This calculation of Dr. Halley is founded on the supposition of equal and uniform gravity; but sir Isaac Newton resolved the problem more generally (*Princ. Philos. Nat. Math. l. ii. § 5.*), and extended it to the true state of the case, where gravity is as the square of the distance inversely; and he shewed, that when the distances from the earth's centre are in harmonic progression, the densities are in geometric progression. He also shews, in general, what progression of the distances, on any supposition of gravity, will produce a geometrical progression of the densities so as to obtain a series of lines which will be logarithms of the densities. See also Cotes's "Hydrostatical Lectures," and "Harmonia Mensurarum," and the article *Height of the ATMOSPHERE.* and *Atmospherical LOGARITHMIC* in this dictionary. By these rules Dr. Halley calculated the following tables:

Given Heights of the Mercury		Altitudes.		Given Altitudes.	Heights of the Mercury.
Inches		Miles	Feet.	Feet.	Inches
30			0	0	30.00
29			915	1000	28.91
28			186	2000	27.86
27			2844	3000	26.85
26			3863	4000	25.87
25			4922	5000	24.93
20			10947	Miles 1	24.67
15			18715	2	23.29
10			29662	3	16.68
5			48378	4	13.72
1			91831	5	11.28
0.5			116547	10	4.24
0.25			129262	15	1.60
0.1		29 or	154000	20	0.95
0.01		41 or	216169	25	0.23
0.001		53 or	278338	30	0.08
				40	0.012

Upon these suppositions it appears, that at the height of 41 miles, the air is so rarefied as to take up 3000-times the space it occupies here; and at 53 miles high it would be expanded

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expanded above 30,000 times: but it is probable, says Dr. Halley, that the utmost power of its spring cannot exert itself to so great an extension, and that no part of the atmosphere reaches above 45 miles from the surface of the earth. However, it follows, from the principles above stated, that the air has a finite density at an infinite distance from the centre of the earth, or such as would be represented by an ordinate drawn through the centre. But at great distances its rarity would be so great, that its resistance would be insensible, though the retardation occasioned by it has been accumulated for ages. At the moderate distance of 500 miles, the rarity is so great that a cubic inch of common air expanded to that degree would occupy a sphere equal to the orbit of Saturn; and the whole retardation sustained by this planet, after some millions of years, would not exceed what would be occasioned by its meeting with one particle of matter weighing half a grain. Hence it may be reasonably inferred, that the visible universe is occupied by air, which, by its gravitation, will accumulate itself round every body in it, in a proportion depending on their respective quantities of matter; the larger bodies attracting more of it than the small ones, and thus forming an atmosphere about each.

Dr. Halley observes, that as the weight of the atmosphere is different at different times, its lower parts will be unequally pressed, and consequently its specific gravity will be also variable. This variation he partly ascribes to the effect of heat and cold, and also to the influence of other causes; but he was of opinion, that the condensation and rarefaction, occasioned by cold and heat, and by the various mixtures of aqueous and other vapours, compensate one another; for he says, that when the air is rarefied by heat, the vapours are most copiously raised; so that though the air, properly so called, be expanded and consequently becomes lighter, yet, its interstices being crowded with vapours and other matter specifically heavier, the weight of the compound may continue much the same. He alleges an experiment of Mr. Caswell upon the summit of Snowdon hill to prove, that the first inches of mercury have their portions of air sufficiently near to what he has determined; for the height of the hill being nearly 1240 yards, Caswell found the mercury to have subsided to 25.6 inches, or 4 inches below the mean altitude of it at the level of the sea, and by his own calculation the space answering to 4 inches should be 1288 yards.

M. De Luc has given an historical and critical detail, in his "*Recherches*," vol. i. p. 159, &c. of the attempts that have been made, and of the rules that have been proposed, by Maraldi, Scheuchzer, I. Cassini, D. Bernoulli, Horrebow, and Bouguer, as well as those of Pascal, Perrier, Mariotte, and Halley, for applying the motion of the mercury in the barometer to the measurement of altitudes. But the subject has been further pursued, and with a peculiar degree of accuracy, by De Luc himself, sir Geo. Shuckburgh, and Gen. Roy, as we shall shew in the sequel of this article.

From the experiments of Boyle, Mariotte, Amontons, and others, it was inferred that the elasticity of the air is very nearly proportional to its density; and this principle, denominated the "Boylean law," was assumed by almost all writers on this subject. These experiments, however, were not very nice; nor were they extended to any great degrees of compression, as the density of the air was not quadrupled in any of them. By the later and more accurate experiments of Sulzer (Mem. Berlin, vol. ix.), Fontana (Opusc. Physico-Math.), M. De Luc, sir George Shuckburgh, and Gen. Roy, it has been found that the elasticity of the air does not increase quite so fast as its density. From the Berlin experiments it appears, that the elasticity of the air of the

temperature 55°, or the compressing force, increases so much more slowly than the density, that if the compressing force be doubled, the density will exceed the double by about a tenth part, &c. The law of this variation is expressed with tolerable exactness, by supposing that if D be the density of the air, and F the force compressing it, then $D = F^{1+n}$, n being a very small fraction, nearly .015. But new experiments are wanting to ascertain the law of this inequality with precision. Nevertheless, the general result has been, that the elasticity of rarefied air is very nearly proportional to its density; and the Boylean law may in general be assumed in cases of the greatest practical importance, or when the density does not much exceed or fall short of that of ordinary air. See *ELASTICITY of the Air*.

If we suppose the air to be of the temperature of 32° of Fahrenheit, and the mercury to stand in the barometer at 30 inches, we must allow $\frac{1}{10}$ th of an inch for its descent if it be elevated 87 feet; and, accordingly, if the air were equally dense and heavy every where, the height of the atmosphere would be $30 \times 10 \times 87$ feet, or about 5 miles. But as the air is an elastic fluid, whose density is always proportional to the compressing force, the altitude of the atmosphere will be much greater; and the method of estimating it by Dr. Halley and others, admits of a familiar illustration. Suppose then that a prismatic or cylindric column of air, reaching to the top of the atmosphere, were divided into an indefinite number of layers or strata of very small but equal thickness, and that every one of the particles of air that form these strata were of the same weight at all distances from the surface of the earth; it is plain, that the quantity of air in each stratum is as the density of the stratum, or as the compressing force, that is, the weight or quantity of matter of the superior and incumbent strata; consequently the quantity of air in each stratum is proportional to the superincumbent air; but the quantity in each stratum is the difference between the column on its bottom and on its top, and, therefore, these differences are proportional to the quantities of which they are the differences. But in a series of quantities proportional to their differences, the quantities themselves and their differences will be in continued geometrical progression: e. g. let a, b, c be three such quantities; then $b : c :: a - b : b - c$; and, by alternation, $b : a - b :: c : b - c$; and, by composition, $b : a :: c : b$, and $a : b :: b : c$. Hence it appears that the densities of the strata decrease in a geometrical progression; that is, when the elevations above the centre or surface of the earth increase, or their depths under the top of the atmosphere decrease, in an arithmetical progression, the densities decrease in a geometrical progression. This principle may be applied to the purpose of measuring atmospherical altitudes in the manner of Dr. Halley above stated, or by means of that species of logarithmic curve, called from this application and use of it the "atmospherical logarithmic." (See *Logarithmic CURVE*, and *Atmospherical LOGARITHMIC*.) Let ARQ (fig. 99.) represent the section of the earth by a plane passing through its centre O , and let $m OAM$ be a vertical line, and AE , perpendicular to OA , will be an horizontal line passing through A , a point on the surface of the earth. Let AE represent the density of the air at A ; and let DH , parallel to AE , be taken in proportion to AE , as the density at D is to the density at A ; and hence it is evident, that if a logistic or logarithmic curve EHN be drawn, having AN for its axis, and passing through the points E and H , the density of the air at any other point C , in this vertical line, will be represented by CG , the ordinate to the curve in that point; because it is the property of this curve, that if portions AB, AC, AD , of its axis be taken in arithmetical

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metrical progression, the ordinates AE, BF, CG, DH , will be in geometrical progression. It is another fundamental property of this curve, that if EK or HS touch the curve in E or H , the subtangent AK or DS is a constant quantity. Moreover, the infinitely extended area $MAEN$ is equal to the rectangle $KAEI$ of the ordinate and subtangent; and the area $MDHN$ is equal to $SD \times DH$, or to $KA \times DH$; and, therefore, the area lying beyond any ordinate is proportional to that ordinate. These properties are analogous to the principal circumstances in the constitution of the atmosphere, on the supposition of equal gravity. The area $MCGN$ represents the whole quantity of aerial matter above C , for CG is the density at C , and GD is the thickness of the stratum between C and D , and, therefore, $CGHD$ will be as the quantity of air in it, and so of all the others, and of their sums, or of the whole area $MCGN$; and as each ordinate is proportional to the area above it, so each density, and the quantity of air in each stratum, is proportional to the quantity of air above it; and as the whole area $MAEN$ is equal to the rectangle $KAEI$, so the whole air of variable density above A might be contained in a column KA , if, instead of being compressed by its own weight, it were without weight, and compressed by an external force equal to the pressure of the air at the surface of the earth; and, in this case, its uniform density would be expressed by AE , the measure of the density at the surface of the earth, and it would form what may be called the homogenous atmosphere. Hence it follows, that the height of this atmosphere is the subtangent of that curve, whose ordinates are as the densities of the air at different heights, on the supposition of equal gravity. In order to determine this subtangent, we may compare the densities of mercury and air; for a column of air of uniform density, reaching to the top of the homogenous atmosphere, counterbalances the mercury in the barometer. From the best experiments it is inferred, that when mercury and air are of the temperature of 32° of Fahrenheit, and the barometer stands at 30 inches, the mercury is nearly 10440 times denser than air; consequently the height of the homogenous atmosphere is 10440×30 inches = 313200 inches = 26100 feet = 8700 yards = 5 miles wanting 100 yards. Or we may find this height by observing the variations of the barometer at known altitudes, thus; when the mercury and air are of the above temperature, and the barometer on the sea-shore stands at 30 inches, an ascent of 883 feet will cause it to fall to 29 inches. Moreover, in all logarithmic curves having equal ordinates, the portions of the axes intercepted between the corresponding pairs of ordinates, are proportional to the subtangents; and the subtangent of the curve belonging to our common tables is 0.4342945; and the difference of the logarithms of 30 and 29, which is the part of the axis intercepted between the ordinates 30 and 29, or 0.0147233 : 0.4342945 :: 883 : 26046 feet = 8680 yards = 5 miles wanting 120 yards, differing from the former result 20 yards. This difference results from the difficulty of accurately ascertaining the respective densities of mercury and air, and also of duly estimating the elevation which causes a fall of one inch in the barometer. This investigation, however, proceeds upon the supposition of equal gravity; whereas it is well known, that the weight of a particle of air decreases as the square of its distance from the centre of the earth increases. In order, therefore, that a superior stratum may produce an equal pressure at the surface of the earth, it must be denser, because a single particle of it gravitates less; consequently, the density at equal elevations must be greater than on the supposition of equal gravity, and the law of its diminution must be different.

Make $OD : OA :: OA : Od$;

$OC : OA :: OA : Oc$

$OB : OA :: OA : Ob$, &c: so that

Od, Oc, Ob, OA , may be reciprocals to OD, OC, OB, OA ; and through the points A, b, c, d , draw the perpendiculars AE, bf, cg, db , proportional to the densities in A, B, C, D ; and let CD be supposed exceedingly small, so that the density may be supposed uniform through the whole stratum. Then we shall have, $OD \times Od = OA^2 = OC \times Oc$; and $Oc : Od :: OD : OC$; and $Oc : Oc - Od :: OD : OD - OC$, or $Oc : cd :: OD : DC$, and $cd : CD :: Oc : OD$; or because OC and OD are ultimately in the ratio of equality, we have $cd : CD :: Oc : OC :: OA^2 : OC^2$, and $cd = CD \times \frac{OA^2}{OC^2}$, and $cd \times cg = CD \times cg \times \frac{OA^2}{OC^2}$; but $CD \times$

$cg \times \frac{OA^2}{OC^2}$ is as the pressure at C arising from the absolute weight of the stratum CD ; for this weight is as the bulk, as the density, and as the gravitation of each particle jointly. But CD expresses the bulk, cg the density, and $\frac{OA^2}{OC^2}$

the gravitation of each particle. Consequently $cd \times cg$ is as the pressure on C arising from the weight of the stratum DC ; but $cd \times cg$ is evidently the element of the curvilinear area $AmnE$ formed by the curve $Efgbn$, and the ordinates AE, bf, cg, ab , &c. mn . Therefore the sum of all the elements such as $cdcg$, that is the area $cmng$ below cg , will be as the whole pressure on C , arising from the gravitation of all the air above it; but by the nature of air, this whole pressure is as the density which it produces, that is, as cg . Hence it appears that the curve Egn is such, that the area lying below or beyond any ordinate cg is proportional to that ordinate; and this being the property of the logarithmic curve, Egn is a curve of this nature. Besides, this curve is the same with EGN ; for let B continually approach to A , and ultimately coincide with it. It is evident that the ultimate ratio of BA to Ab , and of BF to bf , is that of equality; and if EFK, Efk , be drawn, they will contain equal angles with the ordinate AE , and will cut off equal subtangents AK, Ak . The curves EGN, Egn , are, therefore, the same in opposite positions. Moreover, if OA, Ob, Oc, Od , &c. be taken in arithmetical progression decreasing, their reciprocals OA, OB, OC, OD , &c., will be in harmonical progression increasing (see PROGRESSION): but, from the nature of the logarithmic curve, when OA, Ob, Oc, Od , &c. are in arithmetical progression, the ordinates AE, bf, cg, db , &c. are in geometrical progression. Consequently, when OA, OB, OC, OD , &c. are in harmonical progression, the densities of the air at A, B, C, D , &c. are in geometrical progression; and thus the densities of the air at all elevations may be discovered. Thus, to find the density of the air at K , the top of the homogeneous atmosphere, make $OK : OA :: OA : OL$, and draw the ordinate LT ; LT is the density at K .

The correction for the diminished gravity of the air stated by professor Playfair (Edinb. Transf. vol. i. p. 118.) is a third proportional to the semidiameter of the earth, and the height as computed by the ordinary rule; and for different mountains, this correction is in the duplicate ratio of their heights. Dr. Horsley finds (Phil. Transf. vol. lxiv.), that in a height of 4 English miles, the diminution of density or volume from the accelerative force of gravity would be only $\frac{1}{1600}$ th part of the whole, or about 48 feet; and this effect, being in the duplicate ratio of the heights, becomes at one mile high only three feet. Below the surface of the earth, it is but half the quantity; gravity within the earth being simply as the distance from the centre.

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As the heights of the mercury in the barometer in all accessible elevations indicate the densities of the air at those elevations, the method of taking heights by this instrument may be illustrated in the following familiar manner.

It has already been observed, that if the mercury in the barometer stand at 30 inches, and the air and mercury be of the same temperature of 32° Fahrenheit, a column of air 87 feet thick has the same weight with a column of mercury $\frac{1}{15}$ of an inch thick: and therefore if in ascending the mercury sinks to 29.9 inches, the interval of ascent is 87 feet. Suppose the mercury at a higher elevation to stand at 29.8 inches, and it be required to know the height to which the barometer has been carried. The stratum through which it has been raised, as the air is less compressed and rarer, must of course be thicker. The density of the first stratum may be called 300, estimating the density by the number of tenths of an inch of mercury which its elasticity proportional to its density enables it to support. In the same manner the density of the second stratum must be 299. But when the weights are equal, the bulks are inversely as the densities; and when the bases of the strata are equal, the bulks are as the thicknesses. In order therefore to obtain the thickness of the second stratum, say 299 : 300 :: 87 : 87.29, which denotes the thickness of the second stratum; and therefore the whole interval of the elevation of the barometer has been 174.29 feet. When the barometer at a higher elevation, shews the density to be 298, say 298 : 300 :: 87 : 87.584 the thickness of the third stratum, and 261.875 will be the whole ascent. By this method may be computed the following table, in which the first column is the height of the mercury in the barometer, the second column is the thickness of the stratum, or the elevation above the preceding station, and the third column is the whole elevation above the first station.

Bar.	Strat.	Elev.
30	00.000	00.000
29.9	87.000	87.000
29.8	87.291	174.291
29.7	87.584	261.875
29.6	87.879	349.754
29.5	88.176	437.930
29.4	88.475	526.405
29.3	88.776	615.181
29.2	89.079	704.260
29.1	89.384	793.644
29	89.691	883.335

In order to measure any elevation within the limits of this table, observe the barometer at the lower and at the upper stations, and write down the corresponding elevations; subtract the one from the other, and the remainder is the height required. E. G. Suppose that at the lower station the mercurial height was 29.8, and that at the upper station it was 29.1.

29.1 - - - - 793.644
29.8 - - - - 174.291

619.353 the elevation required.

Without the aid of the table, let m represent the medium of the mercurial heights, and d their difference in tenths of an inch; then say, as m is to 300, so is $87d$ to the height

required h ; or $h = \frac{300 \times 87d}{m} = \frac{26100d}{m}$. Thus in the preceding example, m is 29.45, and $d = .7$; and therefore, $h = \frac{.7 \times 26100}{29.45} = \frac{18270.0}{29.45} = 620.4$, differing only one

foot from the former value. The whole error of the elevation 883 feet 4 inches, the extent of the table, estimated in either of these methods, is only $\frac{3}{4}$ of an inch. It is needless however to recur to approximations, when the scientific and more accurate method first practised by Dr. Halley is equally easy. Upon the supposition of equal gravity, as we have already shewn, the densities of the air are as the ordinates of a logarithmic curve whose axis is the line of elevations. It has been also shewn; that, in the true theory of gravity, if the distances from the centre of the earth increase in an harmonic progression, the densities will decrease in an arithmetical progression; but if the greatest elevation above the surface be but a few miles, this harmonic progression will scarcely differ from an arithmetical one. Thus if Ab, Ac, Ad , are 1, 2, and 3 miles, the corresponding elevations AB, AC, AD , will be sensibly in arithmetical progression also; for the earth's radius AC , is nearly 4000 miles. Hence it follows that $BC - AB$ is

$\frac{1}{4000 \times 4001} = \frac{1}{16004000}$ of a mile, or $\frac{1}{2560}$ of an inch,

which is a quantity altogether insignificant. We may therefore assume, that in all accessible places, the elevations increase in arithmetical progression, while the densities decrease in a geometrical progression. Consequently the ordinates are proportional to the numbers which are taken to measure the densities, and the portions of the axis are proportional to the logarithms of these numbers. Hence it follows, that we may take such a scale for measuring the densities, that the logarithms of the numbers of this scale shall be the portions of the axis, that is, of the vertical line in feet, yards, fathoms, or any other measure; and we may, on the other hand, chuse such a scale for measuring our elevations that the logarithms of our scale of densities shall be parts of this scale of elevations; and either of these scales may be found scientifically. For it is a known property of the logarithmic curves, that when the ordinates are the same, the intercepted portions of the abscissæ are proportional to their subtangents. But the subtangent of the atmospheric logarithmic is known; it is the height of the homogeneous atmosphere in any measure we please, e. g. fathoms; and we find this height by comparing the gravities of air and mercury, when both are of some determined density. Thus in the temperature of 32° of Fahrenheit, when the barometer stands at 30 inches, it is known, as the result of many experiments, that mercury is 10423.068 times heavier than air; therefore the height of the counter-balancing column of homogeneous air will be 10423.068 times 30 inches, that is, 4342.945 English fathoms. It is also known that the subtangent of our common logarithmic tables, where 1 is the logarithm of the number 10, is 0.4342945. Consequently the number 0.4342945 is to the difference D of the logarithms of any two barometric heights as 4342.945 fathoms are to the fathoms F contained in the portion of the axis of the atmospheric logarithmic, which is intercepted between the ordinates equal to these barometrical heights; or that 0.4342945 : D :: 4342.945 : F , and 0.4342945 : 4342.945 :: D : F ; but 0.4342945 is the ten thousandth part of 4342.945, and therefore D is the ten thousandth part of F .

Thus it accidentally happens, that the logarithms of the densities,

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densities measured by the inches of mercury which their elasticity supports in the barometer, are just the ten thousandth parts of the fathoms contained in the corresponding portions of the axis of the atmospherical logarithmic. Therefore if we multiply our common logarithms by 10000, they will express the fathoms of the axis of the atmospherical logarithmic. Our logarithms contain the index or characteristic, which is an integer, and a number of decimal places. Let us then remove the integer place four figures to the right hand; thus, the logarithm of 60 is 1.7781513; multiply this by 10000, and we obtain 17781 $\frac{513}{10000}$.

This reasoning may be easily applied to practice, thus; observe the heights of the mercury in the barometer and at the upper and lower stations in inches and decimals; take the logarithms of these, and subtract the one from the other; and the difference between them, accounting the four first decimal figures as integers in the manner now proposed, is the difference of elevation in fathoms.

E. G.

Mercurial height at the lower station 29.8 - 1.4742163
At the upper station 29.1 - 1.4638930

Difference of logarithms $\times 10000$ - - 00103.233
or 103 fathoms and $\frac{233}{10000}$ of a fathom, which is 619.192 feet or 619 feet $4\frac{3}{4}$ inches, differing from the approximated value before found about $\frac{1}{2}$ an inch. We have thus availed ourselves of the familiar and very intelligible illustration of the method of measuring heights by means of the barometer proposed and reduced to practice by Dr. Halley, given by an ingenious anonymous writer in the "Encyclopædia Britannica," art. "Pneumatics." By this method it was found that when the temperature of air and mercury was 32° of Fahrenheit, the difference of the logarithms of the mercurial heights was precisely equal to the number of fathoms of elevation; and it was verified upon the whole in practice, by geometrical surveys and measurements.

The utility of it, however, was of very limited extent; and it was seldom adopted, till M. De Luc first, and after him Sir George Shuckburgh and General Roy, introduced in consequence of numerous observations and well-conducted experiments such improvements and corrections as were found to be necessary for expediting the practice of it and rendering the result of it accurate.

M. De Luc's apparatus of portable barometers, and their annexed thermometers, with which he made his observations, hath been already described. In the construction of his barometers he guarded as much as possible against the imperfections and faults to which those of the common sort are subject. The error arising from the repulsion of the mercury by the glass tubes he remedied by substituting a siphon barometer instead of the simple upright tube, so that the repulsion of the two legs of the siphon might counteract itself. Another error resulting from air and moisture in the barometrical tube he obviated by boiling the mercury in the tube, and by other precautions. And he also shews how to correct mistakes in the estimation of heights that are owing to variations of the density of the mercury, and also of the air, occasioned by heat and cold, by means of allowances depending on two thermometers, one attached to the frame of the barometer itself and the other exposed to the open air for shewing its degree of heat; and these thermometers are to be noted both at the top and bottom of the hill. From the use of this apparatus in a great variety of observations he deduced a rule for calculating the heights of places, which he verified by numerous experiments. Dr. Maskelyne and Bishop Horsley have reduced his rule from the

French to the English measure, and adapted it to the thermometers of Fahrenheit's scale. M. De Luc (see Recherches, &c. vol. i. p. 362—364) in the winter season, heated the air of his room to as great a degree as possible, and observed the rise of the barometer occasioned by the diminution of its density or specific gravity by heat; and he also noted the height of the thermometer, both before and after the room was heated. Hence he deduced a rule that when the barometer is at 27 French inches, which was the case in this experiment, an increase of heat from freezing to that of boiling water will raise the barometer 6 lines, or $\frac{1}{32}$ th part of the whole. But when the barometer is higher than 27 inches, this variation must increase in the same proportion; or it will be always $\frac{1}{32}$ th of the height of the barometer. Consequently if the height be called B , the rise of the barometer corresponding to an increase of heat from freezing to boiling water, will be $\frac{B}{54}$; and as it will be less for a less

difference of heat, if the number of degrees marked on the thermometer between freezing and boiling water be called K , and the rise of the thermometer from any given point be called H , the corresponding rise of the barometer will be

$\frac{B}{54} \times \frac{H}{K}$, by the increase of heat from the given point

by the number of degrees H . With a decrease of heat, H would signify the degrees of decrease, and the barometer would sink by $\frac{B}{54} \times \frac{H}{K}$. The fixed temperature of

heat to which M. De Luc reduced his observations of the barometer is $\frac{1}{3}$ th of the interval from freezing to boiling water above the former point; and if the thermometer was higher than this degree, he subtracted $\frac{B}{54} \times \frac{H}{K}$; if it was

lower, he added this quantity to the observed height of the barometer; and he thus obtained its exact height, or such as it would have been, if the density of its quicksilver had been the same as answers to the fixed degree of temperature. He thus corrected the height of both his barometers, that at the bottom and that at the top of the hill, for the particular degree of heat, indicated by a thermometer attached to the barometer at each station. These corrected heights of the barometers were those which he used in his calculations. Then, calling these two altitudes of the barometer at the lower and at the upper stations, B and b , and using $\log. B$, and $\log. b$ for their logarithms, taken out of the common tables, and assuming the four first places of figures after the index as integers, and the three remaining figures as decimals, and putting C for the mean height of a thermometer, exposed to the air at the top and bottom of the hill, the freezing point being 0, and the point of boiling water at 80, he found by his experiments that the height of the hill would be given in French toises, when C was $16\frac{3}{4}$, by merely taking the difference of the logarithms of the heights of the barometer, or $\log. B - \log. b$; and in any other degree of heat, would be greater or less in proportion as the rarity of the air was greater or less than in the fixed temperature; or greater or less, by $\frac{1}{215}$ th part of the whole, for every degree of the thermometer reckoned from the fixed temperature $16\frac{3}{4}$: and consequently the height of the place would be expressed generally in French toises by this formula, viz. $\log. B - \log. b + \log. B - \log. b \times \frac{C - 16\frac{3}{4}}{215} = \log. B - \log. b \times 1 + \frac{C - 16\frac{3}{4}}{215}$. The re-

duction of this formula to English measure and to the scale of

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of Fahrenheit's thermometer, is performed by the astronomer royal (Phil. Transf. vol. lxiv. p. 162), in the following manner. The French foot is to the English foot as 1.06575 to 1 (Phil. Transf. vol. lviii. p. 326); and the Fahrenheit's point of freezing is 32, and that of boiling water 212, having an interval of 180 degrees. But M. De Luc's point of boiling water or 80 was marked when the barometer was at 27 French inches, that being its mean height at Geneva; but our English workmen mark the same point on Fahrenheit's scale, when the barometer stands at 30 inches, which is equal to 28 inches 1.8 lines French measure, or 13.8 lines higher than M. De Luc's barometer, when he adjusted the point of boiling water on his thermometer; and it is well known, that the heat of boiling water varies with the weight of the atmosphere. M. De Luc from his experiments inferred, that an increase of one line in the height of the barometer raises the mercury of the thermometer, placed in boiling water, $\frac{1}{13.8}$ th part of the interval between the freezing point and that of boiling water, though the rule will not apply to large variations of the barometer occasioned by very great heights above the earth's surface. The change of the boiling point in Fahrenheit's scale corresponding to a change of one line in the barometer, will be $\frac{1.8 \times 0}{13.8} = 0.16$; and therefore 13.8 lines will produce $0.16 \times 13.8 = 2.2$ degrees of Fahrenheit's scale; and a thermometer, whose point of boiling water was marked 212, when the barometer stood at 30 English inches = 28 inches 1.8 lines French measure, will, when the barometer descends to 27 French inches, sink 2.2 degrees in boiling water, or to 209.8 or in round numbers to 210 degrees, which is distant only 178 from 32 the point of freezing. Hence it appears that an extent of 80° of M. De Luc's thermometer corresponds to an extent of 178 of our Fahrenheit's thermometer; and putting F for the degrees of this thermometer, corresponding to C of M. De Luc's, we shall have $C : F - 32 :: 80 : 178$, and $C = \frac{F - 32 \times 80}{178}$ which, substituted in M. De Luc's

formula, gives $\log. B - \log. b \times 1 + \frac{C - 16\frac{3}{4}}{215} = \log. B$

$$- \log. b \times 1 + \frac{F - 32 \times \frac{80}{178} - 16\frac{3}{4}}{215} = \log. B - \log. b$$

$$\times 1 + \frac{80}{178 \times 215} F - 32 - \frac{178}{80} 16.75 = \log. B - \log. b$$

$$\times 1 + \frac{F - 32 - 37.27}{478.38} = \log. B - \log. b \times 1 +$$

$$\frac{F - 69.27}{478.38} \text{ in French toises. To reduce these to our English fathoms of 6 feet each, multiply the above expression by 1.06575, and we shall have}$$

$$\log. B - \log. b \times 1 + \frac{F - 69.27}{478.38} \times 1.06575 =$$

$$\log. B - \log. b \times 409.11 + F \times \frac{1.06575}{478.38} =$$

$$\log. B - \log. b \times \frac{409.11 + F}{448.87} \text{ or, in round numbers,}$$

$$= \log. B - \log. b \times \frac{409 + F}{449} = \log. B - \log. b \times 1 +$$

$$\frac{F - 40}{449}, \text{ which expresses the height between the two sta-}$$

tions in English fathoms.

In these expressions B and b denote heights of the baro-

meter, at the lower and higher stations, corrected for the difference of heat between a fixed temperature, viz. $\frac{1}{10}$ th of the interval between freezing and boiling water, and the present heat, indicated by the thermometer attached to the barometer at each station: but it will be sufficient, and more convenient, to correct one barometer for the difference of the heat of the two. Suppose then the upper barometer is to be corrected, to reduce it to the temperature of the lower one, and that b signifies the height of this barometer, as observed and not corrected; the correction, from what has been already said, if we call D the difference of height of the thermometer attached to the barometer at the two stations, e. g. at the top and bottom of the hill, will be $\pm \frac{D b}{54 K}$, as the thermometer stands highest at the lower or upper station; and the upper barometer corrected, instead of b , will be $b \pm \frac{D b}{54 K}$, which substituted in the for-

mula, gives $\log. B - \log. (b \pm \frac{D b}{54 K}) \times 1 + \frac{F - 40}{449}$. But the correction, on account of the difference of heat of the barometer at the two stations, may be reduced to a more easy expression, in which the variable quantity b , the height of the upper barometer, shall not appear. The fluxion of a logarithm is to the fluxion of its natural number as the modulus of the system to the natural number; and 4343 is the modulus of the common logarithms, when the four places, next the index or characteristic, are taken as whole numbers, instead of decimals, which is meant to be done in the use of the preceding formula.

Consequently $\frac{D b}{54 K}$ being very small with respect to b , we shall have variation of $\log. b$: variation of $b = (\frac{D b}{54 K}) :: 4343 : b$ very nearly, and hence variation of $\log. b = \pm \frac{D b}{54 K} \times \frac{4343}{b} = \pm \frac{4343 D}{54 K} =$ (putting $K = 178$)

$$\pm 0.452 D. \text{ Hence } \log. (b \pm \frac{D b}{54 K}) = \log. b \pm 0.452 D;$$

which, being substituted in the above formula, will give the difference of height of the two stations, in English fathoms, in a more convenient expression, viz. $\log. B - \log. b \mp 0.452$

$D \times 1 + \frac{F - 40}{449}$; where the upper sign, $-$, is to be used, when the thermometer of the barometer is highest at the lower station, and the lower sign, $+$, is to be used, when the said thermometer is lowest at the lower station. When F , the height of Fahrenheit's thermometer, is less

than 40° , $+\frac{F - 40}{449}$, becoming negative or subtractive,

must be accordingly applied in the calculation. In the foregoing formula, B denotes the observed altitude of the barometer at the lower station, and b that at the upper station; $\log. B$ and $\log. b$ denote their logarithms taken out of the common tables, by assuming the four first figures, next following the index, as whole numbers, and considering the three remaining figures to the right hand, as decimals; D signifies the difference of height of Fahrenheit's thermometer, attached to the barometer at the top and bottom of the hill; and F signifies the mean of the two heights of Fahrenheit's thermometer, exposed freely for a few minutes to the open air in the shade, at the top and bottom of the hill.

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The formula, for the measure of heights, may be adapted to thermometers of particular scales, for the convenience of calculation; but the scales will be different from those of M. De Luc. The thermometer attached to the barometer, will be best divided with the interval between freezing and boiling water, consisting of 81.4 degrees ($=180 \times .452$); the freezing point may be marked 0, and the point of boiling water will be 81.4; for then, if the difference of height of this thermometer, at the two stations, be called d , we shall have $d = 0.452 \times D$, for $d : D :: 81.4 : 180 :: 0.452 : 1$, and the number of degrees expressed by d will shew immediately the correction for the difference of heat of the two barometers. If the thermometer, designed to shew the temperature of the air, be divided with the interval between freezing and boiling water = 200, and the freezing point be marked - 9, and the boiling point + 191, and the heights of this thermometer, at the two stations,

be called G and I , we shall have $\frac{F-40}{449} = \frac{G+I}{2 \times 500} = \frac{G+I}{1000}$. For $F-40 = F-32-8$ is the height of Fahrenheit's thermometer, reckoned from eight degrees above freezing, and $449 : 500 :: 180 : 200 :: 8 : 9$, and the fraction $\frac{F-32-8}{449}$

increasing both the numerator and denominator in the ratio of 449 to 500, will become $= \frac{F-32-8 \times \frac{500}{449}}{500}$

$\frac{F-32 \frac{500}{449}-9}{500} = \frac{G+I}{2 \times 500} = \frac{G+I}{1000}$, because $\frac{G+I}{2} + 9$

$= F-32 \times \frac{500}{449}$. Hence, if the thermometer of the barometer has the freezing point marked 0, and the point of boiling water 81.4, and the difference of its height, at the two stations, be called d ; and the thermometer for measuring the temperature of the air be divided with the interval of 200 between the freezing point and that of boiling water, and the first be marked - 9, and the latter + 191, and the degrees, shewn by this, at the two stations, be called G and I ; the formula that will give the height of the upper station above the lower one, in English fathoms,

will be $\log. B - \log. b \mp d \times 1 + \frac{G+I}{1000}$, which multiplied

by 6, will give the height in English feet. It is to be observed, that $+d$, or $-d$, is to be used, as the thermometer, attached to the barometer, is highest at the lower or upper station; and if G and I should happen to fall below 0 of the scale, or to be subtractive, they must be applied accordingly in the calculation.

The rules, expressed in the above formula, will be in common language as follows:

I. The rule adapted to Fahrenheit's thermometer is this.

Take the difference of the tabular logarithms of the observed heights of the barometer at the two stations, considering the four first figures, exclusively of the index, as whole numbers, and the three remaining figures to the right as decimals, and subtract or add $\frac{1}{1000}$ th part of the difference of the altitude of the Fahrenheit's thermometer, attached to the barometer at the two stations, according as it was highest at the lower or upper station: thus you will have the height of the upper station above the lower in English fathoms nearly. This is to be corrected in the following manner: say, as 449 is to the difference of the mean altitude of Fahrenheit's thermometer, exposed to the air at the two stations, from 40°, so is the height of the upper station

found nearly to the correction of the same: which, added or subtracted, according as the mean altitude of Fahrenheit's thermometer was higher or lower than 40°, will give the true height of the upper station above the lower, in English fathoms, and multiplied by 6 in English feet.

II. The rule adapted to two thermometers of particular scales is as follows. Take the difference of the tabular logarithms of the observed heights of the barometer, at the two stations, considering the four first figures, exclusively of the index, as whole numbers, and the three remaining figures to the right as decimals; and subtract or add the difference of the thermometer of a particular scale, attached to the barometer, at the two stations, according as it was highest at the lower or upper station, and you will have the height of the upper station above the lower one, in English fathoms nearly; subject to the following correction: say, as 1000 is to the sum of the altitudes of the thermometer of a particular scale, exposed to the air at both stations, so is the height of the upper station above the lower, found nearly, to the correction of the same; which, added or subtracted, according as the sum of the altitudes of the thermometers, exposed to the air, is positive or negative, will give the true height of the upper station above the lower in English fathoms, and multiplied by 6, in English feet. Dr. Horsley, the present bishop of St. Asaph, has given a comparison of M. De Luc's rules with theory, reduced them to English measures of length, and adapted them to Fahrenheit's scale of the thermometer, and added tables and precepts for expediting the practical application of them in the Phil. Transf. vol. lxiv. p. 214. See *Atmospherical Logarithmic*, and *Fixed Points of Thermometers*.

The scene of M. De Luc's first observations was mount Saleve, near Geneva. Here he selected 15 stations at different elevations; and the following table abstracted and abridged from his minute details (*Recherches*, &c. vol. ii. p. 213, &c.) shews the result of his operations:

Stations.	Heights by Levelling.	Number of Observations.	Mean heights by the barometer.
	feet. inches:		feet.
1 -	216 2	12	230 $\frac{3}{4}$
2 -	428 10	13	435 $\frac{1}{3}$
3 -	586	13	591 $\frac{1}{3}$
4 -	728 8	21	732 $\frac{1}{2}$
5 -	917	24	919 $\frac{1}{2}$
6 -	1218 8	27	1221 $\frac{1}{2}$
7 -	1420	23	1418 $\frac{1}{2}$
8 -	1800 6	17	1798 $\frac{1}{2}$
9 -	1965 3	17	1962 $\frac{1}{2}$
10 -	2211	17	2210 $\frac{1}{2}$
11 -	2333	17	2331 $\frac{1}{2}$
12 -	2582 4	16	2583 $\frac{1}{2}$

The latest and most accurate experiments and observations relating to this subject, are those of sir George Shuckburgh, and general Roy. In order to render the method of measuring altitudes by the barometer more perfect, it is necessary to ascertain by appropriate experiments the expansion of mercury by any increase of temperature, and also the expansion of air by the same, or by any change of temperature; and also the variations to which its elasticity is subject.

It has been already stated, that M. De Luc estimates the expansion of quicksilver, between the temperatures of melting ice and boiling water, to be exactly 6 French lines, or .532875 decimal parts of an English inch. But he supposed the barometer to stand at 27 Fr. inches, or 28.77525 Eng. inches; whereas, if it had stood at 30 inches, it would have been.

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been .555556, because the expansion is proportional to the length of the column. It has also been shewn, that M. De Luc's boiling point is 2.2° lower than that of English thermometers, reducing it to 209.8 of Fahrenheit, and making the interval between freezing and boiling only 177.8 degrees. Hence the expansion .555556 must be augmented in the proportion of 177.8 to 180, which gives for the total .5624297 or .56243, on a difference of temperature of 180° . Thus the expansion for each degree, supposing it to be arithmetical, or uniformly the same in all parts of the scale, will be .00312461. But from information communicated by M. De Luc to general Roy, it appears that the difference of temperature in his experiments amounted to about 31° of Reaumur, or 72° of Fahrenheit, above freezing; and therefore $.00312461 \times 72 = .225$ nearly will denote the rate of expansion, from which he deduced that for 180° .

The experiments of general Roy for ascertaining the expansion of mercury are minutely detailed in the Phil. Trans. vol. lxvii. p. 659—682. He exposed 30 inches of mercury, sustained in a barometer by the atmosphere, in a nice apparatus, by which it could be made of one uniform temperature, through its whole length; and he noted the expansions of it in decimals of an inch. The result appears in the following table; of which the first column expresses the temperature by Fahrenheit's thermometer, the second column expresses the bulk of the mercury in consequence of its expansion, and the third column shews the expansion of one inch of mercury for an increase of one degree in the adjoining temperatures.

TABLE I.

Temp.	Bulk of 8	Expan. for 1°
212°	30.5117	0.0000763
202	30.4888	0.0000787
192	30.4652	0.0000810
182	30.4409	0.0000833
172	30.4159	0.0000857
162	30.3902	0.0000880
152	30.3638	0.0000903
142	30.3367	0.0000923
132	30.3090	0.0000943
122	30.2807	0.0000963
112	30.2518	0.0000983
102	30.2223	0.0001003
92	30.1922	0.0001023
82	30.1615	0.0001043
72	30.1302	0.0001063
62	30.0984	0.0001077
52	30.0661	0.0001093
42	30.0333	0.0001110
32	30.0000	0.0001127
22	29.9662	0.0001143
12	29.9319	0.0001160
2	29.8971	0.0001177
0	29.8901	

By this table the observed height of the mercury may be reduced to what it would have been if it were of the temperature 32. Suppose that the mercurial height is observed to be 29.2, and that the temperature of the mercury

is 72° ; say $30.1302 : 30 :: 29.2 : 29.0738$, which would be the true measure of the density of the air of the standard temperature. In order to obtain the exact temperature of the mercury, the observation should be made by a thermometer attached to the frame of the barometer, that it may warm and cool along with it. This, however, may be done, with sufficient accuracy, without a table; as the expansion of an inch of mercury for one degree decreases very nearly $\frac{1}{3000}$ th part in each succeeding degree. If therefore we take from the expansion at 32° its thousandth part for each degree of any range above it, we obtain a mean rate of expansion for that range. When the observed temperature of the mercury is below 32° , this correction must be *added*, in order to obtain the mean expansion. This rule will be more exact if we suppose the expansion at 32° to be 0.0001127, as in the table. Then, by multiplying the mercurial height by this expansion, we obtain the correction to be *subtracted* or *added* as the temperature of the mercury was above or below 32° . Thus, in the former example of 72° , take 40, the excess of 72° above 32° , from 0.0001127, and we have 0.0001087. Multiply this by 40, and we have the whole expansion of one inch of mercury = 0.004348. Multiply the inches of mercurial height, viz. 29.2 by this expansion, and we have for the correction 0.12696; which, subtracted from the observed height, leaves 29.07304, differing from the exact quantity less than the thousandth part of an inch. This correction may be made by another process, still more simple; or by multiplying the observed height of the mercury by the difference of its temperature from 32° , and cutting off four cyphers before the decimals of the mercurial height: and this method will seldom err one hundredth of an inch. Having thus corrected the observed mercurial heights by reducing them to what they would have been if the mercury had been of the standard temperature, the logarithms of the corrected heights are taken; and their difference, multiplied by 10000, will give the difference of elevations, in English fathoms. Another method of applying this correction, more expeditious, and not less accurate, is as follows. As the difference of the logarithms of the mercurial heights is the measure of the ratio of those heights, so likewise the difference of the logarithms of the observed and corrected heights at any station is the measure of the ratio of those heights; and, therefore, this last difference of the logarithms is the measure of the correction of this ratio. But the observed height is to the corrected height as 1 to 1.000102; and the logarithm of this ratio, or the difference of the logarithms of 1 and 1.000102, is 0.0000444. This is the correction for each degree by which the temperature of the mercury differs from 32. Therefore multiply 0.0000444 by the difference of the mercurial temperatures from 32, and the products will be the corrections of the respective logarithms. The following method of applying the logarithmic correction is more easy than the former. The correction will only be necessary, when the temperatures at the two stations are different, and it will be proportional to this difference. Therefore, if the difference of the mercurial temperatures be multiplied by 0.0000444, the product will be the correction required on the difference of the logarithms of the mercurial heights. Moreover, since the differences of the logarithms of the mercurial heights are also the differences of elevation in English fathoms, it follows, that the correction is also a difference of elevation in English fathoms; or that the correction for one degree of difference of mercurial temperature is $\frac{4.44}{10000}$ of a fathom = 32 inches = 2 feet 8 inches. This correction of 2.8 for every degree of difference of temperature must be subtracted.

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tracted from the elevation found by the general rule, when the mercury at the upper station is colder than that at the lower. For in this case the mercurial column at the upper station will appear too short, and the pressure of the atmosphere too small; so that the elevation in the atmosphere will appear greater than it really is. Consequently the rule for this correction will be to multiply 0.0000444 by the degrees of difference between the mercurial temperatures at the two stations, and to add or subtract the product from the elevation found by the general rule, according as the mercury at the upper station is hotter or colder than that at the lower. If the expansion be considered as variable, the logarithmic difference corresponding to this expansion for the mean temperature of the two barometers may be taken. These logarithmic differences are contained in the following table, carried as far as 112°, beyond which it is not probable that any observations will be made. The number for each temperature is the difference between the logarithms of 30 inches, of the temperature 32, and of 30 inches expanded by that temperature.

TABLE II.

Temp.	Log. diff.	Dec. of Fath.	Ft. In.
112°	0.0000427	.427	2.7
102	0.0000436	.436	2.7
92	0.0000444	.444	2.8
82	0.0000453	.453	2.9
72	0.0000460	.460	2.9
62	0.0000468	.468	2.10
52	0.0000475	.475	2.10
42	0.0000482	.482	2.11
32	0.0000489	.489	2.11
22	0.0000497	.497	3.0
12	0.0000504	.504	3.0
0			

Sir George Shuckburgh has given the following table for the expansion of mercury by heat.

TABLE III.

Degr. of the Therm.	Height of the Barometer in inches.												
	20	21	22	23	24	25	26	27	28	29	30	31	32
1	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
2	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3	6.5
3	6.1	6.4	6.7	7.0	7.3	7.6	7.9	8.2	8.5	8.8	9.1	9.4	9.7
4	8.1	8.5	8.9	9.3	9.7	10.1	10.5	11.0	11.4	11.8	12.2	12.6	13.0
5	10.1	10.6	11.1	11.6	12.1	12.7	13.2	13.7	14.2	14.7	15.2	15.7	16.2
6	12.2	12.8	13.4	14.0	14.6	15.2	15.8	16.4	17.0	17.6	18.2	18.8	19.5
7	14.2	14.9	15.6	16.3	17.0	17.7	18.4	19.2	19.8	20.6	21.3	22.0	22.7
8	16.2	17.0	17.8	18.6	19.4	20.2	21.0	21.9	22.7	23.5	24.3	25.2	25.9
9	18.2	19.2	20.1	21.0	21.9	22.8	23.7	24.6	25.6	26.5	27.4	28.3	29.2
10	20.3	21.3	22.3	23.3	24.3	25.3	26.3	27.4	28.4	29.4	30.4	31.4	32.4
11	22.3	23.4	24.5	25.6	26.7	27.8	28.9	30.1	31.2	32.3	33.4	34.5	35.6
12	24.3	25.6	26.8	28.0	29.2	30.4	31.6	32.9	34.1	35.3	36.5	37.6	38.9
13	26.3	27.7	29.0	30.3	31.6	32.9	34.2	35.6	36.9	38.2	39.5	40.8	42.1
14	28.4	29.8	31.2	32.6	34.0	35.4	36.8	38.4	39.8	41.2	42.6	43.9	45.4
15	30.4	31.9	33.4	34.9	36.4	37.9	39.4	41.1	42.6	44.1	45.6	47.1	48.6
16	32.4	34.1	35.6	37.2	38.8	40.5	42.0	43.8	45.4	47.0	48.6	50.3	51.8
17	34.5	36.2	37.9	39.6	41.3	43.0	44.7	46.6	48.3	50.0	51.7	53.4	55.1
18	36.5	38.3	40.1	41.9	43.7	45.5	47.3	49.3	51.1	52.9	54.7	56.5	58.3
19	38.5	40.5	42.3	44.2	46.1	48.1	49.9	52.1	54.0	55.9	57.8	59.7	61.6
20	40.6	42.6	44.6	46.6	48.6	50.6	52.6	54.8	56.8	58.8	60.8	62.8	64.9
21	42.6	44.7	46.8	48.9	51.0	53.2	55.2	57.5	59.6	61.7	63.8	65.9	68.1
22	44.6	46.9	49.1	51.3	53.5	55.7	57.9	60.3	62.5	64.7	66.9	69.0	71.4
23	46.6	49.0	51.3	53.6	55.9	58.2	60.5	63.0	65.3	67.6	69.9	72.2	74.6
24	48.6	51.1	53.5	55.9	58.3	60.8	63.1	65.8	68.2	70.6	73.0	75.4	77.8
25	50.7	53.2	55.8	58.2	60.7	63.2	65.7	68.5	71.0	73.5	76.0	78.5	81.1
26	52.7	55.4	58.0	60.5	63.1	65.8	68.3	71.2	73.8	76.4	79.0	81.6	84.3
27	54.7	57.5	60.3	62.9	65.6	68.3	71.0	74.0	76.7	79.4	82.1	84.8	87.5
28	56.8	59.6	62.5	65.2	68.0	70.8	73.6	76.7	79.5	82.3	85.1	87.9	90.7
29	58.8	61.8	64.7	67.5	70.4	73.3	76.2	79.5	82.4	85.3	88.2	91.1	94.1
30	60.8	63.9	66.9	69.9	72.8	75.9	78.9	82.2	85.2	88.2	91.2	94.1	97.3
31	62.8	66.0	69.1	72.2	75.2	78.4	81.5	84.9	88.0	91.1	94.2	97.4	100.5
32	64.8	68.2	71.4	74.6	77.7	81.0	84.2	87.7	90.9	94.1	97.3	100.5	103.8
33	66.9	70.3	73.6	76.9	80.1	83.5	86.8	90.4	93.7	97.0	100.3	103.6	107.0
34	68.9	72.4	75.8	79.2	82.5	86.1	89.4	93.2	96.6	100.0	103.4	106.7	110.3
35	70.9	74.5	78.0	81.5	84.0	88.6	92.0	95.9	99.4	102.9	106.4	109.9	113.5
36	73.0	76.7	80.2	83.8	86.4	91.1	94.6	98.6	102.2	105.8	109.4	113.1	116.8
37	75.0	78.8	82.5	86.2	88.9	93.6	97.3	101.4	105.1	108.8	112.5	116.2	120.0
38	77.0	80.9	84.7	88.5	91.3	96.2	99.9	104.1	107.9	111.7	115.5	119.3	123.2
39	79.0	83.1	86.9	90.8	93.7	98.7	102.5	106.9	110.8	114.7	118.6	122.5	126.5
40	81.1	85.2	89.2	93.2	97.2	101.2	105.2	109.6	113.6	117.6	121.6	125.6	129.7

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Sir George Shuckburgh, in his barometrical observations, reckoned the equation for the expansion of mercury = .00323 of an inch for every degree of Fahrenheit's thermometer in a column of 30 inches, instead of .00312 used by M. De Luc; but this difference, he says, will not occasion an alteration in the result of any one of his observations of more than 5 inches; and he considers it as of no account. In another part of the same paper (Phil. Transf. vol. lxvii. p. 567), he estimates this equation, allowing .00042 for the effect of the expansion of glass for 1° upon a column of 30 inches, at .00304 of an inch for each degree, when the barometer stands at 30 inches. He adds that there is ground for the suspicion, that the expansion of mercury is not directly as the heat shewn by the barometer, but in a ratio somewhat different; owing, as he conceives, to some of the mercury being converted into an elastic vapour in the vacuum that takes place at the top of the Torricellian tube, which presses upon the column of mercury and thus counteracts in a small degree the expansion from heat. It does not, however, appear to be a considerable quantity, not amounting to above $\frac{1}{3}$ th of the whole expansion in a range of 40° of temperature. General Roy was incommoded in his experiments by the alternate expansion and condensation of the elastic vapour contained in the upper part of his tube. Lord Charles Cavendish found the difference between the expansion of mercury and glass, from 180° of heat, to be .469. And taking into the account Mr. Smeaton's dilatation of glass, the total expansion of 30 inches of mercury, says general Roy, will be .544, which gives a rate of expansion of only .003022 for each degree. Phil. Transf. vol. lxvii. p. 671. 673. 678.

After all, there will be a difference in the specific gravity of the mercury that is used, which will occasion irregularities that are not easily obviated. Mercury has been thought sufficiently pure for a barometer, when it is so far cleared of all calcinable matter as not to drag or fully the tube. Nevertheless in this state it may contain a considerable portion of other metals, particularly of silver, bismuth, and tin, which will diminish its specific gravity. It has been obtained by revivification from cinnabar of the specific gravity of 14.229, and it is thought very fine if it be 13.65. The specific gravity of the mercury in the barometers used by Sir George Shuckburgh was 13.61 with 68° of heat; but it is seldom found so heavy. These variations must affect the ultimate results; and in order to obtain precision, it is absolutely necessary to know the density of the mercury that is employed. The subtangent of the atmospheric logarithmic, or the height of the homogeneous atmosphere, will increase in the same proportion with the density of the mercury; and the elevation corresponding to $\frac{1}{16}$ th of an inch of barometric height will vary in the same proportion.

Another circumstance which demands attention in this business is the temperature of the air; as the change that is produced by heat in its density is of much greater moment than that of the mercury. The relative gravity of the two, on which the subtangent of the logarithmic curve depends, and consequently the unit of our scale of elevation, is much more affected by the heat of the air than by the heat of the mercury. M. De Luc was led from his observations to conclude, that a certain temperature, marked + 16 $\frac{1}{4}$ in his scale, nearly 69° $\frac{1}{4}$ of Fahrenheit's, the difference of the logarithms of the heights of the mercury in the barometer, at the upper and the lower stations, give the height of the former of those stations above the latter in 1000ths of a French toise; but that at every other temperature above or below 69° $\frac{1}{4}$, a correction of .00223 of the whole

was to be added or subtracted for every degree of the thermometer. By observations still more accurate, it has been found, that the temperature at which the difference of the logarithms gives the height in English fathoms is 32°, and that the correction at other temperatures is .00243 of that difference for every degree of the thermometer. The manner of estimating the temperature of the air, adopted in all these observations, was the same; an arithmetical mean was taken between the heights of the thermometer, at the upper and lower stations, and was supposed to be uniformly diffused through the column of air intercepted between them. M. De Luc, however, was apprized of the inaccuracy of this supposition; and general Roy, too, has observed, that one of the chief causes of error in barometrical computation proceeds from the mode of estimating the temperature of the column of air from that of its extremities, which must be faulty in proportion as the height and difference of temperature are great. Indeed it seldom or never happens, that any particular stratum of air is uniformly of the same temperature. It is commonly much colder above; and it is also of different constitutions. Below it is warm, loaded with vapour, and very expandible; above it is cold, much drier, and less expandible both by its dryness and its rarity. Currents of wind, also, are often disposed in strata, which retain their places for a considerable time; and as they come from different regions, are of different temperatures and constitutions. It is neither certain that the whole intermediate stratum expands alike, nor that the expansion is equal in the different intermediate temperatures. Rare air expands less than that which is denser; and there is a particular elevation at which the general expansion, instead of diminishing the density of the air, increases it by the superior expansion of that which is below. But no general rule has been established by which we can obtain a more accurate correction than by taking the expansion for the mean temperature.

Sir George Shuckburgh has exhibited the result of several experiments on the expansion of air by a change of temperature in the following table, where is seen the increase in bulk of 1000 parts of air of the temperature of freezing and pressure of 30 $\frac{1}{2}$ inches, by an addition of 1. degree of heat in Fahrenheit's thermometer.

TABLE IV.

Observations.	Number of degrees the air was heated.	Expansion for 1° in 1000ths of the whole	
With the first manometer,	1	14.6	2.30
	2	32.2	2.43
	3	40.3	2.48
	4	46.6	2.45
	5	49.7	2.48
	6	51.1	2.51
	7	23.7	2.36
	8	13.1	2.24
With another manometer.	9	22.0	2.38
	10	28.0	2.50
	11	21.5	2.34
	12	30.1	2.44
	13	22.6	2.44
		Mean from the first manometer 2.44.	
		Mean from the second manometer 2.42.	

The mean of these two sorts of observations, made with different instruments, is 2.43, viz. 1000 parts of the air at freezing become by expansion from 1° of heat equal 1002.43 parts or 1002.385 parts with the standard temperature 39° 7'. Whereas

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Whereas M. De Luc's experiments reduced, give this quantity equal 1002.23 parts. General Roy compared a mercurial and an air thermometer, each of which was graduated arithmetically; that is, the units of the scales were equal bulks of mercury, and equal bulks of air. Their progress is exhibited in the following table.

TABLE V.

Merc.	Diff.	Air.	Diff.
212	20	212.0	17.6
192	20	194.4	18.2
172	20	176.2	18.8
152	20	157.4	19.4
132	20	138.0	20.0
112	20	118.0	20.8
92	20	97.2	21.6
72	20	75.6	22.6
52	20	53.0	21.6
32	20	31.4	20.0
12		11.4	

As equal increments of heat produce equal increments in the bulk of mercury, the differences of temperature are expressed by the second column, and may be considered as equal; and the numbers of the third column express the same temperatures with those of the first. They directly express the bulks of the air, and the numbers of the fourth column express the differences of these bulks. These are evidently unequal, and they shew that common air expands most of all when the temperature is 62 nearly. In order to determine what was the actual increase of bulk by some known increase of heat, general Roy took a tube of a narrow bore, with a ball at one end. He measured the capacity of both the ball and the tube, and divided the tube into equal spaces, bearing a determined proportion to the capacity of the ball. This apparatus was placed in a long cylinder filled with frigorific mixtures or with water, which might be uniformly heated to the boiling temperature, and it was accompanied by a nice thermometer. The expansion of the air was measured by means of a column of mercury, which rose or sunk in the tube. The tube being of a small bore, the mercury did not drop out of it; and the bore being chosen as equal as possible, this column remained of an uniform length, whatever part of the tube it chanced to occupy. By this contrivance he was able to examine the expansibility of air of various densities. When the column of mercury contained only a single drop or two, the air was nearly of the density of the external air. If he wished to examine the expansion of air twice or thrice as dense, he used a column of 30 or 60 inches in length; and to examine the expansion of air that is rarer than the external air, he placed the tube with the ball uppermost; the open end passing through a hole in the bottom of the vessel containing the mixtures or water. By this position the column of mercury was hanging in the tubes supported by the pressure of the atmosphere; and the elasticity of the included air was measured by the difference between the suspended column and the common barometer.

The following table shews the expansion of 1000 parts of air, nearly of the common density, by heating it from 0 to 212. The first column shews the height of the barometer; the second shews this height augmented by a small column of mercury in the tube of the manometer, and therefore expresses the density of the air examined in inches; the third contains the total expansion of 1000 equal parts of air by

212°; and the fourth shews the mean expansion for each degree.

TABLE VI.

Barom.	Density of Air examined.	Expansion of 1000 p ^a by 212°.	Expansion by 1°.
29.95	31.52	483.89	2.2825
30.07	30.77	482.10	2.2741
29.48	29.90	480.74	2.2676
29.90	30.73	485.86	2.2918
29.96	30.92	489.45	2.3087
29.90	30.55	476.04	2.2455
29.95	30.60	487.55	2.2998
30.07	30.60	482.80	2.2774
29.48	30.00	489.47	2.3087
Mean	30.62	484.21	2.2840

If this expansion be supposed to follow the same rate that was observed in the comparison of the mercurial and air thermometer, we shall find that the expansion of a thousand parts of air for one degree of heat at the different intermediate temperatures will be as in the following table.

TABLE VII.

Temp.	Total Expansion.	Expansion by 1°.
212	484.210	2.0099
192	444.011	2.0080
172	402.452	2.1475
152	359.503	2.2155
132	315.193	2.2840
112	269.513	2.3754
92	222.006	2.4211
82	197.795	2.5124
72	172.671	2.5581
62	147.090	2.6037
52	121.053	2.5124
42	95.929	2.4211
32	71.718	2.3297
22	48.431	2.2383
12	26.038	2.1698
0		

In order to have a mean expansion for any particular range, as between 12° and 92°, which is the most likely to comprehend all the geodetical observations, we need only take the difference of the bulks 26.038 and 222.006 = 195.968, and divide this by the interval of temperature, 80°, and we obtain 2.4496, or 2.45, for the mean expansion for 1°.

This table, which in its present form shews the expansibility of air originally of the temperature 0, may be easily adapted to a mass of 1000 parts of air of the standard temperature 32°, by saying (for 212°), 1071.718 : 1484.210 :: 1000 : 13489; and so of the rest. Thus the following table is constructed.

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TABLE VIII.

Temp.	Bulk.	Differ.	Expan- for 1°.
212	13849		
192	13474	375	18.7
172	13087	387	19.3
152	12685	402	19.6
132	12272	413	20.6
112	11846	426	21.3
92	11403	443	22.1
82	11177	226	22.6
72	10942	235	23.5
62	10704	238	23.8
52	10461	243	24.3
42	10226	235	23.5
32	10000	226	22.6
22	9783	217	21.7
12	9574	209	20.9
0	9331	243	20.2

Hence we have the mean expansion of 1000 parts of air between 12° and 92° = 2.29.

The following table shews the result of general Roy's experiments on air much exceeding the common density. The first column contains the densities measured by the inches of mercury which they will support when they are of the temperature 32°; the second column shews the expansion of 1000 parts of such air by being heated from 0 to 212°; and the third column is the mean expansion of 1°.

TABLE IX.

Density.	Expansion for 212.	Expansion for 1°.
101.7	451.54	2.130
92.3	423.23	1.996
80.5	412.09	1.944
54.5	439.87	2.075
49.7	443.24	2.091
75.7	434	2.047

General Roy made many experiments on air much below the common density, and he found, in general, that their expansibility by heat was analogous to that of air of ordinary density, being greatest about the temperature of 60°. He also found, that its expansibility with heat decreased with its density; but he was not able to ascertain the law of gradation. When reduced to about $\frac{1}{4}$ th of the density of common air, its expansion was as follows.

TABLE X.

Temp.	Bulk.	Difference.	Expansion for 1°
212	1141.504		
192	1134.429	7.075	0.354
172	1122.165	12.264	0.613
152	1108.015	14.150	0.708
132	1093.864	14.151	0.708
112	1079.636	14.228	0.711
92	1064.699	14.937	0.747
72	1043.788	20.911	1.045
52	1017.845	25.943	1.297
32	1000.000	17.845	0.892
Mean expansion			0.786

From the experiments to which we have above referred it appears, that the expansibility of air is greatest when the air is about its ordinary density, and that in small densities it is greatly diminished. It appears upon the whole, that there is little difference in the actual expansion or elastic force of air, pressed with an atmosphere + or - one third part; yet, when it is rendered extremely rare, its elasticity is wonderfully diminished. It should seem, indeed, that the elastic force of common air is greater than when its density is considerably augmented or diminished by an addition to or subtraction from the weight with which it is loaded; and this observed difference contradicts the experience of Boyle, Mariotte, &c. It also appears that the law of compression is altered; for in the preceding specimen of the rare air half of the whole expansion happens about the temperature of 99°, but in air of ordinary density at 105°. As this is the case, the experiments of M. Amontons, in the Memoirs of the Academy at Paris for 1702 &c. are not inconsistent with those of general Roy. Amontons found that whatever was the density of the air, at least in cases where it was much denser than common air, the change of 180° of temperature increased its elasticity in the same proportion; for he found, that the column of mercury which it supported, when of the temperature 50, was increased $\frac{1}{3}$ at the temperature 212; and hence he hastily inferred, that its expansibility was increased in the same proportion; but this is by no means the case, unless we are certain that in every temperature the elasticity is proportional to the density; which still remains to be decided.

From another class of experiments made by general Roy, we learn that the elastic force of moist air is greatly superior to that of dry air; and that a very uniform increasing progression is perceived to take place from the zero of Fahrenheit, as far as 152° or 172°, and even to the boiling point. From the mean result of these experiments, which are arranged in a table, it appears, that the expansion of air, however moist, having that moisture condensed or separated from it by cold, differs not sensibly from that of dry air. Thus the rate for 32° below freezing 2.22799 is nearly the same as in dry air; but as soon as the moisture begins to dissolve and mix with the air, by the addition of 20° of heat, the difference is perceptible; for instead of 2.46675, the rate for 20° above 32° in dry air, we have 2.588 for that which is moist. In the next step of 20°, the rate for dry air is 2.5809; whereas that for moist is 2.97. In this manner the progression goes on continually increasing, so as to give 7.86854 for the mean rate on each degree of the 212°, which is near $3\frac{1}{2}$ times the expansion of dry air. And, lastly, the rate for the 20° between 192° and 212° is twice and one-half the mean rate, and about nine times that which corresponds to the zero of the scale, but the comparison being drawn from the mean of some particular experiments, as being probably nearest the truth, the total expansion of moist will be more than four times that of dry air; and the rate for the temperature at boiling will be nearly 15 times that which corresponds to the zero of Fahrenheit. This circumstance will probably account for the deviations from the rules established for determining heights by the barometer, which take place in the province of Quito in Peru, and at Spitzbergen, within 10 degrees of the pole. In the former situation, which is at a great elevation above the level of the ocean, the heights obtained by these rules fall considerably short of the real heights; and at the latter place they considerably exceed them. Near the surface of the earth there is a greater degree of humidity and heat in the air than there is in the higher regions of the atmosphere; and the elasticity or expansion of the lowermost section of

BAROMETER.

every column of air, whether long or short, will consequently be greater than the uppermost section of it. For the heat, by dissolving the moisture, produces a vapour lighter than air, which, mixing with its particles, removes them farther from each other, increases the elasticity of the general mass, and diminishes its specific gravity comparatively more than it doth that of the section immediately above it, where there is less heat and less moisture. Hence general Roy infers, that the equation for the air, in any assigned vertical, will gradually decrease as the elevation of the place above the sea increases, and that it will vanish at the top of the atmosphere. Between the tropics there is a great degree of humidity in the air; and, on the contrary, the polar atmospheres are very dry. The heat and moisture being greatest at the equator, there the elasticity or equation will likewise be the greatest at the level of the sea; and the zero of the scale will necessarily descend to a lower point of the thermometer, than that to which it corresponds in middle latitudes. As the elasticity of the air at the level of the sea, or equal heights above it, with the same degree of heat, will always be proportionable to the quantity of moisture dissolved in it, it will therefore gradually decrease from the equator towards the poles; that is, the zero of the scale will ascend in the thermometer, coincide with the 32d degree in the middle latitudes, and in its motion upwards, will give the equation to be applied with the contrary sign, in high latitudes. At Spitzbergen, it would seem that the specific gravity of air to mercury is about 1 to 10224, and in Peru about 1 to 13100. This difference is with great probability ascribed to the greater dryness of the circumpolar air; so that the density of the air was greater than could have been inferred merely from its compression and its temperature.

From the above account of the expansion of air, it is plain that the height through which we must rise in order to produce a given fall of the mercury in the barometer, or the thickness of the stratum of air equiponderant with a tenth of an inch of mercury, must increase with the expansion of air; and hence, if .00229 be the expansion for one degree, we must multiply the excess of the temperature of the air above 32° by 0.00229, and the product by 87, in order to obtain the thickness of the stratum where the barometer stands at 30 inches; or whatever be the elevation indicated by the difference of the barometrical heights, upon the supposition that the air is of the temperature of 32°, we must multiply this by .00229 for every degree that the air is warmer or colder than 32. The product must be added to the elevation in the first case, and subtracted in the latter. Sir George Shuckburgh deduces .0024 from his experiments as the mean expansion of air in the ordinary cases; and this is probably near the truth; because general Roy's experiments were made on air, which was more free from damp than the ordinary air in the fields; and it sufficiently appears from his experiments, as already stated, that a very small quantity of damp increases its expansibility by heat in a prodigious degree. We shall now refer for a more particular account of the subject of this article to the papers of the astronomer royal and of Dr. Horsley, *Philos. Trans.* vol. lxiv. p. 158, &c. *Id.* p. 214, &c. and for the papers of Sir George Shuckburgh and general Roy to the *Phil. Trans.* vol. lxvii. p. 513, &c. and p. 653, &c. and also to professor Playfair's paper on the causes which affect the accuracy of barometrical measurements in the *Edinb. Trans.* vol. i. p. 87, &c.: and subjoin in one view a summary of the most approved and easy rules for the practice of this mode of measurement illustrated by examples.

The first is M. De Luc's method already given in another form.

1. Subtract the logarithm of the barometrical height at the upper station from the logarithm of that at the lower, and count the index and four first decimal figures of the remainder as fathoms, the rest as a decimal fraction. Call this the *elevation*.

2. Note the different temperatures of the mercury at the two stations, and the mean temperature. Multiply the logarithmic expansion corresponding to this mean temperature (in Table II.) by the difference of the two temperatures, and subtract the product from the elevation, if the barometer has been coldest at the upper station; otherwise, add it. Call the difference, or the sum, the *approximated elevation*.

3. Note the difference of the temperatures of the air at the two stations by a detached thermometer, and also the mean temperature and its difference from 32°. Multiply this difference by the expansion of air for the mean temperature, and multiply the approximated elevation by $1 \pm$ this product according as the air is above or below 32°. The product is the correct elevation in fathoms and decimals.

Example.

Suppose that the mercury in the barometer at the lower station was at 29.4 inches, that its temperature was 50°, and the temperature of the air 45°; and let the height of the mercury at the upper station be 25.19 inches, its temperature 46, and the temperature of the air 39. Here we have

Merc. heights	Temp. merc.	Mean	Temp. air.	Mean
29.4	50		45	
25.19	46	48	39	42
1. Log. of 29.4	-	-	-	1.4683473
Log. of 25.19	-	-	-	1.4012282
Elevation in fathoms				671.191
2. Expansion for 48°	-	-	473	
Multiply by 4	-	-	4	1.892
Approximated elevation				669.299
3. Expansion of air at 42	-	0.00238		
Mult. by $42 \times 32 = 10^\circ$			10	
			0.0238	
Multiply	-	-	-	669.299
By	-	-	-	1.0238
Product = the correct elevation				685.228

II. Sir George Shuckburgh's method.

1. Reduce the barometric heights to what they would be if they were of the temperature of 32°.

2. The difference of the logarithms of the reduced barometrical heights will give the approximate elevation.

3. Correct the approximate elevation as before.

Example, the same as before.

1. Mean expansion for 1° from Table I.	-	0.000111
$18^\circ \times 0.000111 \times 29.4 =$	-	0.059
Subtract this from	-	29.4
Reduced barometric height	29.341	
Expansion from Tab. I. is		0.000111
$14^\circ \times 0.000111 \times 25.19 =$	-	0.039
Subtract from	-	25.190
Reduced barometric height	25.151	
2. Log. 29.341	-	1.4674749
Log. 25.151	-	1.4035553
Approximated elevation		669.196
3. This multiplied by 1.0238 gives		685.125

Sir

Sir George Shuckburgh has computed a series of tables, and given precepts for estimating the heights of mountains by means of these tables; for which we refer to his own account, *ubi supra*.

Obf. 1. If 0.000101 be supposed the mean expansion of mercury for 1°, the reduction of the barometric heights will be had with sufficient exactness by multiplying the observed heights of the mercury by the difference of its temperatures from 32, and cutting off four more decimal places: thus $29.4 \times \frac{101}{10000}$ gives for the reduced height 29.347, and $25.19 \times \frac{101}{10000}$ gives 25.155, and the difference of their logarithms gives 669.4 fathoms for the approximated elevation, which differs from that given above by no more than 15 inches.

Obf. 2. If 0.0024 be taken for the expansion for 1°, the correction for this expansion will be had by multiplying the approximated elevation by 12, and this product by the sum of the differences of the temperatures from 32°: counting that difference as negative when the temperature is below 32°, and cutting off four places: thus, $669.196 \times 12 \times 13 + 07 \times \frac{1}{10000} = 16.061$, which added to 669.196 gives 685.257, differing from the former only 9 inches.

III. Another rule may be derived from the same premises; and it will be sufficiently exact for all geodetical purposes. It requires no tables, and may be easily remembered.

1. The height through which we must rise in order to produce any fall of the mercury in the barometer, is inversely proportional to the density of the air; that is, to the height of the mercury in the barometer.

2. When the barometer stands at 30 inches, and the air and quicksilver are of the temperature 32, we must rise through 87 feet, in order to produce a depression of $\frac{1}{10}$ th of an inch.

3. But if the air be of a different temperature, the 87 feet must be increased or diminished by 0.21 of a foot for every degree of difference of the temperature from 32°.

4. Every degree of difference of the temperatures of the mercury at the two stations makes a change of 2.833 feet, or two feet ten inches in the elevation. Hence is deduced the following rule.

1. Take the difference of the barometric heights in tenths of an inch; and call it *d*.

2. Multiply the difference *a* between 32, and the mean temperature of the air by 21, and take the sum or difference of this product and 87 feet. This is the height through which we must rise to cause the barometer to fall from 30 inches to 29.9: call this height *b*. Let *m* be the mean between the two barometric heights. Then $\frac{30db}{m}$ is the

approximated elevation very nearly. Multiply the difference *d* of the mercurial temperatures by 2.83 feet, and add this product to the approximated elevation, if the upper barometer has been the warmest; otherwise subtract it. The result, that is the sum or difference, will be the corrected elevation.

Example, as before.

$$d = 294 - 251.9 = 42.1$$

$$b = 87 + 10 \times 0.21 = 89.1$$

$$m = \frac{29.4 + 25.19}{2} = 27.29$$

$$\text{Approximated elevation} = \frac{30 \times 42.1 \times 89.1}{27.29} = 4123.24 \text{ feet.}$$

$$\text{Correction for temp. of mercury} = 4 \times 2.83 = 11.32$$

$$\text{Corrected elevation in feet} \quad - \quad - \quad - \quad 4111.92$$

$$\text{The same in fathoms} \quad - \quad - \quad - \quad 685.32$$

differing from the former only 15 inches.

This rule may be expressed by the following formula which is simple and easily remembered; *a* being the difference between 32° and the mean temperature of the air, *d* the difference of barometric heights in tenths of an inch, *m* the mean barometric height, *d* the difference between the mercurial temperatures, and *E* the corrected elevation. $E = \frac{30(87 \pm 0.21a)d}{m} \pm d \times 2.83$. Encycl. Brit. art. PNEUMATICS. See *Height of the ATMOSPHERE*, and *Atmospherical LOGARITHMIC*.

BAROMETERS, ANIMAL. See ANEMONE.

BAROMETRICAL PHOSPHORUS. See PHOSPHORUS.

BAROMETZ, in Botany. See POLYPODIUM.

BARON, a person who holds a barony.

Baron is a term whose origin and primary import are much contested. Some will have it originally denote a *man*, *avnp*; some a *hero*, or *valiant man*; some a *libertinus*, or *free-man*; some a *great*, or *rich man*; some a *vassal*, or *liege-man*.—Menage derives it from the Latin *baro*, which we find used in the pure age of that language for *vir*, a *flout*, or *valiant man*; whence, according to this author, it was that those placed next to the king in battles were called *barones*, as being the bravest men in the army; and as princes frequently rewarded the bravery and fidelity of those about them with fees, the word came to be used for any noble person who holds a fee immediately of the king.—Hudon, and after him Camden, take the word in its original sense, to signify a *mercenary soldier*. Messieurs of the Port Royal derive it from *βαρος*, *weight*, or *authority*. Cicero uses the word *baro*, for a stupid brutal man; and the old Germans make mention of *buffeting a baron*, i. e. a *villain*; as the Italians still use the word *barone*, to signify a *beggar*.—M. De Marea derives baron from the German *bar*, *man*, or *free-man*: others derive it from the old Gaulish, Celtic, and Hebrew languages. But the most probable opinion is, that it comes from the Spanish *varo*, a *flout*, *noble person*; whence wives come to call their husbands, and princes their tenants, *barons*. In the Salic law, as well as the laws of the Lombards, the word *baron* signifies a *man* in the general, and the old glossary of Philomenes translates baron by *avnp*, *man*.

BARON, the title of a lord or peer of parliament, being the next degree below that of a viscount. A baron hath the title of Right Honourable, and in all acts and proceedings is styled Most noble Lord. The parliamentary robe of a baron is scarlet cloth, lined with white satin, having on the right side two *guards of Minerva*, or *ermine*, which signifies his degree. The coronet of a baron is a rim of gold, having thereon six pearls: this coronet was granted them by Charles II. by patent bearing date 6th July 1661, before which they wore a crimson cap turned up with ermine, and on the top a tassel of gold, now called a baron's cap. A baron may appoint three chaplains. In ancient records, the word barons included all the nobility of England, because regularly all noblemen were barons.

The word baron of itself originally did not, more than peer, signify an immediate vassal of the king; for earls palatine had their barons, that is, their immediate tenants; and in old records, the citizens of London are styled barons, and so are the representatives of the cinque ports called to this day. Baron, therefore, at first signified only the immediate tenant of that superior whose baron he is said to be; but by length of time it became restrained to those who, properly and exactly speaking, were *barones regis & regni*: and even not to all of these, but to such only as had manors and courts therein; for though, by the principles of the feudal constitution, every immediate military tenant of

the crown, however small his holding, was obliged to assist the king with his advice, and entitled likewise to give or refuse his assent to any new law or subsidy, that is, to attend in parliament; this attendance was too heavy and burthenome upon such as had only one or two knight's fees, and could not be complied with without their ruin. Hence arose the omission of issuing writs to such, and which, being for their ease, they acquiesced in, attendance in parliament being considered at that time as a burthen. Thus they lost that right they were entitled to by the nature of their tenure, until the method was found out of admitting them by representation. Hence arose the distinction between tenants by barony or tenure, and tenants by knight's service in the capite of the king. The former were such military tenants of the king, as had estates so considerable as qualified them without inconvenience to attend in parliament, and who were therefore entitled to be summoned: the quantum of this estate was regularly thirteen knight's fees and one third, as that of a count or earl was twenty; that is, as a knight's fee was then reckoned at 20*l. per annum*, the baron's revenue was 400 marks, or 2*col. 13 s. 4 d.*

Such was the nature of all the baronies of England, for about two hundred years after the conquest: and they are called baronies by tenure, because the dignity and privileges were annexed to the lands they held; and if these were alienated with the consent of the king (for without that they could not), the barony went over to the alienee. Of these Matthew Paris tells us there were 250 in the time of Henry III.; and whilst they stood purely on this footing, it was not in the king's power to increase the number of the baronies: though of barons perhaps he might; for as William the Conqueror was obliged to gratify several of his great officers, according to the number of men they brought, with two or more baronies, whenever these fell into the hands of the crown by escheat, either for want of heirs, or by forfeiture, it was in the king's power, and it was his interest, to divide them into separate hands. The same thing likewise happened, when, by an intermarriage with an heiress, more baronies than one came into the hands of a nobleman, and escheated to the crown.

But the number of these feudal baronies could not, strictly or properly speaking, be increased by the king; for they could be created only out of lands, and there were no lands vacant to create new ones out of, for the king's demesnes were in those days unalienable. However we find, at the end of Henry the Third's reign, and even in John's, that the number of baronies were actually increased, and a distinction made between the *barones majores* and *minores*.

The *majores* were those who stood on the old footing of William, and had lands sufficient in law, namely, the number of the knight's fees requisite. The *minores* were such as held by part of a barony; and when an old barony descended to, and was divided among sisters, in which case, when the husband of the sister whom the king pleased to name was the baron of parliament, or else was newly carved out of the old baronies that had fallen in by escheat; as supposing the king had granted six knight's fees of an old barony to one to hold with all the burthens and to the service of an entire barony, and the remaining seven and one-third to another on the same terms. But the attendance of these minor barons also at length became too burthenome for their circumstances, and many of them were glad to be excused. The king took then the power of passing by such as he thought unable, by not sending them writs of summons; and John extended his prerogative even to omit summoning such of the *majores* as he imagined were inclined

to oppose him: this however at length he was obliged to give up; for in his magna charta it is said, "ad habendum commune consilium regni faciemus summoneri archiepiscopos, episcopos, abbates, comites, & majores barones regni, sigillatim per literas nostras."

The *barones majores* were there fully and plainly distinguished from the *minores*; and we apprehend it will not be doubted they were such as had the full complement of knight's fees that made up an ancient barony; and accordingly we find, in 1255, when Henry the Third had neglected summoning some of these, the others refusing to enter on any business, "quia omnes tunc temporis non fuerunt, juxta tenorem magnæ chartæ suæ, vocati; et ideo, sine paribus suis tunc absentibus, nullum voluerunt tunc responsum dare, vel auxilium concedere, vel prestare." No king since ever omitted to summon all the greater nobility, until Charles the First was prevailed upon to forbid the sending a writ to the earl of Bristol, by Buckingham, who was afraid of being accused by that nobleman; but on the application of the house of lords, and their adjourning themselves from day to day and doing no business, the writ at last was issued.

In the reign of Henry the Third also, the king's prerogative of summoning or omitting the lesser barons was likewise ascertained by an act of parliament since lost, as we find by these words from history: "Ille enim rex (scilicet Henricus Tertius) post magnas perturbationes & enormes vexationes inter ipsum regem, Simonem de Monteferti & alios barones, motas & lapidas statuit et ordinavit, quod omnes illi comites & barones regni Angliæ, quibus ipse rex dignatus est brevem dirigere, venerent ad parlamentum suum, & non alii, nisi forte dominus rex alia illa brevem illis dirigere voluisset;" and from henceforth no nobleman could sit in parliament without a writ. But there was this difference between the greater and the lesser barons, that the former had a right to their writ *ex debito justitiæ*, to the latter it was a matter of favour; but when summoned, they being really barons, had the same rights with the rest, though sitting not by any inherent title, but by virtue of the writ. The other lesser barons, who were generally omitted to be summoned, by degrees mixed with the other king's tenants *in capite*, and were thenceforth represented by the knights of the shires.

But these baronies by tenure being long since worn out among the laity, it is proper to proceed to the two ways now in being of creating peers; by writ, and by letters patent. It was lord Coke's opinion, and in this he has been followed ever since, that a writ to any man, baron or no baron, to sit in parliament, if once he hath taken his seat in pursuance thereof, gains a barony to him and the heirs of his body; and though the law, principally on the authority of that great lawyer, is now so settled, certainly it is comparatively but a novel opinion, and very ill to be supported by reason. The words of the writ are: "Rex tali salutem quia de advisamento & assensu consilii nostri, pro quibusdam arduis & urgentibus negotiis statum & defensionem regni nostri Angliæ concernentibus, quoddam parlamentum nostrum apud Westmonast. tali die talis mensis proximo futuro teneri ordinavimus & ibidem vobiscum, ac cum prelati magnatibus & proceribus dicti regni nostri, colloquium habere & tractatum; vobis in fide & ligeantia quibus nobis tenemini firmiter injungendo mandamus, quod consideratis dictorum negotiorum arduitate & periculis imminetibus, cessante ex-culatione quacunque, dictis die & loco personaliter interfutis nobiscum, ac cum prelati magnatibus & proceribus super dictis negotiis tractaturi, vestrumque consilium impensuri, & hoc sicut nos, & honorem nostrum, ac expeditionem negotiorum prædictorum diligitis, nullatenus omitatis."

That

That this writ must be obeyed there is no doubt, for every subject is by his allegiance obliged to assist the king with faithful counsel; but what right the party summoned acquired thereby, is the question. The words are not only personal to him, but restricted likewise to a particular place and time; and, accordingly, in ancient times we find many persons summoned to one parliament, omitted in the next, and summoned perhaps to the third. There is not a word therein that hints at giving the least right to an heir; and what reason can be assigned why a man by this writ should gain an estate of inheritance in a peerage, when in letters patent it is admitted that he gains only an estate for life, without the word *heirs*. That anciently there was no such notion appears from the summons to parliament, where frequently we find the grandfather summoned, the father passed by, and the grandson afterwards summoned; nay, in the rolls there are instances of ninety-eight persons being summoned a single time only, and neither themselves nor any of their posterity ever taken notice of afterwards. Or if we were to allow that this writ created an inheritance, what reason can be given why it should be an estate tail only, and be confined to the heirs of the body, and not, as all other new inheritances created generally, go to the collateral heirs?

But in order to discover plainly what privileges persons so called by writ had or could obtain in those times, it will be proper to distinguish them into three kinds of persons: first then, they were either some of the *minores barones by tenure*, and these, when called, had certainly all the privileges of the greater, or else they were not barons at all, but plain knights or gentlemen; and in respect to these, it is plain they had a right to deliberate, debate, and advise; but the better opinion is, they had no right to vote, but were assistants and advisers only, as the judges are at present, for it is absurd to suppose that in those times, when the commons were low and inconsiderable, and the barons were more powerful than the crown, that the latter should suffer their resolutions to be over-ruled at the pleasure of the king, by calling in such numbers as we find he often did, which must have been the case if all he had summoned had votes. But these two kinds of persons gained by their writ or sitting in consequence of it, originally, no farther right than to be present at that time. However, by many of these persons and their heirs having been constantly summoned, especially since Henry the Seventh's reign, and the ancient practice of omitting any who had been very frequently so going into disuse, the distinction between the greater and lesser barons was forgot, and that opinion prevailed which my lord Coke had adopted, and which is now the law, that a man having once sat in parliament in pursuance of the king's writ, acquires thereby an estate tail to him and the heirs of his body.

There was yet another kind of persons, not peers, that might be summoned by writ: these were the eldest sons of peers, to whom the father's barony must descend; and in such case, if the heir was called by the name of a barony that was in his father, he was a baron to all intents and purposes. But it seems very plain that this was not a new creation of a barony, for in that case the son so called should have been the lowest peer, whereas the practice is contrary; and we find no instance of a baron's son sitting on such a summons, unless the father had another barony by which he might sit: if the father indeed had a higher title, that has been reckoned sufficient to support his seat, though his only barony was transferred to the son. This then being no new creation, but a temporary transfer only of an old peerage, it should seem that this title, when once merged in the greater

by the father's death, should go according to the old limitation; but of late we find them considered as new creations. On the death of the earl of Derby, sir Edward Stanley, his sixth cousin, succeeded, and sat in parliament as baron Strange by Henry the Seventh's creation: but an eldest son of a former earl of Derby, having been called by writ while his father was living, the duke of Athol, as his heir by the female line, sat by the same title of baron Strange of king Charles the First's creation.

The descent of these two kinds of baronies is directed by the rules of the descent of other inheritances at common law; and, consequently, females are capable of succession, but with two exceptions: first, that half blood is no impediment, and, consequently, the half brother excludes the sister; secondly, that the honour is not divisible; and, therefore, if there be two or more sisters heiresses, the title is in abeyance, that is, is suspended until the king makes choice of one of them and her heirs; though by constant usage the law seems to be verging fast to a constant descent to the eldest.

The third method of creating peers is by letters patent, which is the most usual, and esteemed the most advantageous way; because the peerage is thereby created, though the new nobleman has never taken his seat, which is not the case of a barony by writ. As to the manner of these creations, there has a notable difference intervened since the accession of Henry the Seventh from what was the practice before Richard the Second. In his eleventh year began this method of creating by patent, in favour of John de Beauchamp, who, though summoned, never sat there, but was attainted by the next parliament, and afterwards executed. But the attainder out of the case, his patent in law could never have been deemed valid, because Michael de la Pole was the lord chancellor who affixed the seal to it, which had been before taken from him by act of parliament, and he declared incapable of ever having it again. This then was a single and ineffectual attempt of that weak prince to create a new peer without the assent of parliament, which was the usual way, above thirty having been made so in that very reign.

His successors were too wise to follow his example; for every barony newly created, till the union of the roses, which were about fourteen, was every one of them, as appears on the face of the patents, by authority of parliament; if we except two or three: and even these, on a close examination, will appear not to be new baronies, but regrants of old feudal baronies by tenure, which undoubtedly were all in the sole disposition of the king.

But Henry the Seventh having trodden down all opposition, was fortunate enough to carry the point Richard had vainly attempted; and acquired for his successors that prerogative which they have since enjoyed of creating peers at pleasure. The descent of these titles created by patent is directed by the words of the creation: if heirs are not mentioned, it is only an estate for life; if to a man and heirs of his body, females are not excluded: but the general way is to the heirs male of the body lawfully begotten of the grantee, perhaps with remainders over, and they descend as other estates entailed. The case of the duchy of Somerset was singular: Edward Seymour having three sons by two venters, was created duke of Somerset, and his heirs male of his second marriage, remainder to his heirs male by his first. This title continued near two hundred years in the younger branch, until upon its failure in Charles the sixth duke of Somerset, sir Edward Seymour, the heir by the prior marriage, succeeded by virtue of the remainder.

BARONS *by Ancient Tenure*, were those who held by certain territories of the king, who still reserved the tenure in chief

to himself. We also read of *barons by temporal tenure*; who are such as hold honours, castles, manors, as heads of their barony, that is, by grand serjeanty; by which tenure they were anciently summoned to parliament. But at present a baron by tenure is no lord of parliament, till he be called thither by writ.

The barons by tenure, after the Conquest, were divided into *maiores* and *minores*, and were summoned accordingly to parliament: the *maiores*, or greater barons, by immediate writ from the king; the *minores*, or lesser barons, by general writ from the high sheriff, at the king's command.

The ancients distinguished the greater barons from the less, by attributing high and even sovereign jurisdiction to the former, and only inferior jurisdiction over smaller matters to the latter. By the late jurisdiction act (20 Geo. II.) the civil jurisdiction of a baron in Scotland is reduced to the power of recovering from his vassals and tenants the rents of his lands, and of condemning them in mill-services; and also of judging in causes where the debt and damages do not exceed 40s. sterling. His criminal jurisdiction is, by the same statute, limited to assaults, batteries, and other smaller offences, which may be punished by a fine not exceeding 20s. sterling, or by setting the offender in the stocks in the day time not above three hours; the fine to be levied by poinding, or by one month's imprisonment. The jurisdiction formerly competent to proprietors of mines and coal or saltworks over their workmen, is reserved; and also that which was competent to proprietors who had the right of fairs or markets, for correcting the disorders that might happen during their continuance; provided that they exercise no jurisdiction inferring the loss of life or demembrement.

BARONS of the Exchequer are four judges, one of whom is called the chief baron, and the other three puisne barons, to whom the administration of justice is committed in causes between the king and his subjects touching matters belonging to the exchequer, and the king's revenue. They are called *barons*, because barons of the realm were used to be employed in that office.

The lord chief baron is created by letters patent to hold this dignity *quamdiu se bene gesserit*, wherein he hath a fixed estate; for the law intends this an estate for life. He alone without the other *barons* sits at Guildhall the afternoon in term time upon *nisi prius* in London, takes audits, accounts, recognizances, presentations of offices, and many other things of importance. In the absence of the lord chief baron, the other three barons supply his place according to their seniority.

Their office is also to look to the accounts of the king, to which end they have auditors under them; as well as to decide causes relating to the revenue, brought by any means into the exchequer: so that of late they have been constantly persons learned in the law; whereas formerly they were *maiores & discretiores in regno sive de clero essent, sive de curia*. See *Court of EXCHEQUER*.

BARONS of the Cinque Ports, are members of the house of commons, elected by the five ports, two for each port. See *CINQUE Ports*.

Those who have been mayors of Corfe-castle in Dorsetshire, are also denominated barons; as were formerly likewise the chief citizens of London.

BARON, in *Law*, is also used for the husband in relation to the wife; which two, in law, are called *baron* and *femme*, and are considered as one person, so that in trials of any sort they are not allowed to be evidence for or against each other. See *HUSBAND and WIFE*.

BARON and Femme, in *Heraldry*, are terms used to ex-

press the arms of husband and wife; as thus, he beareth *baron* and *femme*. The modern expression is, he beareth *impaled*.

BARON, Court. See *COURT*.

BARON, prender de. See *PRENDER*.

BARON, Robert, in *Biography*, a dramatic author, who lived during the reign of Charles I. and the protectorate of Oliver Cromwell. From Cambridge, where he received part of his education, he removed to Grays Inn, of the honourable society of which he became a member. At the university he wrote a novel called the "Cyprian Academy," containing two dramatic pieces, intitled "Deorum Dona," a masque, and "Gripus and Hegio," a pastoral. His tragedy of "Mirza," which is a more regular play, was probably written at a riper age.

BARON, Michael, a celebrated French actor, was the son of a shop-keeper of Issoudun, who himself went upon the stage, and born at Paris in 1652. He first joined the company of Raftin, and afterwards that of Moliere, in which connection he was universally admired and applauded. Baron was equally successful both in tragedy and comedy; although it is said he acquired his principal reputation in the former department. Racine, on occasion of introducing his Andromache on the stage, gave instructions to the other actors with respect to the performance of their several parts; but addressing Baron, who was to act Pyrrhus, he said to him, "To you, sir, I have no instructions to give; your own heart will tell you more than my lessons can inform you." Preachers are said to have attended in a grated box to study his action; "and thence (says Voltaire) went to declaim against the theatre." Such was his vanity, that in allusion to the title that was bestowed upon him of the "Roscus" of his age, he said, that "every century produced a Cæsar, but that it required 2000 years to produce a Baron." He was highly caressed by persons of distinction, although he sometimes was mortified by their reflections. At length, disgusted by this circumstance, or influenced by some other motive, he withdrew from the stage in 1691, and enjoyed a pension from the king. After an interval of 29 years he resumed his profession, and at the age of 68 was as much applauded as ever. In September 1729, his infirmities reduced him to the necessity of retiring, and he survived only two months. Baron was a writer as well as an actor, and composed several comic pieces for the theatre; which are said to be lively and amusing, and to exhibit much knowledge of the stage and of the world. He also wrote some poems. A collection of his works was printed at Paris, in two vols. 12mo. in 1736; and in three vols. in 1760. But some of the pieces contained in this collection are supposed not to be his. Voltaire's Age of Lewis XIV. Nouv. Dict. Histor.

BARON, Bonaventure, whose true name was *Fitzgerald*, was a native of Clonmell, in the county of Tipperary, in Ireland, and educated under the care of his uncle Luke Wadding, a Franciscan friar at Rome, who induced him to assume the habit of this order. He resided at Rome, where he was for a considerable time prælector of divinity in the college of St. Isidore, founded by his uncle in 1625, about 60 years, and died there, after having lost his sight, and at an advanced age, in the year 1696. He was distinguished by the purity of his Latin style, and wrote many books both in prose and verse in that language. His chief work was his "Theologia," in 6 vols. printed at Paris in 1676. Biog. Brit.

BARONET of ENGLAND, an hereditary dignity by patent, next to that of a baron instituted by king James the First on the 22d of May 1611. The first baronet that was created was sir Nicholas Bacon of Redgrave in Suffolk, whose

whose successor is therefore styled *Primus Baronetorum Angliæ*. At the first institution of this order the king engaged that the number should not exceed two hundred, and that each should pay into the exchequer as much as would pay thirty foot soldiers at eight-pence per diem to serve in the province of Ulster in Ireland; and for their distinction, as an honourable augmentation, they bear in their coat of arms either in a *canton*, or in an *escutcheon* of pretence, the arms of the ancient kings of Ulster, being *argent a hand, sinister, couped at the wrist, extended in pale gules*. Baronets and their eldest sons have this peculiar privilege, that they may be knighted if they please, upon knowledge thereof given to the lord chamberlain of the household, or vice-chamberlain for the time being, or in their absence, to any other officer attending his majesty's person; and in all commissions, writs, and other deeds, the style of *baronet* is to be placed at the end of their surnames, as a necessary and legal addition of dignity, as the addition of *Sir* to be placed before their Christian names, and to their wives the title of *Lady* or *Dame*. Baronets have precedence before all knights, except those of the garter, and knights bannerets. No patent for creating a baronet can now pass the great seal until the following certificate is obtained.

"To all and singular to whom these presents shall come we, the king's heralds and pursuivants of the College of Arms, London, do hereby certify that the family, arms, and pedigree of have been duly registered in this college pursuant to the tenor of his majesty's warrant under his royal signet and sign manual, bearing date the day of 1783, for correcting and preventing abuses in the order of baronets. In witness, &c."

BARONETS of Ireland, an hereditary dignity instituted 30 Sept. 1619, the same as those in England, and bearing likewise the arms of Ulster as an augmentation.

BARONETS of Nova Scotia. This order is also hereditary, and was instituted in Scotland by king Charles I. 28th May 1625, for advancing the plantation of Nova Scotia in America, and for settling a colony there, to which the aid of these baronets was designed. As an augmentation to their arms, they bear either in a *canton* or in an *in-escutcheon* the ensign of Nova Scotia, being *argent a cross of St. Andrew azure charged with an escutcheon of the royal arms of Scotland; supported on the dexter by the royal unicorn, and on the sinister, by a savage, or wild man, proper; and for the crest, a branch of laurel, and a thistle, issuing from two hands conjoined, the one being armed and the other naked, with this motto, Munit hæc et altera vincit*: and for their greater honour and dignity they were, by royal sign manual, bearing date 17th Nov. in 1629, allowed to "wear and carry about their necks in all time coming an orange-tawny silk ribbon, whereon shall hang pendant in an *escutcheon argent a saltier azure thereon an escutcheon of the arms of Scotland with an imperial crown above the escutcheon, and inscribed with this motto, Fax mentis bonefæ gloria*."

BARONIÆ CAPUT. See **CAPUT**.

BARONIUS, CÆSAR, in *Biography*, a learned cardinal, was born at Sora, in the kingdom of Naples, in 1538, and educated first at Veroli, and then at Naples. Having finished his studies at Rome. he entered in 1560 into the congregation of the oratory founded by St. Philip de Neri, and having received the order of priesthood, he was elected superior-general of the congregation, upon the death of its founder in 1583. Pope Clement VIII. chose him for his confessor, made him apostolical prothonotary, and in 1596 raised him to the dignity of cardinal. He was afterwards made librarian of the Vatican. On the death of Clement,

he had many votes in the conclave for the pontificate; but the Spanish party prevented his election, because he had asserted in his annals, that the crown of Spain founded its title to Sicily on false evidence. His assiduous application at length so debilitated his frame, that he died in 1607 at the age of 68 years. His character was distinguished for piety and probity, and mildness of disposition, as well as for extensive erudition. His chief work was his "*Ecclesiastical Annals*," which he began at the age of 30, and prosecuted through the greatest part of his life. Of these he lived to publish 12 vols. in folio, the first of which was printed in 1588, and the last in 1607; and he brought down the history of the church to 1198. This voluminous and elaborate work was undertaken with a view of counter-acting the influence of the protestant compilation by the centuriators of Magdeburgh, which was intended to expose the abuses and inconsistencies of the Romish church; and the author, adhering rigidly to his main object, and approving himself a bigoted partizan of the see of Rome, has on many occasions sacrificed truth to the prejudices and interests of a party. He has been charged even with intentional misrepresentations; and he has been betrayed by his imperfect acquaintance with the Greek language into many errors, and by his credulity into the recital of many fables, which have been rejected by many judicious writers of his own party. The work, however, is a monument of assiduity and labour. It is methodically conducted, and upon the whole it is an useful, though sometimes a fallacious, guide in the chronological history of the events that happened under the Roman emperors. The style, though not pure and elegant, is generally perspicuous. Amongst the critics and censurers of this work, we may reckon both protestants and catholics. The learned Isaac Casaubon undertook a refutation of the *Annals* of Baronius, in a work intitled "*Exercitationes, &c.*," and though he closed it with the 34th year of the Christian æra, he pointed out a great number of palpable errors into which the Roman annalist had fallen during that short interval. Even the Roman catholic literati acknowledge the inaccuracies and faults of Baronius; and hence Pagi, Norris, and Tillemont, &c. have been employed to correct them. Accordingly, a new edition of these "*Annals*" was published at Lucca, in 1733, with the corrections of these reviewers at the foot of every page. The original work was first printed at Rome, and soon after at Antwerp by Plantin; and editions have also been published at Cologne and Venice. Abridgments of it have also been published by several persons. About two years before the appearance of the "*Annals*," Baronius published a kind of prelude, intitled, "*Martyrologium Romanum restitutum*," &c. or "*Notes on the Roman Martyrology*," folio, 1586; and afterwards often printed with corrections. Mosheim's *Ecc. Hist.* vol. iv. p. 206. Cave's *Hist. Lit.* tom. i. *Prolegomena*, p. 6, &c.

BARONIUS, Theodora, of Cremona, in Italy, published in 1607, in 4to, "*De operationis meiandi triplici læsione et curatione, libri duo, in quibus morbi omnes renum, et vesicæ, ex Galeni præsertim mente, pertractantur*." He was a strenuous defender of the doctrines of Galen, with whom, he is said to have declared, it is more creditable to err, than to reason right on any other system: but he has in some points left his guide. He recommends the use of cantharides internally in affections of the kidneys and bladder, a practice it is probable Greenveltd learned from him: he also injected medicated liquors into the bladder, with the view of facilitating the egress of calculi, or of dissolving them. Hall. Bib. Med.

BARONIUS, Vincentius, a celebrated Italian physician, published in 1636, 4to. "*De peripneumia, anno 1633, et aliis*"

aliis temporibus, Flaminiam, aliasque regiones, populariter infestante, ac a nemine hactenus observata, libri duo, Forolivi," a work of considerable merit, giving a particular account of the disease, and of the method found most successful in combating it, with the appearances observed on dissecting the bodies of those who died of the complaint. The epidemic was attended with fever, pain in the chest, cough, difficulty of breathing, and an inextinguishable thirst. Those who expectorated freely, early in the complaint, particularly if they had been plentifully blooded, usually, he says, recovered. The lungs of those who died were universally inflamed; sometimes, but not always, the pleury was also affected; and in some of the subjects, serum was found effused in the cavity of the thorax. The disease was not, he says, contagious. Haller. Bib. Med.

BARONTHALA, in *Geography*. See LASSA.

BARONY, BARONIA, or BARONAGIUM, the lordship or fee of a baron, either temporal or spiritual; in which sense barony amounts to the same with what is otherwise called *honour*.

A barony may be considered as a lordship held by some service in chief of the king, coinciding with what is otherwise called *grand serjeanty*.

Baronies, in their first creation, moved from the king himself, the chief lord of the whole realm, and could be holden immediately of no other lord. For example, the king enfeoffed a man of a great seigneurie in land, to hold to the person enfeoffed and his heirs, of the king and his heirs, by baronial service, to wit, by the service of twenty, forty, sixty knights, or of such other number of knights, either more or fewer, as the king by his enfeoffment limited or appointed. In the ages next after the Conquest, when a great lord was enfeoffed by the king of a large seigneurie, such seigneurie was called a *barony*, but more commonly an *honour*: as the honour of Gloucester, the honour of Wallingford, the honour of Lancaster, the honour of Richmond, and the like. There were in England certain honours, which were often called by Norman or other foreign names; that is to say sometimes by the English, and sometimes by the foreign name. This happened when the same person was lord of an honour in Normandy, or some other foreign country, and also of an honour in England. For example, William de Forz, de Force, or de Fortibus, was lord of the honour of Albemarle in Normandy, he was also lord of two honours in England, to wit, the honour of Holderneffe, and the honour of Skipton in Cravene. These honours in England were sometimes called by the Norman name, the honour of Albemarle, or the honour of the earl of Albemarle. In like manner, the earl of Britannie was lord of the honour of Britannie in France, and also of the honour of Richmond in England; the honour of Richmond was sometimes called by the foreign name, the honour of Britannie, or the honour of the earl of Britannie. This serveth to explain the terms, honour of Albemarle in England, *honor Albemarie*, or *comitis Albemarie in Anglia*; *honor Britannie*, or *comitis Britannie in Anglia*, the honour of Britannie, or the earl of Britannie in England. Not that Albemarle or Britannie were in England, but that the same person respectively was lord of each of the said honours abroad, and of each of the said honours in England. The baronies belonging to bishops are by some called *regalia*, as being held solely on the king's liberality. These do not consist in one barony alone, but in many; for *tot erant baronia, quot majora prædia*. See BISHOP.

A barony, according to Bracton, is a right indivisible: wherefore, if an inheritance be to be divided among the copar-

eners, though some capital messuages may be divided, yet if the capital messuage be the head of a county or barony, it may not be parcelled; and the reason is, lest by this division many of the rights of counties and baronies by degrees come to nothing, to the prejudice of the realm, which is said to be composed of counties and baronies.

BARONY is in Ireland the name of the divisions of the counties, answering to the English hundreds. According to these, county taxes are assessed; and they are often noticed in the proceedings of parliament. The number of baronies in Ireland is 252.

BARONYCHIA, in *Botany*. See ASPLENIUM *ruta muraria*.

BAROPHTHAS, in *Ancient Geography*, a town of Persia Proper, according to Zosimus.

BAROPTIS, or BAROPTINUS LAPIS, in *Natural History*, a name given by the ancient naturalists to a species of stone, supposed to have wonderful virtues against venomous bites, externally applied. Pliny has left us but a very short description of it; he says, it was black in colour, but variegated with large spots of red and white.

BAROS, in *Ancient Geography*, a place of Asia, in Mesopotamia.

BAROSCOPE, derived from βαρὺς, *onus*, and σκοπεῖν, *video*, a machine contrived to shew the alteration in the weight of the atmosphere. See BAROMETER.

BAROSELENITE of Kirwan, in *Mineralogy*. See PONDEROUS SPAR.

BAROVSK, in *Geography*, a district of the government of Kaluga in Russia, situate on the river Protva, which falls into the Occa.

BAROWECZ, a town of Poland, in the palatinate of Lublin, 36 miles north of Lublin.

BAROZZI, JAMES, in *Biography*. See VIGNOLA.

BARPANA, in *Ancient Geography*, *Carboli*, an island of Italy, in the Tuscan sea, according to Pliny.

BARQUES POINT, in *Geography*, a cape on the northeast of Sagana bay in lake Huron.

BARQUETTE, or BARCHETTA, in the Mediterranean, denotes a lesser sort of barks, used for the service of galleys much as boats and shallops are for other ships, as to fetch provisions, water, carry persons ashore, and the like.

BARR. See BAR.

BAR, BARRA, or BARRO, in *Commerce*, denotes a Portuguese long measure, used in the mensuration of cloths, stuffs, and the like; six whereof are equivalent to ten *cavidos* or *cabidos*; each *cavido* equal to $\frac{2}{3}$ of a Paris ell.

The Spanish *Barra* is the same with the yard of Seville.

BARR of *Valentia* is equal to $\frac{12}{13}$ of the Paris ell; the barr of Castile is equal to $\frac{7}{8}$ of the Paris ell: and the barr of Arragon is equal to $\frac{2}{3}$ of the Paris ell. Savar. Dict. Com. p. 273. See MEASURE.

BARR is also used by the Portuguese in the East Indies for a weight, more frequently called BAHAR.

BARR or Baar, in *Geography*, a town of France, in the department of the Lower Rhine, and chief place of a district; 7 miles W.N.W. of Bensfelden. The place contains 3996, and the canton 15,644 inhabitants; the territory includes 92½ kilometres and 13 communes.

BARR-Dice, a species of false dice so formed as that they will not easily lie on certain points.

Barr-Dice stand opposed to flat dice, which come up on certain points oftener than they should do.

BARRA, in *Geography*, an island of Africa, in the mouth of the river Gambia.

BARRA or Bar, a kingdom of Africa, near the river Gambia, extending on the borders of it about 20 leagues.

BARRA or Barray, one of the western islands annexed to Inver-

Invernesshire, in Scotland, has remained for many ages in the possession of the Macnells of Barra or Barra. It is well stored with black cattle, and fruitful in barley and oats. The manufacture of kelp is carried on with considerable profit in this island. Cod and ling are caught on the east coast in great quantities; and the fishermen also take some dry fish, the oil of which they burn in their lamps, and they sell that which is not consumed by themselves at 7d. or 8d. the Scots pint. Shell-fish, and particularly cockles, are abundant: the cockles are found in the great sand at the north end of the island, and afford a very plentiful supply of subsistence to the inhabitants. The fishery, however, has been much neglected. This island is somewhat hilly; in extent it is nearly 8 miles long and 4 broad; it is populous notwithstanding the late emigrations to America, and it is said to contain about 1604 inhabitants. The natives are in general Roman Catholics. It is situated nearly south from South Wilt, and almost communicates with Benbecula at low water, and on this account they are both comprehended sometimes under the name of Long island. Its coast on the west side is low and flat, but on the east side steep and irregular. N. lat. $57^{\circ} 2'$. W. long. $7^{\circ} 30'$.

BARRA Lough, a lake of Ireland, in the county of Donegal, through which the river Guibarra flows: 20 miles north of Donegal.

BARRABA. See **BARABA**.

BARRABOA, a town of Africa, in the country of Magadaxa.

BARRAC Lough, a lake of Ireland, in the county of Monaghan, on the western side of which is situated the town of Castle Blayney.

BARRACKS. See **BARACKS**.

BARRACOL, in *Ichthyology*, a name given by Artdi, from the Venetians, to express the species of ray-fish, called by Bellonius and Gesner *miraletus*, and by others *raia oculata lavis*.

The specific name of Artdi carries in it a much better character of the fish; he calls it the *ray*, with a smooth back and belly, and with the eyes surrounded with a series of spines, and three other rows of them on the tail.

BARRA-CONDA, in *Geography*, a town of Africa, in the country of Nigritia, seated on the river Gambia.

BARRACOO, or as the sailors call it, **BERKA**, or **BERKU**, lies on the west coast of Africa, 6 or 7 leagues W. S. W. from Acra, and is known at sea by two very high mountains behind it, one of which is double at the top with a faddle, and they are covered with trees. Some rocks lie off in the sea just before it, and form a kind of haven.

BARRACCOPE, lies on the west coast of Africa, seven leagues E. S. E. from St. Mary's, and at the same distance from the river Junk in the same direction on the other hand. This coast abounds with negroe towns, and also with trees and water.

BARRAD, a town of Arabia, 40 miles south-east of Saade.

BARRADY. See **BARADY**.

BARRAGAN, or **BARRACAN**, in *Commerce*, a kind of stuff belonging to the class of camlets, only of a grain much coarser than the rest, manufactured in divers parts of France and Flanders, chiefly at Abbeville, Amiens, Rouen, and Lille, and now in England.

The word is barbarous Latin, formed as some suppose, from *barra*, q. d. *barrarum formam referens*. Du-Cange. The chief use of *barragans*, called also by the French *bouracans*, is for furtouts, or upper garments against the rain, being, when good, of so close a grain, that the water will not soak through, but only run upon them.

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For the woof, its thread is single, twisted, and fine spun; that of the warp is double or triple, i. e. composed of two or three threads well twisted together. The usual matter it is made of, is wool; though there are some made at Rouen, where the warp is hemp, and the woof wool. Some *barragans*, again, are made of wool, dyed before it comes to the loom; others are woven white, and dyed afterwards, red, black, blue, brown, &c. They are not fulled, but only boiled two or three times in fair water, when they come from the loom; then calendered to make them smooth and even; and lastly, made into rolls called pieces of *barragan*.

BARREL, PETER, in *Biography*, a French abbé, was born at Grenoble, and removing to Paris, at an early period of his life, took up the office of a school-master. He died there July 21, 1772. His chief literary work is a "Dictionnaire historique, littéraire, et critique des Hommes célèbres," 6 vols. 8vo. 1759. It was nicknamed the Martyrology of Jansenism, compiled by a convulsionnaire. Although this work betrays too much of the spirit of party, the articles of learned authors, poets, orators, and literary men, are generally compiled with judgment and taste. Barrel has also published an abstract of the letters of madame de Sevigné in 12mo. under the title of "Sevigniana," and a valuable abridgment of the "Dictionnaire des Antiquités Romaines," by Pitiscus, in 2 vols. 8vo. He was a man of erudition, and of lively conversation; and the style of his writings is vigorous and manly, though sometimes negligent and incorrect. Biog. Dict.

BARRA-MAHAL, or **BARA-MAUL**, denoting the "twelve places," in *Geography*, a valley called also Vaniam-baddy, in the peninsula of India, containing twelve fortresses of some note: viz. Kistnagheri, Jegadivy, Candely, Congoonda, Vaniambaddy, Mahrauzegar, Cochingur, Cooturagar, Bazingur, Tripatore, Tadcull, and Gigangurry.

BARRAN, a town of France, in the department of the Gers, and chief place of a canton in the district of Auch, containing about 700 inhabitants; 2 leagues W. S. W. of Auch.

BARRANCA, a town of South America, in Peru, with a harbour in the Pacific ocean. The jurisdiction of Guaura begins at this town. The number of houses does not exceed 60 or 70, and yet the town is populous, many of its inhabitants being Spaniards. Near the town is a river of the same name, which divides into three branches. The port is to leeward of a small low point. S. lat. $10^{\circ} 30'$. W. long. $42^{\circ} 4'$.

BARRARDA, in *Ancient Geography*, a town of Asia, in Paropamisus. Ptolemy.

BARRATI, *barred*, an appellation given to the Carmelites after they were obliged to lay aside the white cap, and wear cowls striped black and white.

BARRATRY is used for bribery or corruption in a judge giving a false sentence for money.

BARRATRY, in *Commerce*. See **BARATRY**.

This term comprehends any species of fraud, knavery, deceit, or cheating, committed by the master or mariners of a ship, by which the owners sustain an injury; as by running away with the ship, wilfully carrying her out of the course prescribed by the owners, sinking or deserting her, embezzling the cargo, smuggling, or any other offence, whereby the ship or cargo may be subject, to arrest, detention, loss, or forfeiture. Hence, in cases of insurance, if the breach assigned in the declaration on a policy was the loss of the ship "by the fraud and negligence of the master," this was determined to be a sufficient avement of a loss by barratry. At Amsterdam, Hamburg, Middleburgh, and some other maritime towns, insurers are, by positive law,

made responsible for the barratry of the master and mariners. With us the law permits the owner of the ship to be insured against the misconduct of the captain and crew, though they are his own agents, and the persons of his own choice. If the captain be the insured, no agreement on the part of the insurers can make them liable for barratry committed by himself; but they may be liable, in such case, for the barratry of the sailors, in which he has no part. With us no fault of the master or mariners amounts to barratry, unless it proceed from an intention to defraud the owners of the ship. Therefore if the master from ignorance, unskilfulness, or from any motive which is not fraudulent, depart from the proper course of the voyage; this will be a deviation which will avoid the policy, but it will not amount to barratry. In France if by the policy the insured be protected against the barratry of the master, the underwriters are answerable for the misconduct of the mariners also; because the term master (*patron*) comprehends all the persons on board who are in the ship's pay. Our policies are more explicit, and distinctly specify barratry of the master and mariners. Hence it has been concluded, that with us, as in France, the mariners may commit barratry, without the concurrence of the master, or against his will. Nevertheless it has been held by lord C. J. Lee, at Nisi Prius, that a deviation to which the master was compelled by a very daring act of violence and disobedience on the part of the seamen, did not amount to barratry, because the ship was not actually run away with in order to defraud the owners. The insurers, therefore, were held to be answerable, and the plaintiff had a verdict. This learned judge seems to have thought, that nothing short of running away with the ship, with the intent to defraud the owners, amounted to barratry: and yet in another case, the conduct of the master was held to be barratry, though certainly much more venial than that of the sailors in the former case. Hence it has been inferred, that though the captain conceive that what he does is for the benefit of the owners, yet if it be contrary to his duty to them, it is barratry. An owner himself cannot commit barratry; neither can it be committed against the owner, with his consent. If the master of the ship be also the owner, he cannot commit barratry, because he cannot commit a fraud against himself. Although it be a maxim in law, that fraud shall never be presumed, but must be strictly proved; and it is a rule in questions of insurance, that he who charges barratry must substantiate it by conclusive evidence; yet a case has occurred, in which it was determined, that proof of the master's having carried the ship out of the regular course of the voyage for fraudulent purposes of his own is *prima facie* sufficient to entitle the plaintiff to recover, without shewing negatively that he was not the owner, or that any other person was the owner, or that this was not done with the owner's consent. Though the words "in a lawful trade," be inserted in the policy, still the insurer is liable, if the captain commit barratry by smuggling on his own account. It appears, that if a loss do not happen within the time prescribed by the policy for the duration of the risk, the insurer will not be liable for it, though it be the undoubted consequence of the act of barratry.

The offence of barratry, in itself so mischievous, and so injurious to commerce, is punishable as a public offence, according to the guilt of the offender, by every commercial state in Europe. In France, any fraud practised by the master or mariners, with or without the privy of the owners, and frauds committed by the owners themselves, are accounted barratry, and very severely punished. The captain of a ship was sentenced to the galleys for life, for signing false bills of lading in order to change the voyage

and carry away the goods; and the owner, who was convicted of being an accomplice in this crime, and of robbery in causing the ship to be carried to a wrong port, and converting the goods on board to his own use, was sentenced to the galleys for five years. With us the stat. 1 Ann. st. 2. c. 9. § 4 & 5, makes it felony to destroy any ship to the prejudice of the owners of the ship or goods on board; and takes away the benefit of clergy from such offences, committed on the high seas. By stat. 4 Geo. I. c. 12. § 3. if any owner, captain, master, mariner, or other officer of any ship, shall wilfully cast away, burn, or otherwise destroy the ship of which he is owner, or to which he belongs, or in any manner direct or procure the same to be done to the prejudice of the person or persons that shall underwrite any policy of insurance thereon, or of any merchant that shall load goods thereon, he shall suffer death: and the stat. 11 Geo. I. c. 29. takes away clergy from such offenders in all cases. Marshall's Treatise on the law of Insurance, vol. ii. chap. 13. See PIRATE.

BARRATRY is also used in the law of England for the offence of stirring up frequent suits and quarrels among his majesty's subjects. The term, however, is of foreign origin; and in Italy and other countries seems ordinarily to have been applied to the traffic of ecclesiastical benefices; but was afterwards used in a more general sense, as applicable to all corrupt buying and selling of justice. In Scotland it signified the corrupt purchasing of benefices or offices of collection, from the see of Rome, by persons who left the realm for that purpose; a practice, which had become frequent, and was in various respects injurious to the realm; as a means of carrying money out of it, without any return of value, as prejudicial to the right of patronage in the king or others, and to the free elections of the monks in the monasteries, both which the pope by prevention pretended to exclude, and as contributing to raise the rate of taxation upon benefices, by the false accounts which those suitors for the office of collector carried to the pope.

BARRE. See BAR.

BARRE, *Lewis-François Joseph De La*, in *Biography*, was born at Tournay in 1688, and educated at Paris; where he applied to the study of the ancient languages and to the collation of MSS. with such assiduity, that he was recommended to Anselme Banduri, the learned Benedictine, as a proper assistant in his antiquarian researches. In consequence of their joint labours, they published the "*Imperium Orientale*," and the collection of the medals of the Roman emperors from Decius. For these services Barre had a pension from the grand duke of Tuscany. He also gave a new edition of the "*Spicilegium*" of Luke d'Achery in 3 vols. fol. printed at Paris in 1723. He had also a considerable share in the new edition of "*Moreri's Dictionary*" of 1725. In 1727, he was elected a member of the Academy of Inscriptions, the memoirs of which he enriched by several valuable papers, historical, chronological, geographical, and miscellaneous. He also published, in 1729, in one vol. 4to. "*Memoirs for the History of France and Burgundy*," known under the title of the "*Journal of Charles VI.*" Besides other publications of a less important nature, he finished more than 100 select articles of a new and ample dictionary of Greek and Roman antiquities; but he was prevented by death, in 1738, from completing his undertaking. Moreri.

BARRE, *Joseph*, a learned historian, was born in 1692; and entering into the church, he became first a regular canon of St. Genevieve, and afterwards chancellor of the university of Paris. He was distinguished for piety and erudition, and for his industry as a writer. His principal works.

works are "Vindiciæ librorum deuterocanonicorum Veteris Testamenti," 1730, 12mo.; "A General History of Germany," 11 vols. 4to. 1748; "The Life of Marshal de Fabert," 2 vols. 12mo. 1752; and the "History of the Laws and Tribunals of Justice," 4to. 1756. *Nouv. Dict. Histor.*

BARRE', in *Geography*, a town of France, in the department of the Lozerre, and chief place of a canton in the district of Florac, 2 leagues S. of Florac, and 6½ W.N.W. of Alais. The place contains 490 and the canton 5140 inhabitants; the territory includes 150 kilometres and nine communes.

BARRE, La. a town of France, in the department of the Eure, and chief place of a canton in the district of Bernay, 3 leagues S.S.E. of Bernay, and 6½ W.S.W. of Evreux.

BARRE, a township of America, in Worcester county, and state of Massachusetts, containing 1613 inhabitants; 24 miles N.W. of Worcester, and 66 W. of Boston; deriving its name from that of the late Col. Barré, a British senator, and an advocate for the cause of America, in the war which terminated in the separation of the two countries. The township has good pastures, fattens a multitude of cattle, and produces more butter and cheese for the market than any other of the same extent in the state.

BARRE' is also a township of Huntingdon county in Pennsylvania.

BARREA, a circar or district of Hindoostan, in the country of Guzerat.

BARREE BAY. See **BAXA**.

BARREGES LES BAINS. See **BAREGES**.

BARREL, an oblong vessel, of a spheroidal, or rather a cylindroidal figure, used for the holding divers sorts of goods both liquid and dry.

Barrels are of divers uses in *Artillery*, as for powder, small shot, flints, sulphur, salt-petre, tallow, pitch, quick-match, and many other things.

Barrels filled with earth serve to make a parapet to cover the men, like gabions and canvas bags.

Fire-barrels are casks of divers capacities, filled with bombs, grenades, fire pots mixed with great quantities of tow soaked in petrol, turpentine, pitch, &c. used by the besieged to defend breaches. These are sometimes also called *thundering barrels*, being to be rolled down on the enemy on their entering the breach.

BARREL is also used for a certain quantity, or weight of several merchandizes; which is various as the commodities vary.

The English barrel, wine measure, contains the eighth part of a tun, the fourth part of a pipe, and the moiety of a hoghead, that is, thirty-one gallons and a half; of beer it contains thirty-six gallons, and of ale thirty-two gallons.

The barrel of beer, vinegar, or liquor preparing for vinegar, is to contain 34 gallons, according to the standard of the ale quart. 10 and 11 W. III. cap. 21.

The barrel of herrings is to contain 32 gallons, wine measure; being about 28 gallons, old standard: usually amounting to about 1000 full herrings, 13 Eliz. cap. 11.

The barrel of salmon is to contain 42 gallons, 5 G. cap. 18.—And the barrel of eels the same, 22 Ed. IV. cap. 2.

The barrel of soap is to contain 256 pounds, 10 A. cap. 19.

A barrel of Essex butter weighs 106 pounds, and of Suffolk butter 256 pounds.

In some parts of Ireland, particularly in the city of Cork, coals and salt are measured by the barrel. The barrel used to contain 7 bushels Winchester, but that lately introduced for coal is, according to law, 4 bushels; i.e. 40 English, or 50 Irish gallons. Salt is still measured in the barrel of 7

bushels, but *strike* measure; whereas the coal was sold by *heap* measure, which put it into the power of the measurer to cheat either the seller or buyer at pleasure. The abuse was found so great that this kind of measurement has been abolished.

The barrel or barille of Florence is a liquid measure containing 20 fiasques, flasks, or one third of a star or stajo.

The barrel, barrique, of Paris, contains 210 pints, or 26 septiers and a half; four barriques make three muids, or one tun.

BARREL, in *Anatomy*, denotes a pretty large cavity situated behind the drum of the ear, lined with a membrane in which there are several veins and arteries. It is said to be full of a purulent matter in children; and in its cavity there are four small bones; viz. the *malleolus*, the *incus*, the *stapes*, and the *os orbiculare*.

BARREL of a Clock, in *Mechanics*, is a cylindrical part, about which the string is wound. And the barrel of a watch is the cylinder which contains the spring, and about which the chain coils.

BARREL of a Gun, Pistol, &c. is the cylindrical tube through which the ball is discharged.

BARREL of a Jack, is the cylindrical part whereon the line is wound.

BARREL of a Pump, is the wooden tube which makes the body of the engine, and wherein the piston moves.

BARRELET, in *Heraldry*. See **BARRULET**.

BARRELIER, JAMES, in *Biography*, a Dominican monk, was born at Paris, in 1606, of a noble family. Having received a liberal education, and being well skilled in Latin, Greek, and several modern languages, he applied himself to the study of medicine; but entering among the Dominicans, in 1635, he now confined himself to acquiring a knowledge of plants. With this view, he embraced an opportunity offered him, of accompanying the head or general of the Jacobins, as an assistant, with whom he travelled over a great part of France and Spain, collecting every where whatever rare plants could be found, of which he procured drawings to be made. At the end of 23 years, a great part of which was spent in Italy, he returned to Paris. He now applied himself in arranging the plants he had collected, proposing to publish accounts and delineations of them, in the manner adopted by Tournefort, and had proceeded so far as to get engravings of 1324 of the plants finished, when he died of asthma in 1672. His manuscripts, drawings, and plates, were deposited, after his death, in the library of the Jacobins at Paris, where they remained until the year 1714, when Antonione Jusseu undertook to publish them, under the title of "Plantæ per Galliam, Hispaniam, et Italiam observatæ, et iconibus æneis exhibitæ, a R. P. Jacobo Barreliero, opus posthumum;" Parisiis, 2 vol. fol. The engravings are on a small scale, frequently borrowed from other works, Haller says, and many of them repetitions of the same plants. Many of them, however, he adds, are new, and of scarce and valuable plants, which entitles these volumes to a place in all botanical libraries. Haller. Bib. Botan. Elby. Dict. Hist.

BARRELLING, the art of putting up certain commodities in casks or barrels.

Gun-powder for the land service is often barrelled double, the barrel it is put in being inclosed in another barrel, partly to prevent the powder catching moisture in the subterraneous places it is kept in, and partly to enable it the better to bear the motion and jolting of carriages, when it is to be conveyed to another place.

BARRELLING of Herrings, imports the cutting off their heads as they are thrown into the bufs, and afterwards pull-

ing out the guts, salting them, and putting them up in barrels. There are two sorts of barrelled herrings; one wherein they are laid orderly, layer over layer, called by some packed herrings; the other wherein they are thrown at random, called herring in wrack.

The difference arises thus: as fast as the fishermen catch the herrings, they throw them on the deck of the vessel; where having gutted and salted them, they throw them at random into the barrel, to be carried home: this is the herring in wrack.

When arrived ashore, they take the fish out of these barrels, cast them into a tub, and salting them anew, range them handfomely in their barrels again, laying salt over them, to preserve them; these are the packed herrings. And it is in this state they are usually sold.

BARRELL'S SOUND, in *Geography*, lies on the N.W. coast of America, and is called by the natives *Conget-hoi-toi*. It is situated about 6 leagues from the southern extremity of Washington or Charlotte islands, in a N.W. direction, about N. lat. 52°. W. long. 131°. It has two inlets; one on the east, the other on the west side of the island: the latter is the best, the other is dangerous. The shores are of a craggy black rock; and the banks are lined with trees of various kinds; as pines, spruce, hemlock, alder, &c. This sound was first visited by Capt. Gray in the Washington in 1789, and derived its name from Joseph Barrell Esq. of Charleston.

BARRELS, the name given to rocks near the south coast of the county of Wexford, in the Irish sea, 5 miles S.W. of Carnore point.—Also, to rocks near the south coast of Ireland, in Courtmaschery bay.

BARREME, a town of France, in the department of the Lower Alps, and chief place of a canton in the district of Digne, 10 miles S.S.E. of Digne. The place contains 823, and the canton 3,348 inhabitants: the territory includes 217½ kilometres, and 8 communes.

BARREN, is a term of Saxon origin, and means, applied to animals or vegetables, unfruitful, sterile, incapable of producing or propagating its like. Land is called barren, on which no plants, fit for the sustenance or nourishment of man or animals, will grow. Metaphorically applied to the human mind, it means dull, stupid, uninventive.

In man and animals barrenness is usually occasioned by some defect in the organs of generation. Both sexes are liable to this deficiency; but it is thought to be more incident to the female than the male. It is remarkable, that hybrid animals, as the mule, are incapable of propagating their like. See **HYBRIDS**.

Barrenness may also be occasioned by general debility, or ill health; and yet women in nearly the last stage of consumption, are not unfrequently found to conceive, to carry the fruit to its full term, and at length produce it in a sound and healthy state; the progress of the consumption being stopped during the time of utero-gestation. See **CONSUMPTION**.

Defects, occasioning barrenness or sterility, are either external or internal. The most usual external deficiency in men, is a penis too short, slender, or feeble. This state of that organ is often attended by a degree of curvature, the end being held down by a strong bridle. In these cases, the orifice of the urethra, instead of being at the end, is in the under part of the penis, within half an inch of its extremity; whence there is not only considerable difficulty in introducing it into the vagina of the female, but in the venereal orgasm, the semen, instead of being thrown forwards towards the os uteri, is ejected backwards, and so lost.

In the female, straitness of the vagina, or cohesion of

its sides, preventing the intromission of the male organ, may occasion barrenness. These defects may sometimes be remedied by appropriate operations. (See **VAGINA**, *Diseases of*.) The same effect, a straitness of the vagina, may be occasioned by scirrhus affections of its sides (see as above). But a more common case is an expansion of the membrane called the hymen, shutting up the entrance of the vagina, and only having, at the anterior part, a small hole for the passage of the urine. Midwives are therefore cautioned, on the birth of female children, to examine whether the passage into the vagina be open, and if they find it covered by a thin membrane, to separate it with their nails, and to inspect the part for a few subsequent days, that it may not coalesce again. If this caution has been neglected, the membrane, which at the birth of the child is so tender as to yield to the slightest force, becomes, in a few years, thick, firm, and fleshy, and can only then be divided by a painful and troublesome operation. See **HYMEN**, *Imperforated*.

The vagina is also sometimes found divided into two canals or passages, by a strong, fleshy, membranous partition, running its whole length, or nearly so, rendering the introduction of the male organ difficult or impracticable. These two passages sometimes communicate at the upper end, and receive a single os uteri; at others, they continue separate, terminating, or each of them leading to an os uteri; the uterus having, in these cases, two cavities, or there being two uteri. (See the articles **VAGINA**, and **UTERUS**.) These, however, may be considered as causes rendering impregnation difficult, but not impossible. More certain and inevitable causes of barrenness in women are, imperviousness, scirrhus, or other diseases of the os uteri, Fallopian tubes, or of the ovaries, which are generally incurable.

Debility, occasioning barrenness in men particularly, is most commonly caused by the too early, or too frequent, and inordinate use of venery, by masturbation, or self-pollution (see **ONANISM**), by repeated attacks of gonorrhoea or syphilis; by gleet, and by frequent and long continued courses of mercury. For the cure of those complaints, see **GONORRHOEA**, **LUES VENEREA**, **GLEETS**; see also **CONCEPTION**, *Causes impeding*.

BARREN Corn, in *Agriculture*, a term applied to a distemper in corn, in which the ears of such kinds as are affected, as wheat and rye, which are the most subject to it, are long, lean, and white; in some, the stamina, or small threads in the middle of the flower, are dry, transparent, and horned; the female organs are small, whiter, and less velvety than in healthy ears; in others, the filaments are swelled, the apices or knobs on the tops of the stamina void of dust or farina, and the stigma badly unfolded. The stigmata of all the blossoms of an ear are sometimes dried and parched, and at other times the apices are much swelled out. This distemper of corn has been ascribed to various causes; such as its too sudden growth, the influence of frost or of hot gleams of sunshine after heavy showers; and sometimes, though rarely, to insects. Count Ginnani imputes it to the faultiness of the soil; and he recommends particular attention to the amendment of it by such means as are best suited to its nature; and he also directs to change the seed every year.

BARREN Earth, a term given by some writers to particular sterile soils, and also to the under stratum of earth, or that which lies immediately below the bed of mould, which is most frequently turned up and cultivated for the nourishment and support of plants. The idea of the under strata of soils being improper for the growth and support of plants seems to have originated in error, as it is now well known that every kind of earth, whether placed near the surface

or at a considerable depth below it, is capable of affording the support of plants, when well broken down and rendered sufficiently mellow by ploughing, and the influence of the atmosphere.

BARREN Lands, are such as either naturally, or for want of proper tillage and cultivation, do not on being sown produce good crops or such as are sufficient for repaying the expences of the cultivator.

BARREN Money, in the *Civil Law*, denotes that which is not put out to interest.

BARREN Soils, in *Agriculture*, are those which, from the nature of their constituent ingredients, are incapable of affording full crops. The materials which enter into the composition of such soils are, according to Mr. Kirwan, *liex*, argill, and calx, in the following proportions.

Silex from 42 to 88

Argill 20 30

Calx 4 20

From which he concludes the troy pound to contain, allowing 120 grains for water, of

Silex from 2368 to 4963

Argill 1128 1622

Calx 225 600

The specific gravity in such soils has not been fully ascertained, but the same writer supposes it to be either much above or greatly below that of other kinds, according as they are too close or too open and porous. That of barren sandy land was found by M. Fabroni to be 2.21. See **SOIL**.

BARREN Springs, in *Rural Economy*, such springs as are injurious to lands when suffered to flow or run over them. Waters that flow from coal mines, or through mineral strata, have frequently been observed to have this pernicious quality; and such also as contain either aluminous or ferruginous materials in a state of solution in them.

BARREN Flowers or Florets, called also *abortive*, in *Botany*, are such as produce no perfect seeds. The barren flowers are such as have stamens, but no pistils; and they are also called male flowers. Flowers which have only pistils, are sometimes barren, owing to the absence of other flowers, which bear the stamens. In the umbelliferous flowers, it is not uncommon to have several of the florets barren, though they are furnished both with stamens and pistils; perhaps owing to some imperfection in the pistils; but future observations must determine this matter.

BARREN Creek, in *Geography*, rises in the N.W. corner of Delaware state in America, runs about 9 miles S.W. and discharges itself into Nanticoke river. A triangular tract of land in the N. part of Somerset county, Maryland, is inclosed between this creek on the S., Delaware states E., and Nanticoke river on the W. and N.W.

BARREN Island, a small isle in Chesapeake bay, N.E. from the mouth of Patuxent river, which is separated from Hooper's island by a narrow channel on the east.

BARREN Island is also an island in the East Indian ocean, about 6 leagues in circumference. The whole island has a singular and volcanic appearance; and there is upon it a violent volcano, which emits immense volumes of smoke, and showers of red-hot stones, some of which weigh 3 or 4 tons, and are thrown some hundred yards beyond the foot of the cone. The base of the cone is the lowest part of the island, and very little higher than the level of the sea. It rises with an acclivity of $32^{\circ} 17'$, to the height of 1800 feet nearly, which is also the elevation of the other parts of the island. Those parts of the island that are distant from the volcano, are thinly covered with withered shrubs and blasted trees. It is situated in N. lat. $12^{\circ} 15'$, and 15 leagues to

the east of the easternmost cluster of the Andaman islands, and may be seen at the distance of 12 leagues in clear weather. At a quarter of a mile from the shore, there is no ground with 150 fathoms of line. Asiatic Researches, vol. iv. p. 395, &c.

BARREN Isles, lie on the N.W. coast of America, at the entrance of Cook's inlet. These isles, situated in N. lat. $58^{\circ} 48'$, and E. long. $208^{\circ} 30'$, and cape Elizabeth, situated in N. lat. $59^{\circ} 9'$, and E. long. $208^{\circ} 53'$, according to Vancouver's chart, form a channel into Cook's inlet.

BARREN River, a name given to each of the S.E. branches of Green river, in Kentucky; between which lies *Blue Spring*.

BARRENESS. See **STERILITY**

BARRENWORT, in *Botany*. See **EPIMEDIUM**.

BARREONE, in *Geography*, a river of Piedmont, which runs into the Vesubia, near St. Martin, in the county of Tenda.

BARRERE, PETER, in *Biography*, professor of medicine, physician to the military hospital at Perpignan, his native country, resided three years at Cayenne, as botanist to the king of France, and employed himself in acquiring a distinct knowledge of the plants and animals indigenous to that country, of which he published accounts on his return. He died November 1st 1755. In 1741, he published "A Dissertation on the Causes of the Colour of the Skin in Negroes," which he thought was occasioned by the bile being in them blacker than in Europeans; and in 1746, "Observations on the Origin and Formation of figured Stones." But his principal works were "Essai sur l'Histoire Naturelle de la France Equinoxiale," Paris, 1741, 12mo. in which he gives descriptions of the plants he had collected at Cayenne, many of them not before known, with their use in medicine, diet, &c. "Nouvelle Relation de la France Equinoxiale," Paris, 1743, 12mo.; republished, much improved, 1753, a continuation of the former work. In this he gives accounts of the method of cultivating the sugar-cane, of preparing sugar, coffee, aloes, and other valuable articles. In the "Histoire de l'Academie des Sciences," 1743, the method of cultivating rice; and in 1751, at Perpignan, 8vo. "Diverses Observations Anatomiques tirées des Ouvertures des Cadavres," containing some curious and instructive cases. Haller. Bib. Anat. et Botan. Eloy. Dict. Hist.

BARRERIA, in *Botany*, a tree so named from Peter Barrere, professor of medicine at Perpignan. Lin. g. Schreb. 1366. Scop. gen. 767. Poraqueiba. Aubl. Guian. Clafs. *Syngenesia monogamia*. Gen. Char. *Cal.* perianth one-leaved, five-toothed, small. *Cor.* one-petalled, five-parted; parts oblong, acute, convex beneath, concave above, with a double pit; the superior ovate, bifid, the wedge-shaped one trifid; excavated for the reception of the stamens. *Stam.* filaments five, ascending linear, wider above, thick, triangular, bordered, curved; anthers erect, four-cornered, margined, coalescing into the form of a mill-wheel; each, in the closed flower, answering, together with the filaments, to the pits of the two petals. *Pist.* germ roundish; style short; stigma trifid.

Eff. Gen. Char. *Cal.* five-toothed, very small. *Cor.* five-parted; style short; stigma trifid.

Species, *B. guianensis*. Poraqueiba Guian. Aublet. Guian. t. 47. A tree forty or fifty feet high, and two feet and a half in diameter; the bark is ash-coloured, and the wood is hard and compact, of a reddish brown colour. From the top proceed many branches, spreading in all directions; these send forth numerous twigs, with alternate, entire, smooth, firm, ovate leaves, ending in a long point; petioles short, convex beneath, channelled above. The flowers are

in small axillary spikes, alternate, and almost sessile. A native of Guiana, in the extensive forests, near the banks of the river Sinemari, fifty leagues from its mouth. It flowers in November.

BARRET, GEORGE, in *Biography*, a painter of landscape, was born about the year 1732, in the city of Dublin, and exhibited at a very early age a strong disposition to the art in which he afterwards became eminent. Having gained a premium of 50 l. offered by the Dublin Society for the best landscape in oil, he visited London in 1762, and in the second year after his arrival, obtained a similar prize from the Society for the encouragement of arts, &c. The establishment of the Royal Academy of Arts, &c. is said to have been much indebted to the efforts of Mr. Barret, who formed the plan, and became one of its members. He had two decided manners of painting, both with regard to colour and touch; his first was rather heavy in both, his latter was much lighter. Scarcely any painter equalled him in his knowledge or execution of the details of nature, the latter of which was particularly light, and well calculated to mark most decidedly the true characters of the various objects he represented, forest-trees in particular. His attention was chiefly directed to the true colour of English scenery, with regard to which he was very happy in his best works. His best pictures, in this country, executed according to his first manner, are to be found in the houses of the dukes of Buccleugh and Portland, &c. and those of his latter in his great work at Norbury Park in Surrey, consisting of a large room, painted with a continued scene entirely round. The idea in general characterises the northern part of this country; and for composition, breadth of effect, truth of colour, and boldness of manner in the execution, has not been equalled by any modern painter. Barret also excelled in water colours; and his drawings in chalk, Indian ink, and black-lead pencil, have great merit. In all his studies from nature he was very correct and minute. He also performed some slight but spirited etchings in landscapes. He died at Paddington near London in 1784. Pilkington and Strutt.

BARRET Bank, Great, in *Geography*, lies at the S. and S.E. end of the island of Oleron on the coast of France, and forms the N.W. side of the Maumusson passage, as Point de Gardour, on the main land, forms the S.E. side.

BARRETRY. See **BARATRY**, and **BARRATRY**.

BARRETSTOWN, in *Geography*, a plantation in Hancock county, in the district of Maine, in North America, having 173 inhabitants.

BARRICADE, or **BARRICADO**, a military term for a fence or retrenchment, hastily made with vessels or baskets of earth, carts, trees, palisades, or the like, to preserve an army from the shot or assault of an enemy.

The most usual materials of barricades are pales, or stakes which are crossed with battoons, and shod with iron at the feet; usually set up in passages or breaches, to keep back the horse as well as the foot.

BARRICADE, in the *Marine*, is a strong wooden rail, supported by pillars, and extending as a fence across the foremost part of the quarter-deck. In ships of war, the intervals between the pillars are commonly filled with cork, junks of old cable, or plaited cordage. About a foot above the rail, there extends a double rope netting, supported by cranes of iron; and between the two parts of the netting are stuffed hammocks, filled with the seamen's bedding, to intercept small shot fired by swivel-guns and muskets, in time of battle.

BARRICOURT, in *Geography*, a town of France, in the department of the Ardennes, and chief place of a canton

in the district of Grandpré, 6 leagues S. of Sedan, and 3 N.E. of Grandpré.

BARRIER, in *Fortification*, a kind of fence made at a passage, retrenchment, gate, &c. to stop up the entry thereof. See **DEFENCE**. It is usually made of great stakes about four or five feet high, placed at the distance of eight or ten feet from one another, with overthwart rafters; serving to stop either horse or foot that would rush in. In the middle is a moveable bar of wood, which opens and shuts at pleasure.

BARRIER Islands, in *Geography*, islands which lie off the river Thames, on the E. coast of New Zealand, and so called because they shelter it from the sea. They stretch from S.E. to N.W. for 10 leagues.

BARRIERS, corresponding to what the French call "jeu de barres," i. e. *palestra*, have been used to signify a martial exercise of men, armed, and fighting together with short swords, within certain rails or bars, by which they were inclosed from the spectators; now disused in this country.

BARRIERS, or **BARRIERES**, a name given, in the chief cities of France, and particularly at Paris, to the places where the custom-houses are established, and where the officers receive the duties of importation, according to the tariff settled by the king's council. They are called barriers because the passages, through which the carriages and merchandises liable to pay duties are to pass, are shut up with a wooden bar, which turns upon a hinge, and is opened and shut at the will of the custom-house officers.

There are at Paris sixty of those barriers, all placed at the entrance of the suburbs.

There are also *barrier towns*, or places of defence, on the frontiers of kingdoms.

BARRILE, in *Geography*, a town of Italy, in the kingdom of Naples, and province of Basilicata; 7 miles W.S.W. of Venosa.

BARRING a Vein, in *Farriery*, now obsolete. See **BAR a Vein**.

BARRINGDIN, in *Geography*, a town of Africa, in the country of Barra.

BARRINGTON, JOHN SHUTE, LORD VISCOUNT BARRINGTON, in *Biography*, a learned nobleman, particularly distinguished by his attention to theological subjects, was the youngest son of Benjamin Shute, merchant, by a daughter of the famous Mr. Caryll, author of the commentary on Job, and descended from the ancient family of Shute in the county of Leicester, of Roman extraction. He was born at Theobald's in Hertfordshire, in 1678, and received part of his education in the university of Utrecht. Upon his return to England he devoted himself to the study of the law in the Inner Temple; and in 1701 commenced his literary career as a writer, if we except his Latin oration "De Studio Philosophiæ conjungendo cum Studio Juris Romani," published at Utrecht in 1698; by an "Essay upon the Interests of England in respect to Protestants dissenting from the Established Church," 4to. to which class of British subjects he belonged. This was followed some time afterwards by another piece in 4to. intitled "The Rights of Protestant Dissenters, in two parts." At the age of 24, during the prosecution of his legal studies, he was appointed by the recommendation of lord Somers, to the arduous undertaking of engaging the Presbyterians of Scotland to favour the union of the two kingdoms, and in 1708 he was rewarded for his services by the office of commissioner of the customs. From this situation he was removed by the Tory administration of queen Anne, in 1711, on account of his avowed opposition to their principles and conduct. In the mean time his fortune was greatly improved by the bequest of two considerable

considerable estates; one left him by John Wildman, Esq. of Becket in Berkshire, who adopted him for his son after the Roman custom, and the other by Francis Barrington, Esq. of Tofts, whose name and arms he assumed by act of parliament. On the accession of George I. he was chosen member of parliament for the town of Berwick upon Tweed; and in 1720 he was advanced by the king to an Irish peerage under the title of viscount Barrington of Ardglass. In consequence of his unfortunate connexion with the Harburch company, as sub-governor under the prince of Wales, and of a lottery projected for defraying the expence of opening the port, and a subscription for this purpose commenced during his absence, and in opposition to his opinion and advice, he underwent, in 1723, the very severe and unmerited censure of expulsion from the house of commons, which has been attributed to his lordship's opposition to the reigning minister, sir Robert Walpole. In 1725, he published in two volumes 8vo. his "Miscellanea Sacra, or a new method of considering so much of the history of the apostles as is contained in scripture, in an abstract of their history, an abstract of that abstract, and four critical essays." This work traces, with judicious discrimination, the methods taken by the apostles, and first preachers of the gospel, for propagating Christianity, and explains the several gifts of the spirit by which they were enabled to discharge that office. Hence he deduced an argument for the truth of the Christian religion which is said to have staggered the infidelity of Mr. Anthony Collins. A second edition of this work, with large additions and corrections, was published by his son the present bishop of Durham, in 1770, 3 vols. 8vo. In the interval between its first publication and the death of the author in 1734, he reviewed, corrected, and enlarged it; and introduced such improvements, as add new force to his arguments and elucidations to his criticisms. In the same year, 1725, he also published "An Essay on the several Dispensations of God to Mankind, in the order, which they lie in the bible; or a short system of the religion of Nature and Scripture." He was also the author of several other tracts, chiefly on subjects connected with toleration in matters of religion, which he ably and zealously defended. He died in 1734, in the 56th year of his age. Lord Barrington had three daughters and six sons, five of whom have been advanced to high stations in the church, the law, the army, and the navy. His lordship was a disciple and friend to Mr. Locke, and adopted his sentiments as to the right and advantage of free inquiry, and the value of civil and religious liberty. As a theological writer, he discovers a high sense of the value of the sacred writings and great judgment in interpreting them; and he contributed in a very eminent degree to the diffusion of a spirit of liberal criticism. In his sentiments and disposition he was distinguished by his catholicism and moderation; and though he was a rational and steady dissenter, he was an occasional frequenter and communicant of the established church. Biog. Brit.

BARRINGTON, DAINES, the fourth son of lord Barrington, was educated for the profession of the law, and in 1757 was appointed a Welsh judge, and some time afterwards second justice of Chester. Although he never attained to distinguished eminence at the bar, he evinced his acquaintance with the law by a valuable publication, entitled, "Observations on the Statutes, chiefly the more ancient, from Magna Charta to 21 James I. c. 27; with an Appendix being a proposal for new-modelling the Statutes," 4to. 1766. This work, which passed through five editions, has been respectfully quoted by many historians and constitutional antiquaries. In 1773, he published "Orosius," with

Alfred's Saxon version, and an English translation and notes of his own, which underwent a severe animadversion from some of our critics. His "Tracts on the Probability of reaching the North Pole," 1775, 4to. were occasioned by the voyage of captain Phipps (now lord Mulgrave) towards the north pole in 1773. His other writings may be found in the Transactions of the Royal and Antiquarian Societies, of which he was an assiduous member, and of the latter vice-president. In several of these the author manifests some tendency towards singularity and paradox; nevertheless they indicate both diligence and extent of research, and evince his talents as a naturalist and antiquarian. Many of his tracts were collected by himself in a 4to. volume, entitled "Miscellaneous Tracts on various subjects," 1781. His experiments and observations on the singing of birds" (see SONG OF BIRDS in this Dictionary), and his "Essay on the Language of Brds" are amongst the most curious and ingenious of his papers. In private life he was a man of worth and integrity, unambitious, and devoted to study and literary conversation. He resigned his office of justice of Chester in 1785, and from that time to his death, March 14, 1800, lived in retirement in the Inner Temple. Gen. Biog.

BARRINGTON, in *Geography*, a township in Queen's county Nova Scotia, on the south side of the bay of Fundi, settled by Quakers from the island of Nantucket.

BARRINGTON, a township in Strafford county, New Hampshire, about 22 miles N. W. from Portsmouth, incorporated in 1722, containing 2470 inhabitants. Alum is found in this township, and the first ridge of the "Frost-hills," one of the 3 interior summits of Agamenticus, is continued through it. Its situation is very healthy, and favourable to longevity.

BARRINGTON, a township in Bristol county, Rhode island, on the south western side of the N. W. branch of Warren river, about $2\frac{1}{2}$ miles N. W. of Warren, and about 7 S. E. from Fox point, in the town of Providence. It contains 683 inhabitants, including 12 slaves.

BARRINGTON, *Great*, is the second township in rank in Berkshire county in the Massachusetts. It contains 1373 inhabitants, and lies 140 miles W. from Boston.

BARRINGTON, *Cape*, is the south-east point of lord Egmont's island, or New Guernsey, the largest of the Queen Charlotte's islands. It is separated by a narrow channel from cape Proby, on lord Howe's Island or New Jersey.

BARRINGTONIA, in *Botany*, a beautiful tropical tree named by Forster from the Hon. Daines Barrington. Lin. g. Schreb. 1150. Forst. gen. 38. L. supp. 50. Thunb. nov. gen. 47. Gært. t. 101. *Mammea* sp. c. Edit. prior. *Commerfona*. Sonnerat Nov. Guin. 8. *Butonica* Rumph. Clafs, *Monadelphia Polyandria. Polyandria Monogynia*, Forst. and Thunb. Nat. Order. *Hesperideæ*.—*Myrti*, Juss.

Gen. Char. *Cal.* Perianth two leaved, superior; leaflets roundish, concave, coriaceous, permanent. *Cor.* Petals four, equal, ovate, spreading, coriaceous, larger than the calyx; nectary conic, tubular, coating the base of the style, toothed at the tip; teeth several, unequal. *Stam.* Filaments very many, monadelphous, (or conjoined from the very base into a cylinder seated on the receptacle), capillary, longer than the corolla; anthers small, roundish. *Pist.* Germ inferior, turbinate; style filiform, length of the stamens; stigma simple. *Per.* Drupe large, ovate, conic-quadrangular, crowned by the calyx. *Seed*, nut long, ovate, outwardly wrinkled-fibrose, four-celled; kernels ovate, wrinkled.

Ess. Gen. Char. *Cal.* simple, two leaved, superior, permanent; fruit a dry four-cornered drupe, inclosing a nut one to four-celled.

Species,

Species, *Barringtonia speciosa*, laurel-leaved B. Lin. Syst. Supp. Cook, Voy. 1. 157. 24. fig. Forst. J. F. Miller. ic. 7. A lofty tree and the handsomest in the whole equinoctial flora, abounding with thick, shady bunches of leaves, every where intermixed with beautiful purple and white flowers; trunk lofty, thick, straight, covered with a dark grey, smooth bark, scored with little chinks; branches expanding widely, variously divided, somewhat bending downwards, and beset with many leaves at the ends; leaves crowded, the upper in a kind of whorl, sessile, wedge-shaped, obtuse, quite entire, expanding from a foot to fifteen inches in length, thick, coriaceous, very smooth, dark green, shining with yellow veins; flowers on a solitary erect thyrses, a foot in length; peduncle smooth, a foot long; pedicels five, to twenty, one-flowered, three or four inches long; bractes roundish, solitary at the base of the pedicels; flowers large, white, transparent; filaments and style diaphanous, purple at the top; anthers gold-coloured; drupe reddish brown. The flowers open during the night, and fall at sunrise. The seed is said to inebriate fish in the same manner as cocculus indicus, &c. It grows within the tropics, especially on the shores of the ocean and at the mouths of rivers, in the East Indies from the southern coasts of China through the Molucca isles to Otaheite and the other Society isles. It is cultivated in the governor's garden at St. Helena. Introduced here in 1786, by Mr. A. Hove.

BARRISTER, in *Law*, a person qualified and empowered to plead, and defend the causes of clients in the courts of justice. The word is formed from *bar*, *barra*, a name given the place where they stand to plead.

Barristers, in the English law, amount to the same with *licentiates*, *advocates*, in other countries and courts, where the civil, &c. laws obtain.

Anciently they were denominated among us, *apprentices of the law*, *apprenticii juris nobiliores*; now usually *counsellors at law*: and they seem to have been first appointed by an ordinance of king Edward I. in parliament, in the twentieth year of his reign.

Before they were called to the bar they were formerly obliged to study eight years, now reduced to five; the exercises required (if they were not called *ex gratia*) were twelve grand moots performed in the inns of chancery, in the time of the grand readings, and twenty four petty moots, in term time before the readers of the respective inns, and a barrister newly called was to attend the six (or four) next long vacations the exercise of the house, viz. in Lent and summer, and was thereupon for those three (or two) years styled a *vacation barrister*. They are also called *Utter barristers*, i. e. pleaders *ouster* or without the bar; to distinguish them from benchers, or those that have been readers, who are sometimes admitted to plead within the bar; as the king's, queen's, or prince's counsel are; hence called *inner barristers*, 5 El. cap. 1.

Barristers, according to Fortescue, might be called to the state and degree of *serjeants*, when they were of sixteen years standing. See **COUNSEL** and **SERJEANT**.

Barristers who constantly attend the king's bench; &c. are to have the privilege of being sued in transitory actions in the county of Middlesex. But the court will not change the venue, because some of the defendants are barristers. Pleas before they are filed, must be signed by a barrister or serjeant.

To become a barrister in Ireland it is necessary in the first place that a memorial be presented by the person desirous of becoming so, to the Bench of the Honourable Society of the King's Inns, Dublin, stating his parentage and previous education, and requesting admission into the society as a stu-

dent. This memorial certified by a practising barrister of ten years standing who is not a bencher, must be lodged in the office of the treasurer of the society before the effoin day of term; and on its being granted, a certain fine must be paid. After this admission the student must keep eight terms commons in Ireland, and the same number in England. Formerly a student was required to attend fewer terms if he had taken a degree in any university, and this was a strong inducement to those who intended their sons for the bar to give them a college education. It has been regretted that this encouragement was discontinued; but the advantages of such an education are so evident, that it is to be supposed few will neglect it; especially as they can attend terms at the society of the King's Inns, at the same time that they are members of the university.

BARRISTER *Affixant*, the name given to an inferior judge established in every county of Ireland, except that of Dublin, whose business it is to sit twice every year to try civil bills, for the more speedy administration of justice.

BARRITUS, in *Antiquity*, a military shout raised by the Roman soldiers at the first charge on the enemy. This custom, however, was not peculiar to the Romans; but prevailed among the Trojans according to Homer, among the Germans, the Gauls, the Macedonians, and the Persians. See **CLASSICUM**.

BARROCHES, in *Geography*, are two great ranges of rocks close by the west end of Alderney, Avigny or Ornay, towards the Castels.

BARROS, JOHN DOS, in *Biography*, an eminent Portuguese historian, was born at Vilco, in 1496, and educated at the court of king Emanuel, with the royal children. In 1522 he was appointed to the government of St. George del Mina, on the coast of Guinea; and upon his return to Portugal, after an absence of three years, he was made treasurer of the Indies. When king John conferred upon him the lordship of Paraiba in Brasil, on condition of his expelling the native Indians, and peopling it with Portuguese, he set out with an expedition for this purpose; but his fleet being almost wholly destroyed, the project failed. Upon this he determined to write the history of the Indies, under the title of "*Decades d'Asia*;" and the first decad was published in 1552, the second in 1553, and the third in 1563. For the completion of this work he retired to Pompal, where he died in 1570, leaving several children. His fourth decad, compiled from his MSS. by order of Philip III. did not appear till 1615. The work has been continued by others as far as the thirteenth decad; and the last edition of it was printed at Lisbon in 1736, in 3 vols. folio. The history of dos Barros, applauded by some and censured by others, is deemed, notwithstanding the author's disposition to exaggerate, a work of authority. It was translated into Spanish by Alphonso Ulloa. Barros was the author of several other writings, moral, grammatical, &c. composed principally for the use of his pupil prince John, son of king John III. In some editions of his "*Decads*," there is an apology for his life and writings, written by himself. Moreri. Nouv. Dict. Histor.

BARROW, ISAAC, a very eminent divine and mathematician was the son of Mr. Thomas Barrow, a citizen and linen draper of London, and born in this city in the year 1630. Although at the Charter-house, where his education commenced, he gained no reputation, and was remarkable only for fighting and idleness, his subsequent application and literary progress in a school at Felstead in Essex, whither he was removed, were such as to retrieve his character, and to induce his master to recommend him to the office of private tutor to a young noble.

nobleman under his care. In 1643, he was admitted a pensioner of Peter-house in Cambridge, under his uncle Mr. Isaac Barrow, afterwards bishop of St Asaph, and then fellow of that college; and in 1645, he was entered a pensioner of Trinity college, as his uncle had been ejected together with others that had written against the covenant. The ejection of his uncle, and the losses sustained by his father on account of his attachment to the royal cause, involved our young student in difficulties; and he was indebted to the liberality of Dr. Hammond for his chief support. Such were the sweetness of his disposition and his respectful conduct towards his superiors, that he preserved their esteem and good-will, though he steadily adhered to the cause for which his family had suffered and refused to take the covenant. His proficiency in all branches of literature, and particularly in natural philosophy, was so considerable, and his merit so generally acknowledged, that he was elected, notwithstanding the obnoxiousness of the party to which he belonged, fellow of his college in the year 1649; and now perceiving that the circumstances of the times were unfavourable to persons of his opinions in matters of church and state, he determined to devote himself to the medical profession. With this view he directed his attention to anatomy, botany, and chemistry, and made some progress in these preparatory studies; however, upon further consideration, aided by his uncle's advice, he resumed the study of divinity in connection with that of mathematics and astronomy. With these severer studies he also blended the amusements of poetry, to which he had a strong propensity. In 1652 he commenced master of arts, and was incorporated in that degree at Oxford. Disappointed with regard to the Greek professorship at Cambridge (to which he was recommended) on account of a suspicion of his Arminian principles, and perhaps influenced by the aspect of public affairs, he resolved to travel abroad; and in order to obtain a necessary supply for this purpose, he sold his books. Accordingly he set out in the year 1655; and in this year his first work, which was an edition of "Euclid's Elements," was published during his absence. He visited France and Italy; and in 1656 he set sail from Leghorn to Smyrna; and in the course of his voyage he had an opportunity of manifesting his natural intrepidity by standing to his gun, and defending the ship on which he had embarked, against the attack of an Algerine corsair, and of beating off the enemy. Of his intrepidity, as well as bodily strength, another instance occurred on a very different occasion. As he was once leaving the house of a friend early in the morning before a fierce maffix was chained up, the dog flew at him with violence; but he had the resolution to seize the dog by the throat, and after much struggling to overpower him, and to hold him fast on the ground till some of the domestics rose and parted them. From Smyrna he proceeded to Constantinople, where he read over with peculiar satisfaction the works of St. Chrysostom, the bishop of that see; and having remained a year in Turkey, he returned to Venice, and in 1659 he passed through Germany and Holland into England. Soon after his return he was ordained by bishop Brownrig; and when the king was restored, his friends expected that his attachment to the royal cause would have been rewarded by some considerable preferment: but their expectations were disappointed. On this occasion Barrow wittily remarked in one of his poems,

"Te magis optavit rediturum, Carole, nemo,
Et nemo sensit te rediisse minus."

"Thy restoration, Royal Charles, I see,
By none more wish'd, by none less felt, than me."

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However, he wrote an ode on his majesty's restoration, in which he introduces Britannia congratulating the king upon his return. In this same year, 1660, he was chosen Greek professor at Cambridge; and in consequence of this appointment, he read lectures on the Rhetoric of Aristotle. In 1662 he was recommended by Dr. Wilkins, and elected to the professorship of geometry in Gresham college; and he also discharged the duty of the astronomical professor, who was absent. About this time he declined a valuable preferment which was offered him, from scruples of conscience; because it was annexed to the condition of educating the patron's son, which Barrow considered as a kind of simoniacal contract. In 1663, he was included in the first choice of members made by the Royal Society after receiving their charter; and in the same year he was appointed Lucasian professor of mathematics at Cambridge, on which occasion he delivered an excellent oration on the excellence and use of mathematical science. At this time he resigned both his Greek and Gresham professorships. Although the station to which he had attained was peculiarly adapted to his distinguished talents and acquirements as a mathematician, he determined in 1669 to exchange his mathematical studies for those of divinity; and accordingly, as soon as he had published his "*Lectiones Opticæ*," he resigned his professor's chair to the illustrious Newton. In 1670 he was created doctor in divinity by mandate; and in 1672 he was nominated to the mastership of Trinity college by the king, who observed, "that he had bestowed it on the best scholar in England." To the patent of his appointment was annexed a clause which allowed him to marry; but as this privilege was inconsistent with the statutes of the college, he insisted on the clause being erased. On this occasion he resigned the preferments of a small sinecure in Wales, and of a prebend in the cathedral of Salisbury, which he had previously enjoyed and the profits of which he had distributed to charitable uses. In 1675 he was chosen vice-chancellor of the university; but his services in this high and honourable station were speedily terminated by his death, occasioned by a fever, in London, May 1677, in the 47th year of his age. His remains were interred in Westminster Abbey; and a monument, with an appropriate epitaph, was erected for him at the expence of his friends. Dr. Barrow had nothing in his person or external appearance, that was likely to command any degree of attention and respect. He was of a low stature, and of a meagre, pale aspect; and he was singularly negligent with regard to his dress. Pope, his biographer, mentions a circumstance to this purpose, which shews the effect of his inattention to outward appearance. Being engaged to preach for Dr. Wilkins at St. Lawrence Jury in London, his slovenly and awkward gait and meagre aspect prepossessed the audience so much against him, that, when he mounted the pulpit, the congregation withdrew, and he was left almost alone in the church. Mr. Richard Baxter, the nonconformist divine, however, was one of those few that remained; and his testimony was highly honourable to the preacher, for he declared that he had never heard a better sermon, and that he could with pleasure have listened all day to such preaching; upon which those persons who complained to Dr. Wilkins of his substitute were ashamed of their conduct in deserting the church, and reduced to the necessity of acknowledging that their prejudice was solely the result of his uncouth appearance. His sermons were distinguished not only by their excellence, but by their length. He took great pains in composing them, and in transcribing them three or four times, as he found it extremely difficult to please himself. *M. Le Clerc* (*Biblioth. Univ. t. iii. p. 325.*)

says of them, that they were treatises or exact dissertations rather than harangues to please the multitude; and Dr. Tillotson, who published them, observes in his preface, that "their own excellence and eloquence will praise them best;" and king Charles II. used facetiously to call him "an unfair preacher," because he exhausted every subject, and left nothing for any person that came after him to say. The delivery of his Spital sermon concerning charity, before the lord mayor and aldermen, took up $3\frac{1}{2}$ hours; and being asked upon his leaving the pulpit, whether he was not tired, he replied "yes indeed, I began to be weary with standing so long." In his compositions he seems, as it were, to labour for words to express the amplitude and energy of his conceptions; and, on this account, his style is involved and interrupted by parentheses, though he sometimes introduces passages of sublime and simple eloquence. Dr. Barrow, as we may naturally imagine from the course of his studies and the character as well as the number of his writings, was unremitting in his application. He slept little, and generally rose in the winter months before day. He is said to have been intemperate in the use of fruit, alleging, that if it kills hundreds in autumn, it preserves thousands; and he was much addicted to the use of tobacco, calling it his "panpharmakon," or universal medicine, and imagining that it helped to compose and regulate his thoughts. In his general disposition and conduct he was singularly amiable and pleasing. Such were his modesty and diffidence, that when he understood that his optical and geometrical lectures were to be printed in the Philosophical Transactions, he requested that they might be introduced with merely a simple and short account of them, without any thing in commendation or discommendation of them; and on the occasion above referred to, when his congregation deserted him, he accounted for it to a friend by saying, "I thought they did not like me, or my sermon; and I have no reason to be angry with them for that." In conversation he was unreserved and communicative, often facetious and cheerful, and always anxious to adapt his discourse to different capacities. He was charitable in a mean estate, disinterested in a flourishing one, serene and content in all fortunes, of the strictest integrity, above all artifice and disguise, friendly and courteous. With these private virtues he combined the character of the greatest scholar of his times; and as Dr. Pemberton observes in his preface to the "View of sir I. Newton's Philosophy," "he may be esteemed as having shewn a compass of invention equal if not superior to any of the moderns, sir Isaac Newton only excepted." The chief property which he had accumulated consisted of books, which were well chosen, and sold after his death for more money than they cost. His own MSS. in theology, were committed to the care of Dr. John Tillotson and Mr. Abraham Hill, with permission to publish such of them as they thought proper. They first appeared in 1685, in 3 vols. folio; there have been several editions since, and the last was in 1741. They consist of sermons, of expositions of the creed, the Lord's prayer, and the decalogue; of the doctrine of the sacraments, and of treatises on the pope's supremacy and the unity of the church. A fourth volume in Latin, intitled "Opuscula," was published in 1687; and consists of Determinationes, Conciones ad Clerum, Speeches, Latin poems, &c.

Dr. Barrow was no less distinguished as a mathematician than as a divine. The principal of his mathematical works are the following: viz. "Euclidis Elementa," Camb. 1655. 8vo., and translated into English and published at London in 1660, 8vo. In this edition of all the books and propositions of Euclid, the demonstrations are distinguished by their

conciseness. "Euclidis Data," Camb. 1657, 8vo., subjoined to the Elements in later editions. "Lectiones Opticæ XVIII.; Cantabrigiæ in scholis publicis habitæ, &c." Lond. 1669. 4to.: this work was revised and enlarged by Newton, and has been highly commended by the best judges. "Lectiones Geometricæ XIII. in quibus præsertim generalia linearum curvarum symptomata declarantur;" Lond. 1670. 4to.: published in 1672 and 1674 with the "Optics." "Archimedis Opera; Apollonii Conicorum Libri IV.; Theodosii Sphærica, methodo nova illustrata, et succinctè demonstrata;" Lond. 1675, 4to. After Dr. Barrow's decease, were published his "Lectio in qua theorematum Archimedis de Sphæra et Cylindro, per methodum indivisibilium investigata, ac breviter demonstrata, exhibentur," Lond. 1678, 12mo.; and "Mathematicæ Lectiones, habitæ in scholis publicis Academiæ Cantabrigiæ," Lond. 1683, 8vo. Besides these, Dr. Barrow left several curious papers, written with his own hand, and communicated by William Jones, esq. to Dr. Ward. Hill's Life prefixed to Barrow's Works. Ward's Lives of the Professors of Gresham college, p. 157, &c. Bog. Brit.

BARROW, in *Geography*, a noble river of Ireland, supposed to be the *Birgus* or *Brigus* of Ptolemy. It rises in the mountain of Slicbh-bloom in the King's county, and running for a short space north-east, makes a kind of elbow; and continuing afterwards a south-east course, it divides the King's and Queen's counties from that of Kildare. At Athy, in the latter county, a branch of the grand canal from Dublin to the Shannon has formed a junction with it; which contributes much to the advantage of the adjoining country. It proceeds next through the heart of the county of Carlow, and then separates those of Kilkenny and Wexford. A little before it reaches the town of Ross, it receives the Nore; and then varying its course somewhat to the west, mingles its waters with those of the Suire, forming with it the haven of Waterford. The navigation of this river has been deemed of such great importance that 11,000 pounds have been granted by parliament to remove some obstructions in it; and a corporation established for the purpose has been enabled to raise 20,000l. more to render it completely navigable. It is now (1802) expected that boats will soon regularly ply from Waterford to Athy, and thence by the grand canal to Dublin. The circumstance of the three rivers, Barrow, Nore, and Suire, all rising in the same mountain, proceeding from it by different courses, and uniting their streams before they fall into the sea, has been mentioned by many writers. Amongst others, Spenser has noticed it in his episode of the marriage of the *Thames* and *Medway* (*Fairy Queen*, book iv. cant. 11.); in which he represents them as three brothers, sons of the giant Blonius and the nymph Rheusa. He speaks of the Barrow as abounding in salmon:

"The third, the goodly Barrow which doth hoord
Great heapes of salmon in his deepe bosome."

Campbell's Political Survey, &c. &c.

BARROW, *Little*, a river of Ireland, which runs into the Barrow, about four Miles East of Portarlington.

BARROW *Harbour* is an extensive bay in that of Bonavista in the island of Newfoundland, divided by Keel's head on the E. from the port of Bonavista, and from Bloody bay on the W. by a large peninsula joined to the island by a narrow isthmus, which forms Newn's sound; which, as well as Clode sound, are within Barrow harbour.

BARROW *Point*, a cape on the south coast of Ireland, in the county of Cork, 5. miles east of Kinsale.

BARROWS, or *Tumuli*, in *Topography*, a name usually given to those hillocks or mounds of earth which were anciently

ciently raised over the bodies of deceased heroes and persons of distinguished character. This mode of interment may be traced to the remotest antiquity, and instances of it occur in all quarters of the world. A learned antiquarian, well known for his industrious and indefatigable research (see Gough's *Sepulchral Monuments of Great Britain*), considers barrows as the most ancient sepulchral monuments in the world. Homer is one of the earliest authors who mentions the construction of barrows in describing the funeral rites attending the interment of Patroclus and Achilles. The body of Patroclus was first laid on the top of a great pile of wood about one hundred feet square, and covered with the fat of animals offered in sacrifice, the carcases of the beasts, and the bodies of the Trojan captives cruelly slain in cold blood on the occasion, were then thrown on the pile round its edges, and the whole reduced to ashes. The remains of the fire were next day extinguished by pouring wine on the embers; and as many fragments of the bones of the deceased as could be collected, were wrapped up in fat, and put into a rich urn, having a linen veil slung over it. The whole army then threw earth upon the spot where the pile had been consumed, so as to cover the bones of the Trojans, of the beasts, and all the ashes that remained, and thus reared a high rude hill, under which, nearly in the centre, the urn was placed. After this ceremony, solemn games were performed, and chariot races were exhibited round the barrow, in honour of the deceased. To this purpose, the elegant translator of Homer, in his account of the funeral of Patroclus, expresses part of the funeral ceremony:

"High in the midst they heap the swelling bed
Of rising earth, memorial of the dead."

Iliad. xxiii. 319.

In Plutarch's *Life of Alexander*, we find that when that great conqueror arrived at the ruins of Troy, he anointed with much ceremony the stone placed on the barrow of Achilles, poured out libations, and, as the custom was, ran naked round the sepulchre, and crowned the stone with garlands.

Herodotus, the father of history, mentions the barrow of Alyattes, the second of that name, king of Lydia, and father of Cræsus, raised 2365 years ago, and seen by Dr. Chandler in A. D. 1764, five miles from Sardis, the ancient Sardis. This tumulus or barrow, formed by the joint exertions of the merchants, the labourers, and the prostitutes, was about a mile in circumference, 1300 feet broad, and terminated by a piece of water called the Gygæan lake, still remaining. Dr. Chandler, in his "*Travels through Asia Minor*," vol. i. p. 42. describes this and other barrows in their present state; and Herodotus states, that the lower part of it was a mass of large stones, but that the rest of the sepulchre was a tumulus of earth.

It was customary among the Greeks to place on barrows, either the image of some animal, or stela, termini, or round pillars with inscriptions. Pausanias describes the famous barrow of the Athenians in the plain of Marathon, on which were pillars of this kind: and on that of Alyattes were five stones, on which were engraved letters, denoting how much each class of the persons concerned had performed towards it, and it appeared that the greater portion was done by the young women. An ancient monument in Italy, near the Appian way, called without reason the sepulchre of the Curatii, has the same number of termini with that of Alyattes, the basement, which is square, supporting five round pyramids. We are informed in the scriptures, that when the king of Ai was slain by Joshua, his carcase was placed at the entrance of the city, and upon it was raised a great heap of

stones. Several other passages of the sacred writings lead us to conclude, that though the Jews were prohibited from adopting the superstitious customs of the gentile nations, they did not think themselves restrained from constructing these memorials to their deceased relatives. Diodorus Siculus, speaking of the Buthiæ, says, that after pressing together the limbs of a dead body with boards, they cast it into a hollow receptacle, and placed over it a large heap of stones. Virgil alludes to this mode of interment as used in Italy in the times to which the *Æneid* refers. Xenophon relates that it obtained among the Persians; the Roman historians record it as taking place among their countrymen, and it prevailed no less among the ancient Germans, Britons, and other nations.

According to Herodotus, the Gæthi, a people of Scythia, raised barrows; and the custom of erecting them in various parts of the world continued through a long series of ages. Gough says, that they continued in use till the 12th century.

The ancient barrows are of various sizes, some of them being small, and perhaps designed for children, or the younger branches of the royal family, or for persons of meaner rank; others distinguished by their height and bulk, and visible like hills at a great distance, which might probably have been the sepulchre of some renowned monarch or warrior, or general burying-places.

Stahlenberg, in his description of the northern and western parts of Europe and Asia, informs us, that great numbers of tumuli, called by the Russians "bogri," are found in Siberia, and in the deserts which border on that country southward; and that in these tombs are found many plates, ornaments, and trinkets of gold. Some of them are raised by earth as high as houses, and appear in the distant plains like a ridge of hills; whilst others are set round with rough-hewn stones. *Archæologia*, vol. ii. p. 236.

The custom of interring with the dead their arms, their jewels, and sometimes their horses and servants, is traced by M. Legrand D'Aussy (*Mem. de l'Institut. National des Sciences*, &c. Paris, vol. ii.) to the mythology of the northern Asiatic nations, which taught them to believe that they should make an appearance in another world, corresponding to the ornaments and attendants deposited in their tombs; and the remains of this superstition have descended through many ages. According to this writer, a great part of the riches acquired by the northern nations in their irruptions, has been interred in the tombs of the conquerors. Treasures have been frequently found in the barrows so common in Tartary; and, in attempting to ransack these monuments, the Siberians have had so many conflicts with the Tartars, that the Russian government has been obliged to put a stop to their researches.

Denmark, Sweden, Lower Saxony, and many other countries on the continent, abound with sepulchral monuments of this kind. Mr. Coxe, in his "*Travels in Poland*," (vol. i. p. 130.) mentions two large barrows in the vicinity of Cracow; one by tradition called the burial-place of Cracus, duke of Poland, who is supposed to have built the town in the year 700; and the other called the sepulchre of his daughter Venda, who is reported to have drowned herself in the Vistula to avoid a marriage with a person whom she detested. As popular tradition records these as favourite characters in their country, it has honoured them with interment under the most conspicuous of those monuments called barrows.

The barrows of England are very numerous scattered over the plains of Wiltshire, the downs of Dorsetshire, Kent, and Surry. Monuments of the same appropriation

are also abundant in the northern counties of England, North Wales, Scotland, and Ireland; but most of these consist of vast piles of stones and are designated by the name of "carn," or "cairn." (See *CARN*.) The most considerable barrow in England is that of Silbury Hill in Wiltshire. (See *AVEBURY*.) A barrow in Derbyshire, situate on the summit of a hill called "Fin-cop," has been carefully investigated by Mr. Hayman Rooke. See *Archæologia*, vol. xii.) It disclosed two or three skeletons, one of which had an oblong piece of dressed black Derbyshire marble fastened by a strong cement to the skull: some urns also appeared, with ashes and burnt bones, together with arrow-heads of flint, and a spear-head shaped out of a piece of lime stone, and made very sharp at the point. Mr. Rooke conjectures, that this elevated spot, secured by a double fence, may have been the site of a British town or fortress, and that the barrow was the sepulchre of the chieftain and his relatives; the weapons of flint and of lime-stone undoubtedly suggest a very remote period, and, when found as these were, appear to indicate the relics of a primitive and barbarous people. Dr. Plott takes notice of two sorts of barrows in Oxfordshire, one placed on the military ways, the other in the fields, meadows, woods, &c.; the former he supposed were of Roman erection, and the latter were more probably erected by the Britons or Danes. Some of these barrows appear rude and constructed only of earth; others are more regular, and trenched round, some of them with two or three circumvallations, and surmounted with monumental stones. (Plott's *Nat. Hist. Oxfordshire*, ch. x. § 48.) We have an examination of the barrows in Cornwall by Dr. Williams, in the "*Philosophical Transactions*," N^o 458.; from whose observations we find, that these barrows are composed of foreign or adventitious earth; that is, such as does not occur on the spot, but must have been fetched from some distance. In one of them was found an urn made of burnt or calcined earth, very hard, and very black within; it had four small handles, and in it were found seven quarts of burnt bones and ashes. As it was the ancient practice to burn the dead, it appears from these barrows, how the people that used this mode of burial expressed their respect for the dead; it was by erecting over them these tumuli or barrows, composed of earth or stone brought from distant places; and the barrow was generally proportioned to the rank and power of the deceased person. Each soldier, or friend, might bring some of the earth or stones from distant places where they lived, and thus compose the tumulus. Many passages might be quoted from ancient authors to this purpose. The contents of these barrows, as well as their size and form, have been very various: in some have been found stone chests containing entire bones; and in others, bones neither lodged in chests nor deposited in urns: arms of various sorts, amber beads, &c. have not been uncommon.

The links or sands of Skail in Sandwick, one of the Orkney islands, abounds in round barrows, some formed of earth alone, and others of stone covered with earth. In the former was found a coffin made of six flat stones, and as it was too short to receive a body at full length, the skeletons had their knees pressed to the breast, and the legs doubled along the thighs. A bag made of rushes has been found at the feet of some of these skeletons, which contained the bones, probably, of another person of the same family. In one of these were discovered multitudes of small beetles; and as similar insects have been found in the bag which inclosed the sacred Ibis, it may be supposed that the Egyptians, and the nation to which these tumuli belonged, might

have had the same superstition respecting them. Some of the corpses interred in this island appear to have been burned; as the ashes deposited in an urn which was covered with a flat stone, have been found in the cell of one of the barrows. This coffin, or cell, was placed on the ground, then covered with a heap of stones, and cased with earth or sods. This barrow and its contents evince them to be of a different age from the former. These tumuli appeared to be a kind of family vaults, two tiers of coffins having been found in them; and it is not improbable, that on the death of any one of the family, the tumulus was opened, and the body interred near its kindred bones.

Barrows are very numerous in Ireland. Ledwich supposes them to have been of Scythian origin, and to have been introduced in Britain after the Romans had left it. It was a law of Odin, the great Gothic legislator, that large barrows should be raised to perpetuate the memory of celebrated chiefs: these were composed of stone and earth, and were formed with great labour and some art. At New Grange in the county of Meath is a mount of this kind, the altitude of which from the horizontal floor of the cave is about 70 feet, the circumference at the top is 300 feet, and the base covers two acres of land. It is founded on an astonishing collection of stones, and covered with gravel and earth. In the "brende-tiid," or fiery age, which was the first among the Northerns, the body was ordered by Odin to be burned with all its ornaments, and the ashes to be collected in an urn and laid in a grave; but in the "hoelst-tiid," or age of hillocks, being the second, the body, untouched by fire, was deposited in a cave or sepulchre under a barrow; and this mode was practised till the third epoch, called "christendoms-old," or the age of Christianity. Governor Pownall, who has given an account of New Grange, in the second volume of the "*Archæologia*," observes, that the mode of burial, and the species of sepulchral monument at New Grange, may be traced through Denmark, Sweden, Russia, Poland, and the steppes of Tartary; and he conjectures that this mount was a Danish work; which was also the opinion of sir Thomas Molyneux, M.D. in his "*Essay on Danish Mounts*," published with "Boate's *Natural History of Ireland*." About 1699, a Mr. Campbell, who resided in the village of New Grange, observing stones under the green sod, carried many of them away, and at length arrived at a broad flat stone that covered the mouth of the gallery. At the entrance, this gallery is 3 feet wide and 2 high; at 13 feet from the entrance, it is but 2 feet 2 inches wide: the length of the gallery, from its mouth to the beginning of the dome, is 62 feet; from thence to the upper part of the dome, 11 feet 6 inches; the whole length being 71½ feet. The dome or cave, with the long gallery, exhibits the exact figure of a cross, the length between the arms of which is 20 feet: the dome forms an octagon, 20 feet high, with an area of about 17 feet; it is composed of long flat stones, the upper projecting a little below the lower, and closed in and capped with a flat flag. There are two large oval rock basins in this cave, one in each arm of the cross; from which, and the cruciform shape of the structure, it is supposed to be the work of semi-Christian Ostmen in the ninth century. The custom of burying the treasure acquired by piracy, in the barrows of great men, accounts for the Roman coins found at New Grange. For a more particular account, the reader is referred to Mr. Ledwich's *Antiquities of Ireland*, p. 307—328. General Vallancy, however, and other antiquarians, consider this cave at New Grange to have been "*antrum Mithræ*," or a cave for the worship of the sun, introduced by

by the Perfo-Seythie colony, which they suppose to have come to Ireland from Spain, and to have established the customs of the eastern nations.

Tumuli or barrows are also found in great numbers in America; and the American Indians are said to practise a similar mode of burial at this time, generally depositing with the bodies the implements of war and agriculture used by the deceased. Mr. Jefferson, in his "Notes on the State of Virginia," p. 156. has given a particular account of the American barrows. They are of different sizes, and formed of different materials; some of earth, and some of loose stones. That they were repositories of the dead is generally allowed; but the particular occasion on which they were constructed has been a subject of discussion. Some have thought that they covered the bones of those who fell in battles fought on the spot of interment. Some ascribe them to the custom prevalent among the Indians, of collecting at certain periods all their dead, wheresoever deposited at the time of their death. Others again have supposed that they were general sepulchres for towns, conjectured to have been situate on or near those grounds: and this is an opinion that has been supported by the quality of the lands in which they are found, those constructed of earth being generally in the softest and most fertile meadow grounds, on the sides of rivers; and also by a tradition descending from the aboriginal Indians, which reports, that when they settled in a town, the first person who died was placed erect, and in this posture covered and supported by earth; that when another died, a narrow passage was dug to the first, the second reclined against him, and the cover of earth replaced, and so on. Mr. Jefferson examined one of these barrows, situate in his own neighbourhood, on the low grounds of the Rivanna, opposite to some hills on which had been an Indian town; and has particularly described its form, which was spheroidal; and also its contents, which were collections of human bones in a disjointed and scattered state. This barrow, he conjectured, might have contained a thousand skeletons. The circumstances which he has recited militate against the opinion that it covered the bones only of persons fallen in battle; and against the tradition, which would make it the common sepulchre of a town, in which the bodies were placed upright and touching each other; and indicate, that it has derived both origin and increase from the customary collection of bones, and the deposition of them together. But in what way soever this tumulus was formed, it seems to have been well known to the Indians; a party of whom, some years ago, proceeded through the woods directly to it, without any inquiry; and having remained near it for some time with expressions of sorrow, they returned to the high road, from which they had departed about six miles for the purpose of this visit, and then pursued their journey. There are many other similar barrows in other parts of the country. For further particulars relating to sepulchral monuments of this kind, we refer to Gough's Sepulchral Monuments of Britain; Douglas's Nennia Britannica; King's Munimenta Britannica; Archaeologia, vol. ii. & xii.; and Britton's Beauties of Wiltshire, vol. ii.

BARROWS, in the *Salt Works*, are cases made with flat cleft wickers, in the shape almost of a sugar-loaf, with the bottom uppermost, wherein the salt is put as it comes, and set to drain. Phil. Trans. N° 53. p. 1065. Hought. Collect. N° 211. p. 81.

BARROWBY, WILLIAM, in *Biography*, son of Dr. William Barrowby, a physician of considerable repute and eminence in London. At a proper age he was admitted of Emanuel college in Cambridge, and in 1733 took his degree

of Bachelor in Medicine. Soon after, he was made fellow of the Royal College of Physicians in London, and one of the physicians to Bartholomew's hospital. He died suddenly, after eating a hearty meal, December 30, 1752, being only forty-two years of age, and then in great practice. There is a fine print of him, engraven in mezzotinto by Müller, after a painting by Hayman. His father, who survived him, died October 17th, 1758, being then senior member of the College of Physicians. Our author published, in 1737, a translation into English of Astruc's treatise "De Morbo Gallico," London, 2 vols. 8vo. Eloy. Dict. Hist.

BARROWISTS, in *Ecclesiastical History*. See **BROWNISTS**.

BARRULET, or **BARRELET**, in *Heraldry*, signifies a diminution of the bar, consisting of its fourth part.

BARRULY denotes the field of the shield of arms, when it is divided bar-ways into many equal parts.

BARRY, EDWARD, in *Biography*, a native of Dublin, received his medical education at Leyden, under the celebrated Boerhaave, and was created doctor of physic there in 1719. After practising some years at York, he went to Dublin, and was made professor of medicine in the university of that city, first physician to the army there, and fellow of the Royal Society in London. In 1727, he published "A Treatise on a Consumption of the Lungs, with a previous account of nutrition, and of the structure and use of the Lungs," 8vo. London, in which he maintains the doctrine of his preceptor. To the third edition of this work, enlarged and improved, published 1759, he gave the title of "A Treatise on the three Digestions and Discharges of the Human Body, and the Diseases of their principal Organs." Haller. Bib. Anat. Eloy. Dict. Hist.

BARRY, GIRALD, commonly called *Giraldus Cambrensis*, i. e. Girald of Wales, in *Biography*, a writer of the twelfth century, was born near Pembroke in South Wales about the year 1146, and descended from a noble family allied to the princes of the country. After an early education at home, he was sent for further improvement to France, where he obtained great reputation for his proficiency in the rhetoric of the age in which he lived. Upon his return in 1172, he obtained several ecclesiastical preferments, of which the principal were the archdeaconry of Brechin, and the canonry of Hereford. As he was active in church affairs, he acquired a reputation which induced the chapter of St. David's to elect him bishop of that see at the age of 30 years; but as he had reason for apprehending the jealousy of king Henry II., he declined this ecclesiastical dignity. However, he was mortified by being under a necessity of refusing what was the great object of his ambition; and in order to divert his chagrin, he visited France; and at Paris he pursued his study of civil and canon law, and of divinity, with such success, that he was offered the professorship of canon law in the university: but he thought proper to decline it. In 1180, he returned to his own country; and as great confusion prevailed at St. David's in consequence of the expulsion of the bishop, he was entrusted with the administration of that see for three or four years. In 1184, Henry II. appointed him his chaplain, and availed himself of his advice in the management of Welsh affairs. In the following year he was sent to Ireland with prince John as his privy-counsellor and secretary; and was there offered the united bishoprics of Ferns and Leighlin, which he declined accepting, because he disapproved of the measures pursued by John. During his stay in that country, he was principally employed in collecting materials for two works relating to Ireland.

Ireland which he had projected. After his return to Wales, in 1187, he wrote and revised his "Topography of Ireland;" and at Oxford, he publicly recited the three parts of the work on three successive days, fasting on the first day all the poor of the city, on the second the principal doctors and scholars, and on the third scholars of inferior rank, soldiers, and burghesses. In the following year he accompanied Baldwin of Canterbury in a journey through the mountainous parts of Wales, for the purpose of inculcating on the people the necessity of a crusade; and he was thus furnished with materials for his "Itinerary in Wales," which he afterwards published. At this time Girald took the cross; but being otherwise employed at home, he obtained a dispensation from the pope's legate for not pursuing his voyage to the Holy Land in the retinue of king Richard I. Upon some disgust, he retired from court in 1192; and took up his abode for six or seven years at Lincoln, where he pursued his theological studies and composed various writings. In 1198, he was solicited by the chapter of St. David's, and the chief men of the country, to canvass for the vacant see; but in declining it, he made use of a saying which has become memorable; "Virum episcopalem peti, non petere, debere," i.e. a man fit for a bishopric ought to be sued to, and not sue. However, he soon changed his mind; for being next year unanimously chosen by the chapter, he went over to Ireland to engage his relations in support of his claim. But during his absence, a mandate was issued from the archbishop and justiciary for the election of Geoffroy the prior of Llanthony. Girald appealed to the pope; and after much delay and three journeys to Rome, he only so far prevailed as to annul the election, and to obtain the appointment of a new choice. Geoffroy was at length the successful candidate; upon which Girald resigned his archdeaconry of Brechin to his nephew, and withdrawing from public concerns, devoted himself to his studies. In 1215, he was offered the bishopric of St. David, but the offer was connected with conditions which he did not approve. The time of his death has not been precisely ascertained; but it is known that he was alive after the year 1220.

Giraldus Cambrensis was a voluminous writer; and there were few of the literary topics of his age that did not employ his pen. According to the account given of him by Mr. Thomas Wharton (Hist. of Poetry, diss. ii.), he was an historian, an antiquary, a topographer, a divine, a philosopher, and a poet. Many of his works, he says, are written with some degree of elegance, and he abounds with quotations from the best Latin poets. But his style is in general puerile, affected, diffuse, and full of quibbles and conceits: nevertheless, many of these defects must be attributed to the times in which he lived. Whatever may be thought of the vanity which he manifests in speaking of himself, of his family, and of his performances, he was without doubt in a very great degree credulous, and so much addicted to fables, that his statement of facts is in many cases unworthy of confidence. With the events recited in his "History of the Conquest of Ireland," he has intermixed all the prophecies he could collect of Caledonius, Merlin, and various other impostors; and hence he was led to give to his history the title of "Vaticinal." This work, and also his "Topographia Hibernica," have been charged by the Irish writers with numerous mistakes and falsehoods. They were first printed by Camden, at Frankfort, in 1602. His "Itinerarium Cambrie" was printed with the annotations of David Powel. The purpose of his "Ecclesiæ Speculum, sive de monastriis ordinibus, ex ecclesiasticis religionibus variis distinctionum, lib. iv." was to expose the vices of the monks, against whom he had conceived an inveterate hatred, so that he was ac-

customed to add to his litany, "From the malice of the monks, good Lord, deliver us." Biog. Brit.

BARRY Island, in *Geography*, the westernmost of two islands off Cardiff point, on the coast of Wales, in the county of Glamorgan.

BARRY'S Point, a projecting head land, on the west side of Little Island, up Cork harbour.

BARRY, in *Heraldry*, is when the shield is divided into equal parts horizontally, consisting of two colours: or thus, barry of six, argent and sable.

BARRY Bendy Counterchanged, is when the bars are crossed by lines bendwise. See *Plate of Partition lines*.

BARRY Indented, is when the lines which cross the field to form the bar are indented.

BARRY Wavy and **Barry Nebulé**, are formed in the same manner by the lines being wavy *nebulé*.

BARRY Lozengie Counterchanged, is when the bars are crossed by lines bendwise, dexter and sinister. See *Plate as above*.

BARRY Pily, is when the bars are charged with piles. See *Plate as above*.

BARRYERAS VERMELLIAS, in *Geography*, is a large bay, with very good anchoring on the coast of Brasil, between St. John's island and Sympomba island, 7 leagues north-east from it; situate in about 2° S. lat. and S. E. of the mouth of the great river Amazons.

BARS, a town of Hungary, and chief place of a county of the same name, eight miles west of Leventz.

BARS, or *Barco*, *Cape*, lies on the east side of the passage into the White Sea, and to Archangel, from the N.W., and is the north point of the Gulf of Mezene. N. lat. 66° 30'. E. long. 41° 45'.

BARSA, in *Ancient Geography*, an island near the coast of France, mentioned in the Itinerary of Antonine. See *Isle of Bas*.

BARSALIUM, a town of Asia, seated on the banks of the Euphrates, on the east of Samofata.

BARSALLACH POINT, in *Geography*, a cape of Scotland, on the coast of the county of Wigton, in Luce bay, 8 miles N. W. of Burrowhead.

BARSALLI, a kingdom of Africa, bordering on the river Gambia, and inhabited by a tribe of negroes called **JALOFFS**. The government of this kingdom is a despotic monarchy; and the people are in such an abject state of submission, that they fall on their faces whenever any one of the royal family appears. In time of war, every soldier has his share of booty; and the king contents himself with a very moderate portion. The kingdom is divided into a number of provinces, over which the king appoints governors, called "bumeys," who pay him an annual homage, and send a certain tribute or revenue to the exchequer. These bumeys, though powerful and absolute within their respective jurisdiction, are subject to the absolute dominion of the sovereign. The king maintains his despotic power so completely, that he admits of no other counsellor besides his prime minister, who is himself in reality his prime slave. This minister is also the general of the king's forces, and the interpreter of his will, from the very letter of which he must never deviate. The king and court profess the Mahometan religion, though they pay little regard to that part of it which forbids the use of wine; for the king cannot live without brandy, nor is he ever more devout than when he is drunk. When he stands in need of a fresh supply of brandy, or of any other necessary, he sends to the governor of James fort, begging that he will dispatch a boat with the merchandize for which he has occasion; and for the payment he plunders the neighbouring towns, and seizes a certain

a certain number of his subjects, whom he sells for slaves, and exchanges for European commodities. The general dress of the people is a kind of callico surplice that hangs down below the knee, and is sometimes plaited about the waist; and they also wear a great number of gold trinkets in their hair, ears, noses, and round their necks, arms and legs. The king of Barfalli, whom Moore saw in 1732, had a prodigious number of women; but when he went abroad, he was seldom attended by more than two, who seemed to be dressed out in the whole finery and jewels of the seraglio. The presumptive heirs of the crown paid the same servile homage to the sovereign with his lowest subjects: nevertheless it was usual for the king's children to dispute the right of succession with his brethren; and the longest sword generally gained the prize. *Mod. Un. Hist.* vol. 14. p. 164, &c. See JALOFFS.

BARSANIANI, in *Church History*, a sect who held all the errors of the Severians and Theodasians.

BARSANTI, FRANCISCO, in *Biography*, a native of Lucca, born about the year 1690, studied the civil law in the university of Padua; but, after a short residence there, he chose music for his profession. With this view he placed himself under the tuition of some of the ablest masters in Italy; and having attained a considerable knowledge both in the practice and theory of the art, he determined to settle in England, and came hither with Geminiani, who was also a Lucchese, in the year 1714. He was a good performer on the hautbois when he first came over, and also on the flute: as a hautbois player, he found employment in the opera band; and derived considerable profit from teaching the flute. He published, with a dedication to the earl of Burlington, six solos for a flute with a thorough base, and afterwards six solos for the German flute and base. He also formed into sonatas for two violins and a base, the first six solos of Geminiani. He continued many years a performer at the opera house. At length having encouragement to remove to Scotland, he went thither; and it may be said of him with greater truth than of David Rizzio, that he meliorated the music of that country by collecting and making bases to a great number of the most popular Scots tunes.

About the year 1750, Barsanti returned to London; but being advanced in years, he was glad to be again employed in the opera band as a performer on the tenor violin; and in the summer season, in that of Vauxhall. At this time he published twelve concertos for violins, and soon after *Sci Autifone*, in which he endeavoured to imitate Palestrina and the old ecclesiastical composers. But the profits arising from these publications were so small, that the sale did not cover the expence of printing them. Barsanti was an excellent harmonist; but his productions were dry and fancilefs. He acquired small sums by correcting the productions of young composers, and making bases to those of old pretenders to counterpoint. But towards the end of his life, he subsisted chiefly by the industry and economy of an excellent wife whom he had married in Scotland, and the studies and talents of a worthy and ingenious daughter, who, with the most promising voice and disposition for music, had been bound apprentice to a master who had undertaken to prepare her for a public singer, and with whom she had vanquished all the difficulties of the art in point of execution; but she totally lost her singing voice, on going to Oxford to perform at a choral meeting, by sickness in a stage coach; and never being able afterwards to sing, she was engaged by Colman as a comic actress at his theatre in the Haymarket; and having a great fund of natural humour, and a good figure, acquired great applause. The winter after she went to Ireland, and became a favourite actress in humorous parts, and at length was married to

Mr. Daly, the manager of the Dublin theatre; but died soon after to the great regret of all who knew her.

BARSCHIRS, in *Geography*. See BASCHIRS.

BARSCHLING, or BORSTLING, in *Ichthyology*, one of the synonymous names of the common perch, *perca fluviatilis*. Vide *Marfigl. Danub. &c.*

BARSE, an English name for the common perch, a well-known fresh water fish. It is also the name now in use for the same fish in the Saxon language, and is one of the many Saxon words we have yet retained.

BARSERS, in *Geography*, a town of Norway, 50 miles N. E. of Romfald.

BARSIR, a town of Persia, in the province of Kerman, 60 miles N. E. of Sirgian.

BAROUND, lies on the coast of Sweden, in the Baltic, 15 leagues N. by W. from the north end of Oeland island, and nine leagues from the Westerwyk channel, among a labyrinth of rocks, impassable except by direction of pilots at Oeland.

BART, a port on the southern coast of Nova Scotia.

BART is also a township of Lancaster county, in the state of Pennsylvania.

BARTAPOUR, a town of India, in the country of Kemaon, on an island in the Ganges, 93 miles east of Bercilly, and 90 north of Lucknow.

BARTAS, WILLIAM DE SALLUSTE-DU, in *Biography*, a French poet, was born, in 1544, at Montfort in Armagnac; and having entered into the service of Henry IV. he was employed by him in commissions to England, Denmark, and Scotland, in which last country James VI. would gladly have retained him. He was a Calvinist, and acquired in times of bad taste the reputation of a poet. His works were numerous, written in a style sometimes mean and barbarous, and sometimes tumid and extravagant, and abounding with ludicrous and disgusting figures. His most famous work was "A Commentary on the Work of the Creation of the World," in seven books, which was held in high estimation, and passed through 30 editions, was translated into various languages, and formed a part of almost every religious library. Bartas is highly commended by Mons. de Thou for his candour, modesty, and simplicity of manners. Towards the close of his life he retired to his small estate of Du Bartas in Armagnac, and devoted himself to study. He celebrated in verse the victory of his master Henry, at Ivry in 1590, and died in the following year. His works were collected and published in folio, at Paris, in 1611. *Gen. Dict. Nouv. Dict. Hist.*

BARTAVELLE, in *Ornithology*, among the French naturalists, the same bird which Latham describes under the name of *perdix rufa*; which see.

BARTEN, in *Geography*, a town of Prussia, and capital of a small country called Bartenland, in the province of Natangen, 40 miles S. E. of Konigsberg.

BARTENSTEIN, a town of Prussia, in the province of Natangen, seated on the river Alle. 28 miles south of Konigsberg. This town was built in 1331, and at first called *Rosenthal*.

BARTENSTEIN is also a town and castle of Germany, in the circle of Franconia and principality of Hohenlohe.

BARTERING, in *Aritbmetic and Commerce*, the act of trucking or exchanging one commodity for another of like value.

The word comes from the Spanish *baratar*, to deceive or circumvent in bargaining; perhaps because those who deal this way usually endeavour to over-reach one another.

This is also called *bartry*, 13 Eliz. cap. 7.

In order to solve all questions that occur under this article, find the value of that commodity, the quantity of which

which is given, and then find how much of the other commodity will amount to that sum at the rate proposed.

Example I.—How many pounds of cotton at 10d. per lb. must be given in barter for 5 C. 3qrs. 14lb. of pepper at 3l. 10s. per C.?

First, find the value of the commodity, the quantity of which is given thus:

C	Q	lb.	l.	s.	d.
5	3	14	at	3	10
3 l.	15				
10 s.	2	10			
2 q.	1	15			
1 q.		17	6		
14 lb.		8	9		
<hr/>					
£.20 11 3					

Or, by decimals,

$$5 \text{ C. } 3 \text{ Q. } 14 \text{ lb.} = 5.785.$$

$$3 \text{ l. } 10 \text{ s.} = 3.5$$

$$\text{And } 1 : 3.5 :: 5.785 : 20.5625 = 20 \text{ l. } 11 \text{ s. } 3 \text{ d. the value of the pepper.}$$

Secondly, find how much cotton at 10 d. per lb. may be purchased for 20l. 11 s. 3 d. thus:

$$10 : 1 :: 20 \text{ l. } 11 \text{ s. } 3 \text{ d.} : 493.5 = 4 \text{ C. } 1 \text{ qr. } 17 \frac{1}{2} \text{ lb.}$$

As the values or prices of the goods bartered are always equal, it is evident that the product of the quantities bartered into their respective rates must be equal. Hence we obtain the following rule by which many questions of this nature may be solved; viz.

Multiply the given quantity and rate of one commodity, and the product divided by the rate of the other commodity will give the quantity; or divided by the quantity, will give the rate.

Example II.—How many yards of linen at 4 s. per yard may be had in barter for 120 yards of velvet at 15 s. 6 d. per yard?

yds. fixpences.

$$120 \times 31 = 3720, \text{ and } \frac{3720}{8} = 465 \text{ yards.}$$

See EXCHANGE.

BARTH, JOHN, in *Biography*, a fisherman at Dunkirk, was born in 1651, and rose by his courage and naval skill, first to the command of an armed galliot in 1675, and at length, in 1692, to the rank of commodore of a squadron in the navy of France. By his nautical conduct and intrepid bravery he performed many signal exploits, and rendered himself the terror of the narrow seas. In consequence of one of his gallant actions, he was ennobled by Louis XIV.; but he still retained the rough manners of a tar. "John Barth," said the king to him on one occasion, "I have made you a commodore." John replied, "You have done right." This naval officer distinguished more by daring and prompt enterprises than by any comprehensive and complicated plan, died in 1702, and was buried in the great church of Dunkirk. *Nouv. Dict. Histor.*

BARTHE, NICHOLAS THOMAS, was the son of a merchant at Mireilles, and born in that city in 1733. He was educated under the fathers of the oratory; and obtaining a prize from the academy of his native place, he afterwards became a member of it. His father had destined him for the bar; but his talents led him to the cultivation of polite

literature and poetry. Removing to Paris, he devoted himself to the theatre; and in 1764, began to write for the stage. His pieces were "L'Amateur," "Fausse Infidélité," "La Mère jalouse," and "L'Homme personnel." The two first were well received, but the last did not possess sufficient energy and vivacity to please the public. Barthe then ceased to write for the stage, and engaged in a translation of Ovid's "Art of Love." He also published a collection of fugitive pieces in verse, in which species of composition he excelled. His epistles are also admired for their philosophical gaiety. Barthe blended with impetuosity of temper a friendly heart. Attached to social pleasures, he passed his time chiefly at Paris; and after having undergone the operation for an incarcerated hernia, died in this city in 1785. *Nouv. Dict. Histor.*

BARTHE, *De Nefles (La)* in *Geography*, a town of France, in the department of the higher Pyrenées, and chief place of a canton, in the district of Bagnères; 6 leagues south of Tarbes. The place contains 856, and the canton 10,426 inhabitants: the territory includes 180 kilometres and 22 communes. N. lat. 43° 4'. E. long. 0° 17'.

BARTHELEMY, JOHN JAMES, in *Biography*, a French abbé distinguished by his literary character, was born in Jan. 1716, at Cassis, a small port in Provence. At the age of twelve years he was sent to Marseilles, and pursued his studies in the college of the oratory under the instructions of father Renaud. As he intended to devote himself to the ecclesiastical profession, he removed to the Jesuits' college for the study of theology and philosophy; but dissatisfied with his masters, he formed a plan of private study, which comprehended the Greek, Hebrew, Chaldean, and Syrian languages, and in the prosecution of which he brought on a dangerous illness. Upon his recovery he entered into the seminary, where he received the clerical tonsure; and by the assistance of a young Maronite, he became a proficient in the Arabic language. From Marseilles he retired to his family at Aubagne, and in this domestic retreat pursued his studies with unabated application. Among his friends at Marseilles, whom he occasionally visited, was M. Cary, who possessed a choice cabinet of medals and an appropriate library, to which he had access; and he was thus led to indulge the predilection for this kind of study, which distinguished his researches and character in the progress of his life. In 1744 he visited Paris, and was introduced by M. de Boze, keeper of the royal medals and secretary of the academy of inscriptions, to the most eminent members of the three academies, and also recommended to be his assistant in the care of the cabinet of medals. In 1747, he succeeded M. Burette as associate to the academy of inscriptions, M. Le Beau declining a competition; and when he was nominated by the minister to the office of secretary to the academy, he waved the nomination in favour of M. Le Beau, as an acknowledgment of his liberality. In return, M. Le Beau, when he resigned this office, gave his interest to Barthelemy, who succeeded him. Thus did these distinguished rivals vie with each other in the exercise of a liberality which reflected equal honour on both. Barthelemy enriched the Memoirs of the academy by many communications relating to ancient monuments, and among others by a valuable dissertation on the inscription found at Palmyra by the English travellers. On the death of M. de Boze, in 1753, Barthelemy succeeded him as principal keeper of the medals. In the following year he followed M. de Stainville, afterwards duke de Choiseul and prime minister, to Rome, and made a tour to Naples, where the subterraneous treasures of Herculaneum and Pompeia engaged his particular attention, and where he exerted himself with peculiar zeal in the preservation of the Greek manuscripts. As he was not allowed to make any transcript

transcript, it was by some contrivance and with the help of a retentive memory that he was able to bring away a specimen of the most ancient mode of writing practised by the Greeks. On his return to Rome he gained great applause for a new and ingenious explanation of the famous Mosaic at Palestrina, the ancient Præneste, which, according to him, related not to Sylla, but to the emperor Adrian. In 1757, Barthelemy returned with his patron M. de Stainville to Paris, who, on his accession to the office of prime minister in 1758, anticipated and more than gratified his wishes, which were moderate, by various pensions, and at length by the place of secretary-general of the Swifs. When his patron Choiseul was banished, in 1771, to his seat of Chanteloup, in order to make way for D'Aiguillon, Barthelemy accompanied him in his exile, and as he determined to resign his secretaryship, an accommodation took place, by which he retained a pension of 10,000 livres on the post. His income was now about 35,000 livres per annum, which he reduced, by several grants to indigent men of letters, to 25,000. This income he enjoyed with liberality; and he devoted a great part of it to the benefit of his family, and to the purchase of an ample and well-selected library. Thus twenty years of his life were spent in literary affluence; but in advanced age he found himself reduced, by the suppression of places and pensions, to mere necessities: and these he was obliged to procure by parting with his library. This reverse of condition, however, he supported not only without complaint, but even with gaiety. His celebrated work, "The Travels of the Younger Anacharsis," had been the labour and amusement of thirty years; its plan was laid in 1757, and it was published in 1788. It was received with universal applause, and in consequence of it he was admitted into the French academy by acclamation. Declining the office of king's librarian, which was offered to him in 1792, he continued to employ himself in the cabinet of medals, which had been augmented under his direction, so as to have doubled its number of ancient medals. It was his wish to have published a catalogue of its treasures, with suitable engravings, for the information of the learned throughout Europe; but though he had obtained, in 1787, the concurrence of the ministry, the embarrassment of the finances, and the critical events that distressed the country, prevented the execution of this favourite project. In 1792, the infirmities of age crowded upon him; and the calamities of the times which a person of his age and character might have hoped to escape, aggravated his other complaints. Having been denounced under pretence of the crime of aristocracy by a clerk belonging to the library whom he had never seen, he was arrested, and removed from the house of Mad. de Choiseul, on the 2d of September 1793, to the prison of the Magdelonettes. With such singular patience did he submit to his fate, that when he was conducted to the cell that had been prepared for him, he quietly reposed. An order, however, was soon issued for his liberation, and he was awaked out of sleep, and carried back to the house of his kind and liberal patroness. By way of reparation for this unmerited aggression, he was offered the place of chief librarian; but his increasing infirmities were a sufficient apology for declining it. His decay was gradual; but the severity of the winter of 1795 hastened the termination of his life, which happened on the 30th of April, on which day, two hours before his death, he was reading Horace, till the book fell from his cold hands. He then appeared to go to sleep, and in that state expired; having attained to the commencement of his 80th year. His corporeal form is said to have been impressed with an antique character; and his bust, sculptured by Houdon, and ex-

pressive of the simple tranquillity and candour of a great mind, might suitably be placed between those of Plato and Aristotle. The principal work of this truly eminent person is his "Voyage de jeune Anacharsis en Grèce," 3 vols. 4to. or 7 vols. 8vo., which details the history, manners, customs, literature, &c. of Greece, under the form of the supposed observations of a traveller Anacharsis, a descendant of the ancient Scythian philosopher of this name. (See ANACHARSIS.) This person (see the author's advertisement prefixed to the work) is represented as visiting Greece in the year 363 B. C. and fixing his residence at Athens, whence he makes excursions, not only to the other Grecian cities, but to Egypt, Asia Minor, Persia, and the islands of the Ægean sea. On this basis of fiction is formed a real and instructive history, supported by the authority of the most approved ancient writers and by citations from their works. The narrative of Anacharsis is addressed to Artaxerxes and Phedime, a Persian satrap and his lady, whose characters are meant as portraits of the duke and duchess of Choiseul. It is preceded by an introduction, in which is given a rapid but luminous view of the previous history of Greece. The elegance of style, the beauties of narration, and the judiciousness of reflection, render this the first work (says a biographer of approved judgment and taste) in point of entertainment and instruction, that so brilliant a subject has produced. It has added a capital piece to the literary cabinet of Europe, and its value has already been recognised by various editions, and translations into different languages. To the English edition in seven volumes, 8vo. is added an eighth in 4to. containing maps, plans, views, and coins, illustrative of the geography and antiquities of ancient Greece. An anonymous writer (see Monthly Review, Appendix to vol. lxxxi.) has suggested, that the learned author of Anacharsis may have taken the hint of his plan from the "Athenian Letters," consisting of the imaginary correspondence of a set of Greek gentlemen, the contemporaries of Socrates, Pericles, and Plato; but in reality the actual correspondence of a society of ingenious persons of the university of Cambridge, who, in this assumed mode, communicated to each other the result of their researches into ancient history, and produced the best commentary on Thucydides that ever was written. However, the abbé Barthelemy having seen this in France, says the English translator, wrote a letter in consequence to M. Dutens, a respectable foreign gentleman residing in London, in which he assures him that "it was not till after the publication of his work, that he heard of the Athenian letters; and that chance alone gave him the idea of it." A collection of miscellaneous pieces of the abbé Barthelemy, in 2 vols. 8vo. was published at Paris in 1798. Gen. Biog.

BARTHELEMY, ST. in *Geography*, a town of France, in the department of the Lot and Garonne, and chief place of a caupon, in the district of Laufun, 2½ leagues north of Tonneins.

BARTHIUS, GASPAR, in *Biography*, a learned philological writer of the sixteenth century, was born at Cultrin, in Brandenburg, in 1587, and received his education at Gotha, and in several other academies both in Germany and Italy. His talents and attainments attracted notice at a very early period. At the age of 12 years he translated David's psalms into verse, and in 1607 he printed a collection of all his Latin poems, written from his 13th to his 19th year. In his 16th year he composed a learned dissertation on the method of reading the Roman authors, and at 18 he wrote a commentary on the Æneis of Virgil. His acquaintance with the modern languages was extensive, and he made translations from the French and the Spanish. Such was

his attachment to literary studies, that he renounced every other employment and retired to Leipzig for the purpose of prosecuting them without interruption; and so numerous were his works, both printed and manuscript, that, according to the account of Mr. Bayle, few clerks in office have transcribed more papers than Barthius. As to his morals they were not very correct, and like many other men of letters he engaged in several literary squabbles. Towards the close of his life, however, he devoted himself wholly to his religious duties: and it appears from his "Soliloques," published in 1654, that he was thus sedulously employed. He died, after having been twice married, in 1658, at the age of 71 years. The chief of his works are his "Adversaria," printed at Frankfort in 1624, fol. comprehended in 60 books, and containing numerous emendations and illustrations of authors, both sacred and profane, to which he added two other such volumes left in MS.; his "Latin version of Æneas Gaza on the immortality of the soul," with an edition of the original joined to the work of "Zachary of Mitylene," Leipf. 4to. 1655; "Notæ in Claudiano," 4to. Frankfort, 1650; "Comment. in Statio," 3 vols. 4to. 1664. As he trusted wholly to his memory, and never corrected what he had written, his works abound with mistakes and contradictions. Gen. Dict.

BARTHOLINE, CASPAR, son of a respectable clergyman at Melanoe in Scania, a province of Sweden, and born the 12th of February, 1585, gave early signs of an uncommon capacity, which his father took care to cultivate, by giving him the best instruction his circumstances would permit in his own country. Being well grounded in the learned languages, he went, prompted by his thirst for knowledge, to Rostock, Wittenburg, and in succession, to the principal schools in Germany, France, and Italy, travelling generally on foot, his finances not permitting him to use the ordinary conveyances. Having accumulated a vast stock of learning, in languages and philosophy, but particularly in anatomy and medicine, to which his genius peculiarly inclined him, in 1610 he commenced doctor of physic at Basil; and the following year, going to Copenhagen, he was first made professor of the Latin language, and in 1613 of medicine, in the university there. This post he continued to fill until the year 1624, till mindful of a vow he had made, when afflicted with a severe illness, that if he should recover he would dedicate a portion of his life to the study of divinity, he abjured medicine for theology, to which he addicted himself for the remainder of his life; enjoying, with the professorship of theology, to which he was preferred at the university of Copenhagen, a canonry at Roschild. He died July 30, 1629, at Sora, a small town in the island of Zealand, leaving, as we learn from an inscription on his monument at Copenhagen, where he was buried, six sons and one daughter. His publications were numerous; and though not always well chosen as to the subjects, and adopting in them many popular and erroneous opinions since exploded, yet they were of considerable utility by exciting a spirit of inquiry; to which we may attribute some at least of the discoveries in anatomy, and other branches of natural history, made about that time. A complete catalogue of his works is given by Vander Linden, and by Haller, in his Bib. Anatom. & Med. The following will be sufficient to be noticed here. "Anatomicæ institutiones, corporis humani utriusque sexus historiam et declarationem exhibentes," Wittenburg, 1611, 8vo. This work, much improved and enlarged by his son Thomas, has passed through numerous editions. "Enchiridion physicum, ex prisca et recentioribus philosophis accuratè concinnatum," Argent, 1625, 12mo. "Opuscula quatuor singularia. 1. De unicor-

nu, ejusque affnibus et succedaneis. 2. De Lapide Nephritico, et Amulatis. 3. De Pygmæis. 4. De studio medico inchoando, continuando, et absolvendo." Haffniæ, 1628, 12mo. "Syntagma Medicum & Chirurgicum, de cauteriis, præsertim potestate agentibus." Haffniæ, 1642, 12mo. Haller. Bib. Med. et Anatom. Eloy. Dict. Hist.

BARTHOLINE, THOMAS, the second son of Caspar, was born at Copenhagen in 1616. Equalling, perhaps excelling, his father in genius, learning, and industry, with more ample means for prosecuting his studies, and enjoying a much longer portion of life, his advances in literature and philosophy were proportionably greater. After being well grounded in classical learning at Copenhagen, following the example of his father, he travelled over the greatest part of Europe, conversing with the most learned men in every place he visited, to whom the fame acquired by his father gave him ready access. At Leyden, where he commenced his medical studies, he also acquired a knowledge of Arabic under the celebrated Golius. He then went to Paris and Montpellier, and after residing a proper time at those places, to Padua, which he describes in his book "De Peregrinatione Medica" as one of the best anatomical schools in Europe. At Padua he continued three years, imbibing there those stores of knowledge which laid the foundation of his future honours. Returning to Copenhagen, after an absence of eight years, he visited Basil, where he was created doctor in medicine, in 1645. At Copenhagen, he was first made professor of mathematics, and the year following, of anatomy, in which he soon became a shining ornament. But though the science of medicine had engrossed the greatest part of his attention, no small portion of his time had been spent in acquiring knowledge in other branches of philosophy, as well as in philology and antiquities, as appears by his numerous dissertations elucidating those subjects. He very early embraced the doctrine of the circulation of the blood discovered by Harvey, an exposition of which he added to a new edition of the "Institutiones Anatomicæ," published 1651. To the discoveries of Asellius and Pecquet, of the lacteals and thoracic duct, he added that of the lymphatics, of which he published an account in 1653, under the title of "Vasa lymphatica, nuper Haffniæ in animalibus inventa et in homine," Haffniæ apud G. Holst. 4to. These vessels had been seen about the same time by Jolliff and Rudbeck; and Haller, who examined with attention the claims of the several parties, gives to Rudbeck the honour of the invention, but to Bartholine that of having traced and described them with the greatest accuracy. Having filled the chair of professor of anatomy with the highest reputation for fourteen years, he retired in 1661 to his estate at Hogestatt, that he might have more leisure to prosecute his studies. One of his earliest publications from this retreat seems to have been his "Catalogus Operum suorum hæcenus editorum, extat cum observationibus variis de nivis usu medico," Haff. 1661, 8vo. This catalogue, though then very large, was afterwards more than doubled. A complete catalogue of his works was published by Thomas B. one of his sons, in 1681. In 1670, his house, with his large and valuable library, and manuscripts containing embryos of intended works, and large collections for further improving and enlarging those already published, were burnt, and he was again driven into the world. As some compensation for his loss he was made physician and aulic counsellor to the king (though it does not appear he was ever much engaged in the practice of medicine), and the university of Copenhagen appointed him chief inspector of their library. Of this accident he gave an account the same year in a small work,

work, intitled "De Bibliothecæ Incendio, Dissertatio ad Filios," complaining heavily of the malignancy of Vulcan. Among the numerous manuscripts destroyed by the fire, he laments in a particular manner those intended to elucidate his "Antiquitates puerperii variarum gentium, imprimis Romanorum." "Opus (he says in his letter to his sons) varia eruditione, nisi me fecellit opinio, refertum, cujus prima lineamenta duxi annis abhinc triginta et amplius, fusu Cl. Wallæi, qui id argumentum desiderari monuit. Mæur-fius quidem, Græcæ literaturæ interpres celebris, de Græcorum puerperio folia tria olim publici juris fecit, sed nimia brevitate lectorem curiosum satiare non potest. Ad plura digressus ego, quicquid autorum veterum lectio assidua, quicquid philologorum aliorum observationes, quicquid variarum gentium instituta, mores, ritus, antiquitates suppeditarunt, quicquid ad hoc argumentum illustrandum Ebræi doctores, Græci sapientes, Romani scriptores conferre potuerunt, cum delectu selegi, et suo ordine reddidi, grata et diffusa varietate nascendi tempora percurrens, quid nempe ante nativitatem, quid in puerperio, quid postea actum fuerit. Ornarunt librum justæ magnitudinis, variae veterum inscriptiones, et figuræ passim Romæ, Neapoli, Gaëtæ, Florentiæ, in Sicilia magno studio a me collectæ ex rudibus, et doctorum virorum monumentis. si industias exigui temporis, fata concessissent, fidem publico exsolvere potuissim. Jam in ipso puerperio fœtus, in partu laborans, exinctus, Lucinam inimicam nunquam sollicitabit, nec profam nec postvertam. Abiit enim illic, unde negant redire quenquam." His son Caspar, who had turned his attention to the same subject, and probably copied many of the notes made by his father, in some small degree repaired the accident by adding them with some observations of his own to a new edition of his father's works, which he published in 1676. On which occasion the father writes (see epistle affixed to the work), "eripuit mihi Vulcanus argumentum bene de publico mendi, ut tibi occasionem præberet caligine profundæ vetustatis obductam materiam propulandi. Ex meo infortunio, tibi gloria relicta videtur. Quemadmodum Saturnus in cælo Paganorum cedere coactus est filio Jovi, &c." The respect, however, that was every where paid him, and the letters of condolence he received from his numerous and learned correspondents, seem to have soon consoled him; as there scarce appears to have been any intermission in his labours, every year almost to the end of his life producing some new publication. The titles of a few of his dissertations, in addition to those already named, are here given; for the rest, the reader is referred to Vander Linden de Scriptis Medicis, but particularly to Haller's Biblioth. Anatom. the Bib. Med. Pract. et Chirurg. in which ample lists of the titles of the works, of the different editions they passed through, and analyses of the contents of the most valuable of them, will be found. "Anatomica Aneurismatis diffecti historia," Panormi, 1644, 8vo. "De Angina Puerorum Campaniæ, Siciliæque epidemica," Neapoli 1646, 8vo. "De Luce Hominum et Brutorum," Leidæ, 1647, attempting to account for the emission of light by putrid flesh. In a later edition he adds, "et de raris et admirandis herbis, quæ noctu lucent." "D. mus Anatomica Hassniensis," containing a catalogue of the anatomical preparations, machines, &c. contained in his cabinet, 1662, 8vo. "Centuria quatuor epistolarum medicarum," containing his correspondence with the most celebrated men of the age in which he lived. This valuable collection has been completed, and republished at the Hague in 1740, in five volumes, 8vo. "De insolitis partibus humani visus," Hassniæ, 1664, 8vo. "A collection of histories of fœtuses voided by the navel, anus, et per os etiam, si diis placeat." Historiæ Anatomicæ, Cent. vi." Two centuries, forming two small volumes, were published

at a time. Though some of the observations, taken on the credit of other relators, are apocryphal, and should not have been admitted, the number of authentic and curious articles contained in these volumes have stamped a value on them which time is not likely to obliterate. The last work we shall mention is the "Acta Medica et Philosophica Hassniensis," of which four volumes in 4to. were published by him, the fifth and last volume by his son. He began making this collection, which contains many of his own productions but a much larger proportion from correspondents, soon after his return to Copenhagen, driven there by the destruction of his library. As in all similar collections, amidst some very valuable articles many insignificant and useless pieces will be here found. He died in 1680, leaving five sons and three daughters. Two of the sons, Caspar and Thomas, treading in the steps of their father, "æt haud passibus æquis," contributed to the collection last named, and left other anatomical and medical works. Of the others we have no account. Haller. Bib. Anat. et Bib. Med. Pract. Eloy. Dict. Hist.

BARTHOLINE, ERASMUS, a younger brother of Thomas, born at Roschild, August 13, 1625. Following the steps of his father and brother, he travelled through England, France, Germany, and the Low Countries; and having acquired much valuable knowledge in natural philosophy and in medicine, went to Leyden to perfect himself in those studies, where he continued three years. In 1654 he went to Padua, where he received the degree of doctor in medicine. On his return to Copenhagen, he was appointed professor in mathematics, and was rewarded with a seat in the grand council of Denmark. These honourable offices he continued to fill with great credit to the time of his death, Nov. 5 1698. In the Acta Hass. vol. v. he gives an account of a quartan fever, epidemic at Copenhagen in the year 1679, which he cured in himself, as well as in many others, by giving a single drachm of the Peruvian bark on the accession of the fever. In 1661, he published "De Figura Nivis Dissertatio," with the observations of his brother Thomas on the use of snow in medicine; in 1664, "De Cometis," 4to. Hassniæ; in 1674, "De Natura Mirabilibus," also 4to.; and in 1679, "De Aere Hassniensis," Frank. 8vo. Albert, another of the sons of Caspar Bartholine, left behind him a work "De Scriptis Danorum," which was published by Thomas, at Copenhagen, 1666, 4to.

BARTHOLINE, CASPAR, eldest son of Thomas, was born at Copenhagen in 1650; and treading in the steps of his father and grandfather, acquired almost equal reputation with them. Though accused of plagiarism, and of assuming to himself the honour of discoveries made by others, yet the merit of possessing genius and industry cannot be denied him. Indeed Haller, who had spoken lightly of him at first, on the authority of Swammerdam and Drelincourt, treats him some years after (Bib. Med. Pract. v. 3. p. 34.) with more respect, calling him, "Vir acuti ingenii, qui demum ad magnos honores, et locum honoratum in regio ministerio emeruit." The early part of his life was passed in travelling over foreign countries for the acquisition of knowledge; and he had the happiness of associating with Ruysch, Swammerdam, Duverney, and other celebrated anatomists, all eagerly engaged in the same pursuit. Being at Rome on his travels, at the age of 22 he published, in Latin, a learned and accurate treatise on the flutes, or rather on the wind-instruments in general, of the ancients, under the title, "De Tibiis veterum, et earum antiquo usu, libri tres." This work first appeared at Rome in 1677, dedicated to cardinal Sigismond-Chigi. The second and best edition was published at Amsterdam, 1679, 12mo. with double the number of copper-plates with which the Roman edition had been ornamented,

representing ancient musical instruments from drawings chiefly made from ancient sculpture, which are well executed; and illustrated with quotations from the classics where their use is mentioned. No book of the kind seems to have been written since of equal authority; as recourse has chiefly been had to this little tract, by Bianchini, Bonanni, and others who have written expressly on the subject of ancient musical instruments. In 1678, he was received doctor in medicine at Paris. Returning thence to Copenhagen, he was made professor in medicine at the university there, and was in such high estimation as to be raised by the king, in the latter part of his life, to considerable offices in the state. Besides republishing several of the works of his father, and contributing largely to the *Acta Hassniensia*, his own distinct treatises are sufficiently numerous and valuable to entitle him to rank with the celebrated authors of that age. The titles of a few of them follow; the remainder will be found in the *Bib. Anat. and Med. Pract. of Haller*. "Exercitationes miscellanæ varii generis, imprimis Anatomix," Leid. 1675, 8vo. In the seventh, he gives an account of a styptic efficacious in stopping hæmorrhages, taken inwardly. An experiment was tried with it successfully before the king. "De Diaphragmatis structura nova," Paris, 1676, 8vo. Drelincourt claims the honour of this discovery, and as Caspar B. was only twenty-two years of age when he published this account, Haller seems to decide in favour of the claim of Drelincourt. "De Formatione et Nutritione Fœtus in Utero," Hassniæ, 1687, 4to. "Specimen Historiæ Anatomix Partium Corporis Humani," Hassniæ, 1701, 4to. He died early in the last century, but in what year is not known. His brother Thomas was appointed to the professorship of law and history. One work of merit is attributed to him, "De Causis Mortis a Danis gentilibus contemptæ;" and a dissertation published in the fifth volume of the *Acta Hassniensia*, "De Vermibus Aceti, et de Vermiculis feminalibus." The rest of the family of Thomas, are said to have distinguished themselves so as to be appointed to honourable situations; but these perhaps were rather the homage paid to the virtues and talents of their ancestors than to their own merit, as none of their works have been noticed by bibliographers. Vander. Linden. Haller. *Bib. Anat. et Med. Pract.*

BARTHOLOMÆUS DE GLANVILLE, an English writer who flourished about the middle of the 14th century, wrote "De proprietatibus rerum," which was first printed in fol. by Caxton, 1480. It was translated into English by Trevisa, and printed by Wynkin de Worde in 1507, and again by Bertholet fol. 1535. The original has passed through many editions. In the seventh chapter, he treats of all diseases a capite ad calcem; taken, Friend says, principally from Constantine. Haller. *Bib. Med. Pract.*

BARTHOLOME, St. in *Geography*, a town of Germany, in the circle of Bavaria and provostship of Berscheftsgaden, near the Königsee, 13 miles south of Reichenhall.

BARTHOLOMEO DE XONGOPANI, St. a town in North America, in the province of New Mexico.

BARTHOLOMEO, St. a town of North America, in Mexico, and province of Chiapa, chiefly peopled with Indians.—Also, a town of Italy, in the kingdom of Naples, and province of Otranto, 19 miles E.S.E. of Matera.—Also, a town of Italy, in the kingdom of Naples, and province of Capitanata, 6 miles south of Volturara.

BARTHOLOMEW, St. in *Biography*, one of the 12 apostles, whose native country was Galilee, is supposed by some writers to have been the same with Nathaniel, one of our Lord's first disciples. It has been generally thought, that he preached the gospel in India; and that he carried thither the gospel of St. Matthew in Hebrew,

where Pantænus found it towards the close of the second century on occasion of his peregrination into that country for the same benevolent and laudable purpose. St. Jerome adds, that Pantænus brought this gospel home with him to Alexandria: but this fact is disputed; and St. Jerome is supposed to have mistaken the words of Eusebius, who only says that the Christians of India had preserved that Hebrew gospel till the time of Pantænus. (See Euseb. H. E. lib. v. c. 10. Hieron. de Vir. Illust. c. 36.) It has been also said, that Bartholomew preached in Arabia Felix and Persia; and that, returning by way of the more northern and western parts of Asia, he preached at Hierapolis and in Lycaonia; and that he died at Albana, probably Albana in Albania, on the Caspian sea and confines of Armenia. At this latter place it is said, that he was slayed alive by Aftayges, brother to Polemon, king of Armenia, from hatred to the Christian religion, which the apostle had induced Polemon to embrace. But the time, place, and manner of his death have not been satisfactorily ascertained. Dionysius the Areopagite cites the writings of Bartholomew; and Jerome (ubi supra, and Pref. in Comment. in Matth.) mentions a "gospel of St. Bartholomew," which pope Gelasius, in his decree, refers to the class of apocryphal books. Of this book there are not any fragments extant; unless, as Mr. Jones (Method of settling the Canon, &c. vol. i. p. 211.) inclines to think, it was the same with the gospel of St. Matthew, which was used by the Hebrews or Nazarenes. This learned writer infers from the relations of Eusebius and Jerome, that this gospel was that which had been found in India; but that it had undergone many interpolations and additions: for, says he, it cannot be thought improbable that those who heard St. Bartholomew preach and explain this gospel to them should after his departure rather call it by his name, whom they knew, than the name of Matthew, whom they did not know. Besides Nicephorus assures us (Hist. Eccl. l. iv. c. 32.), that Bartholomew dictated the gospel of St. Matthew to them from his memory, and did not bring it along with him.

BARTHOLOMEW, of the Martyrs, a Dominican monk, and archbishop of Braga, was born at Lisbon in 1514, and entered into the Dominican order at the age of 14; on which occasion he renounced his family name of Fernandez, and assumed that of the church in which he had been baptized. Having taught theology for 20 years, he at length, with great reluctance, accepted the charge of the archbishopric of Braga, to which he was appointed by queen Catharine. Soon after his appointment, he was deputed, in 1561, to attend the council of Trent, in which he strongly insisted on commencing all reforms with that of the clergy. On his return from the council, he devoted his whole time and revenue to exercises of benevolence. Accordingly, he used to say, "I am first physician to 1400 hospitals, which are the parishes of my diocese." During the famine which afflicted Portugal in 1567, and lasted seven years, the poor of Braga were liberally supplied by the archbishop; and he even extended his donations to those of superior condition who felt the severity of the times. The famine was succeeded by a plague; and on this occasion the archbishop, who remained at Braga and obliged the parish priests to do so likewise, contributed in no small degree to the relief and comfort of the distressed. Having, after repeated solicitations for the purpose, obtained leave to resign his archbishopric, he retired to a monastery of his order at Viana, where he spent the eight last years of his life in study and religious exercises; and here he died in 1590. In 1733 he was beatified by Clement XIV. The writings which he left were collected and published at Rome in 2 vols. folio. 1744. Noav. Dict. Hist.

BARTHOLOMEW'S Day, St. in the *Calendar*, a festival of the Christian church, celebrated on the 24th of August. On this day, in the year 1662, the act of uniformity which obtained the royal assent on the 19th of May, took place; in consequence of which about 2000 ministers relinquished their preferments in the church, or refused to accept of any upon the terms of this act. See **UNIFORMITY**.

It was also on the eve of St. Bartholomew in the year 1572, that orders were issued for extending the horrid massacre which had been begun at Paris, in consequence of which the matins of Paris, as this massacre was styled in allusion to the Sicilian vespers, were repeated in Meaux, Orleans, Troyes, Angiers, Toulouse, Rouen, and Lyons: so that in the space of two months, 30,000 Protestants were butchered in cold blood; if that expression may be used, in speaking of people influenced by the most detestable passions.

BARTHOLOMEW'S Hospital. See **HOSPITAL**.

BARTHOLOMEW, St. in *Geography*, one of the Caribbee islands in the West Indies, about 25 miles north of St. Christopher's, and in circumference about 24 miles. It was peopled in 1648 by Poincy, the French governor of St. Christopher's; and enjoyed by the French without molestation till the year 1689, when a descent was made upon it by sir Timothy Thornhill, who ravaged the country, and carried off about 700 of its inhabitants, with their cattle and effects. The English government, however, disapproved of this conduct, and allowed the inhabitants to repossess their island, as subjects of Great Britain. At the peace of Rylwick, it was restored to France; but as long as it continued in their possession, it was a nest of privateers, and it has had fifty English prizes in its harbour at the same time. It was ceded by France, in 1785, to the Swedes. The shores of this island are dangerous, and cannot be approached without a good pilot. The only port in the island is "Le Carenage;" near which stands "Gustavia," the sole town in the colony. This port is situated on the western side, and has excellent moorings; but it cannot admit vessels that draw more than nine feet of water. However, it will contain 100 such vessels; in which respect it is superior both to St. Eustatia and St. Christopher. The bay of "Columbier" is deep enough for large ships, but it has no town on its banks; nor had "Le Carenage" any town belonging to it before the island became the possession of Sweden. Its soil is but indifferent, and only a small part of it admits of cultivation; and yet it produces tobacco, cotton, and cassava, and abounds with woods of various sorts. The plantations that most abound are those of cotton, which succeed very well. The practice of the planters is to sow four or five grains of the seed in a hole, and when the plants appear they pluck up all but the strongest. After the first crop, they cut down the branches, and the plant pushes out new shoots, which bear like the original stem; but after the second crop, the seeds must be again sown. The fences of these plantations are aloes trees, which are placed in a straight line, and as close together as possible: and when they arrive at maturity, they are impenetrable either by men or animals. St. Bartholomew also furnishes the neighbouring islands with a peculiar kind of limestone; and its birds are very numerous. The climate is in general healthy; though at certain times of the year the weather is variable. For nine months in the year it is pleasant; for, though the heat is scorching, the air is cooled and purified by a breeze, which is very refreshing. Hurricanes prevail from the middle of July till the middle of October. The population of this island is much increased since it has belonged to Sweden. At Gustavia are Swedes, English, French, Danes, Americans, and Jews: but the planters are chiefly French. The natives generally live, without being subject to

much illness, to an old age. The men are robust, but the women are slight, feeble, and indolent; and are usually attended by slaves, who are employed in keeping off the insects that would incommode them. The houses are made of wood; and some of them are raised upon stone pillars, so that the wind can pass under them. Their windows are mere openings in the sides, with window-shutters or lattices. The inhabitants are supplied with fresh provisions, flour, dried fish, and salted meat from the continent of America. Although this island abounds with mountains, it is destitute not only of lakes and rivers, but even of springs. The fresh water is supplied merely by the rain, and is kept in cisterns; and it is sometimes procured from St. Christopher's, and often at the charge of twelve livres per ton. The chief products for exportation are drugs, cotton, lignum vitæ, and iron-wood. The coins used in this island are the moidore and the piastre; and they have also a fictitious money called the pifovett, worth something more than $\frac{2}{3}$ of a piastre, and a small silver coin called a dogge, and another coin called a bett, of the value of 6 dogges. See "A Voyage to the Islands of St. Martin, St. Eustatia, and St. Christopher, undertaken at the expense of the Academy of Sciences at Stockholm." N. lat. $17^{\circ} 56'$. W. long. $63^{\circ} 11'$.

BARTHOLOMEW, St. an island in the Southern Pacific ocean, being one of the cluster of islands, called the New Hebrides. S. lat. $15^{\circ} 42'$ E. long. $167^{\circ} 17' 30''$.

BARTHOLOMEW'S Island, lies in the straits of Magellan, half a league E.N.E. from Elizabeth island. S. lat. $52^{\circ} 56'$. W. long. $71^{\circ} 4'$.

BARTHOLOMEW'S Island, or **WHERMOYSEN**, is situated on or near the coast of New Guinea. S. lat. $8^{\circ} 13'$. E. long. $138^{\circ} 35'$.

BARTHOLOMEW, St. a parish in Charleston district, in South Carolina, which, by the census of 1790, contained 12,606 inhabitants, of whom 10,338 were slaves. It sends three representatives and one senator to the state legislature.

BARTHOLOMEW, Cape, St. is the southernmost point of Staten land, in the straits of Le Maire, at the south end of South America. To the W.N.W. lies Middle cape, and between them is a bay. To the east of it is a small island.

BARTHOLOMEW is the name of a ledge of rocks, nearly west from the S.W. extremity of St. Mary's island, the largest of the Scilly islands: between which and St. Mary's island, is a channel called St. Mary's sound.

BARTHOLOMITES, in *Ecclesiastical History*, a religious order founded at Genoa in 1307; but on account of the irregular lives of the monks, the order was suppressed by pope Innocent X. in 1650, and their effects were confiscated. In the church of the monastery of this order at Genoa is preserved the image which, it is pretended, Christ sent to Abgarus.

BARTISCH, GEORGE, in *Biography*, surgeon and oculist at Dresden, born at Königsberg about the middle of the 16th century, is said to have invented a speculum to fix the eyelids while performing an operation on that organ; which was improved by Verduyn, and still further by Ruysch or Rau, for they contended for the honour attached to it. He wrote a treatise on the diseases of the eyes, in the German language, published at Dresden in fol. 1583. It has since been translated into Latin, and passed through several editions. There are many plates: these representing the different parts of the eye are taken from Vesalius. Infected with the superstition of the age in which he lived, he attributes some of the disorders of the eye to witchcraft. Hall. Bib. Chir. Elov. Dict. Hist.

BARTLEMEW BAY, in *Geography*, lies on the coast of Kent, without the North Foreland, between that and Ramsgate.

BARTLET,

BARTLET, a plantation of America, in Hillsborough county, New Hampshire, containing 248 inhabitants.

BARTMEISE, in *Ornithology*, the name of the bearded titmouse, *parus biarmicus* in Frisch. Hist. Birds.

BARTOLET, in *Biography*. See FLAMEEL.

BARTOLI, DANIEL, a learned Jesuit, born at Ferrara in 1608: author of many profound and useful works, written in Italian with a precision and purity of style which have inclined his countrymen to rank him among the first scientific writers in their language. The great historical work of Bartoli appeared in 6 vols. folio, printed at Rome in succession from 1650 to 1673. After the life of St. Ignatius, he begins with the establishments and labours of the Society in Asia, comprised in 3 vols. and divided into those of the East Indies, Japan, and China. In two other volumes he treats of England and Italy. This performance was translated from the Italian into Latin by father Giannini, and printed at Lyons. He published at Bologna, in 1680, a work in 4to. intitled, "*Del suono de tremori armonici e dell' udito*" (of harmonical vibrations of sound and of the ear). In this truly scientific and ingenious work are to be found several discoveries in harmonics, that were pursued by posterior writers on the subject. It contains four dissertations; the first treats of the similarity between the circular undulations occasioned in still water when a stone is thrown into it, and the propagation and motion of sound. The second, of the motion of sound compared with that of light: of echoes, or reflection of sound, and of its augmentation in a whispering room or gallery. Third, of harmonic vibrations, and ratios of sound; of sympathetic sounds; of the breaking a glass with the voice. Fourth, of the mixture of sounds; of consonance; harmonics; and the immense increase of sounds in a vessel, or inclosed place, by repercussion. With many other curious enquiries; and ends with the anatomy of the ear.

BARTOLI, *Pietro Sante*, called *Perugino*, an engraver of reputation, was born at Perugia about the year 1635, and resided chiefly at Rome, where he died in 1700. He is mentioned as a painter, but his character as an engraver is more established. He drew in a correct, agreeable style; and his plates, which are chiefly etched, are executed in a free, masterly manner. His distinguishing excellence consisted in copying the bas-relief, and other works of the ancients. His manner is original; and though his name is not always marked at full length upon his plates, they are easily distinguished by persons acquainted with his works, as the freedom and lightness of his pencil cannot easily be counterfeited. Among his detached prints are: "*St. Charles kneeling, accompanied by an Angel*," from Antonio Caracci; and the "*Adoration of the Shepherds*," from Annibale Caracci. Strutt.

BARTOLO, a lawyer of the 14th century, was born in 1313 at Sassoferrato, the ancient Sentinum, in the marche of Ancona, pursued the study of the law at Perugia and Bologna, and attained to such eminence, that he was distinguished by the pompous titles of "*Light and Star of Jurisconsults*," "*Master of Truth*," "*Lamp of Right*," "*Guide of the Blind*," &c. In 1339, he was elected professor of laws at Pisa; and after remaining 11 years in the exercise of this office, he removed to Perugia, where he opened a school of law, celebrated through Italy, and frequented by a great number of students. When Charles IV. visited Perugia, in 1355, Bartolo secured his favour to such a degree, that he obtained for Perugia all the privileges usually granted to universities, and for himself the titles of counsellor, and domestic commensal of the emperor, with permission to bear the family arms of the king of Bohemia. Bartolo is said to have acquired great wealth, and to have

died at Perugia in the year 1359; but the time of his death is not precisely ascertained. He was of a feeble constitution, and his temperance was such that he is said to have weighed his food. His learning and researches were extended beyond his own profession, and his regard for the scriptures induced him to make the Hebrew language the object of his particular attention. His works, comprehended in 10 vols. folio, were printed at Lyons in 1545. *Nouv. Dict. Hist.*

BARTOLOCCI, JULIUS, a Cistercian monk, was born at Cellano in Abruzzo, in the year 1613, and became famous for Hebrew and Rabbinical learning. Having been 36 years professor of Hebrew in the college of Neophytes at Rome, and also Hebrew writer in the Vatican, he died in 1687. His great work is intitled, "*Bibliotheca Magna Rabbinica de Scripturis et Scriptis Hebraicis*," 4 vols. folio. It was printed by the college "*Propaganda*," and the volumes appeared successively in 1675, 1678, 1683, and 1693. The fourth volume was completed by his scholar Imbonati, who, in 1694, added a fifth, intitled "*Bibliotheca Latino-Hebraica*." This work furnishes valuable materials for assisting the interpreters of the Hebrew scriptures. Bartolucci left also annotations on the book of Tobit. *Moreri*, **BARTOLOMEO**, BACCIO. See BACCIO.

BARTOLOMEO, BREENERG. See BREENERG.

BARTON, ELIZABETH, called commonly "*The Maid of Kent*," was an enthusiastic impostor, first known in 1525, as a servant at Adlington in Kent. Being subject to hysterical fits, which were attended with a variety of agitations and distortions, the superstitions of the age led the common people to believe that she was supernaturally inspired. Masters, the parson of the parish, thought that she was a fit person to be employed in order to support the declining cause of Rome, or to give celebrity to his own chapel, and accordingly resolved to exhibit her as a prophetess. With this view, he and some of his friends took her under their tuition; and taught her to act her part so well, that she not only deluded the common people, but imposed on the credulity of several persons of rank and learning; among whom were sir Thomas More, Fisher, bishop of Rochester, and Warham, archbishop of Canterbury. The monk and ecclesiastics, who were appointed by the latter to investigate this business, made a favourable report, and encouraged the imposture. The nun, for such was the character she had now assumed, was conducted in triumphal procession, and attended by a mob, to the chapel of the Virgin at "*Court of Street*," and when she appeared before the image of our lady, she fell prostrate in one of her trances, delivering rhymes, speeches, &c. all of which tended to the honour of that saint, and of the Popish religion. Having for some time performed in this way, very much to the honour and profit of her employers, she was further instructed to denounce menaces against the king on account of his divorce from queen Catharine, and his marriage of Ann Boleyn, and also his enmity to the church, and to declare his subjects absolved from their allegiance. Henry, who had for some time despised the imposture and its abettors, being at last justly incensed, issued an order that, in November 1533, the maid and her accomplices should be apprehended, and brought into the star-chamber; all of whom, upon their examination, confessed the imposture, and afterwards publicly confirmed their confession before the people at St. Paul's cross. Some attempts having been made to induce the nun to retract her confession, measures of severity were adopted, and an act of parliament was passed (25 Hen. VIII. c. 12.) which attainted them of high treason, for a conspiracy against the crown and life of the king. Accordingly Elizabeth Barton, and five of her accomplices, were beheaded at Tyburn.

burn in April 1534; the deluded nun, who was a simple and ignorant woman, having made a previous acknowledgement of her crime and the justice of her sentence. Biog. Brit.

BARTON-upon-Humber, in *Geography*, a large market-town in Yarborough hundred, Lincolnshire, England, 34 miles from Lincoln, and 167 north from London. It consists of several streets irregularly built, and has two large churches. By an ancient register this appears to have been a much more considerable and extensive place than at present; but the destructive plague which infested it in the reign of queen Elizabeth, may, in a great measure, have caused its declension. The most easy passage to Hull is from Barton-Ferry. The market is held on Monday; and it has a fair for horses, oxen, and sheep. At Horkstow, in this neighbourhood, was lately discovered a curious Roman tessellated pavement, which is particularly described by Mr. Lysons, in the first part of "Reliquiæ Romanæ." This town includes 412 houses, inhabited by 1709 persons. N. lat. $53^{\circ}40'$. W. long. $0^{\circ}22'$.

BARTON, a township of Orleans county, in the state of Vermont, America, formerly in that of Orange, lies S.W. of Brownington; 6 miles S.W. by W. from Willoughby lake, and 140 N. easterly from Bennington.

BARTON, in Devonshire, and the west of England, is used for the demesne lands of a manor. Also for the manor-house. And, in some places, for out-houses, fold-yards, &c.

BARTRACH, in *Geography*, an island in the bay of Killala, at the mouth of the river Moy, about 2 miles long, and half a mile broad; 2 miles N.E. of Killala.

BARTRAMIA, in *Botany*. See **TRIUMFETTA**.

BARTSA, in *Geography*, a town of Hungary, 14 miles N.E. of Szeben.

BARTSENU, a town of Asiatic Turkey, in the province of Natolia, 32 miles S. of Kutaia.

BARTSIA, in *Botany*, a genus of plants so named by Linnæus, in memory of his friend Dr. Bartsch. It is an intermediate genus between rhinanthus, euphrasia, melampyrum, and pedicularis; distinguished by its coloured calyx. Lin. gen. 739. Schreb. 996. Juss. 100. Clafs, *didynamia angiospermia*. Gen. Char. *Cal.* perianth one-leaved, tubular, permanent; mouth obtuse, two-lobed; lobes emarginate, coloured at the top. *Cor.* monopetalous, ringent; upper lip erect, slender, entire, longest; lower, reflex, trifid, obtuse, very small. *Stam.* filaments four, bristle-shaped, the length of the upper lip; two somewhat shorter. *Ant.*thers, oblong, approximating under the top of the upper lip. *Pist.* germ ovate. *Style*, filiform, longer than the stamens. *Stigma*, obtuse, nodding. *Per.* capsule ovate, compressed, acuminate, two-celled, two-valved; partition contrary to the valves. *Seeds*, numerous, angular, small.

Ess. Gen. Char. *Cal.* two-lobed, emarginate, coloured. *Cor.* coloured less than the calyx; upper lip longest. *Capf.* two-celled.

Species, 1. *B. coccinea*, red bartfia. Kalm It. 3. 100. Hort. Cliff. 325. 1. Amæn. 1. 160. Pedicularis, Pluk. Hornium, Morris. "Leaves alternate linear, two-toothed on each side." This is a very beautiful plant, with a stem entirely simple. Leaves divided, crowded towards the top into a spike, having a single flower on each leaf. Calyxes tinged towards the tip of a very deep red, as are also the trifid bractes. Capsule elastic. The fructification is not yet well ascertained. It has been found in Virginia, Maryland, and New York. — 2. *B. alpina*, alpine bartfia. Hudf. With. Smith Eng. Bot. t. 361. Flor. Dan. 43. Euphrasia rubra, &c. Ray Syn. 285. "Leaves opposite, heart-shaped, bluntly ferrate; anthers hairy." Smith. Root perennial, creeping; stems from four to eight inches high,

erect, simple, square, hairy; leaves opposite, sessile, ovate or cordate, ferrate, rugose, hairy on the under side, those near the top coloured: spike terminal, purple, leafy; calyx viscid, hairy, purple, its segments nearly equal, acute; corolla of a violet purple, thrice as long as the calyx, compressed, clothed with glandular viscid hairs; lower lip reflexed; anthers prominent, very hairy; style hirsute, projecting beyond the stamens; capsule ovate, downy, of two valves, with a transverse partition arising from each; seeds numerous, angular, small. This rare plant prefers a moist stony soil in alpine situations; it has been found in Westmorland, Durham, and in the highlands of Scotland. —

3. *B. viscosa*, yellow viscid bartfia. Hudf. With. Light. Smith. Dickf. D. p. 72. Euphrasia major lutea, &c. Ray Syn. 285. "Leaves serrate, uppermost alternate; flowers distant, lateral." Root annual, fibrous; stem about a foot high, commonly simple, unless very luxuriant; erect, smooth, downy, leafy; leaves sessile, ovate-lanceolate, serrate, nerved, scabrous, lower ones only opposite; flowers axillary, subsessile, solitary: calyx tubular, hairy, regular, white at the base; corolla twice the length of the calyx, yellow, divisions of the lip obtuse, nearly equal; anthers hairy; style hairy; capsule ovate, roundish, rough at the apex, the two valves furnished with transverse partitions; seeds numerous, very small, subangular. The whole of this plant is viscid or clammy. It has been found in Cornwall, Devonshire, Lancashire, and in Argyleshire, in marshy soils, flowering in July and August. — 4. *B. pallida*, pale-flowered bartfia. Amæn. 2. 356. Gmel. Sib. 3. 201. n. 11. t. 42. "Leaves alternate lanceolate, quite entire; floral leaves ovate, toothed." Root fibrous; stem round, simple, somewhat streaked; downy towards the top; leaves sessile, linear-lanceolate, three-nerved, longer than the internodes; the lower ones smaller, undivided; the upper longer, broader, with an oblong tooth on each side; floral leaves involving the calyxes, not longer than the flowers, but broader, coloured, more obtuse, trifid or quinquefid; spike terminating leafy, a little inclining to one side; flowers alternate, sessile; corolla purple. A native of Siberia and Hudson's bay, from whence it was introduced into the Kew garden in 1782.

— 5. *B. gymnantra*, lagotis glauca. Gærtn. in Nov. Com. Petrop. 14. p. 534. t. 18. f. 2. *G. borealis*, Pall. It. 3. 710. t. A. f. 1. Veronica, Gmel. Sib. 3. 219. n. 33. "Two-stamened; leaves radical, twofold, petioled; stem mostly two-leaved, one-spiked; spike linear, obtuse; whorls bracted, collected." Stem four inches high, smooth, round, simple; root-leaves succulent, oval, entire, or serrate, very smooth; in the middle of the stem they are alternate, ovate, sessile; spike of collected whorls; bractes ovate, bluish; calyx compressed, three-toothed; corolla pale blue, lower lip bifid or trifid; capsule four-toothed. This species, which is very variable in the size and form of the leaves, grows within the arctic circle, on the north side of the frozen rocks in Kamtschatka, where there is no other vegetation. — 6. *B. Odontites*, red bartfia. Hudf. 268. Smith. Brit. 648. Euphrasia odontites, Sp. Pl. With. Balt. Curt. Lond. f. 1. t. 44. "Leaves lanceolate, ferrate, the upper alternate; flowers in racemes, inclining to one side; anthers smooth; root fibrous, annual." Stems branched, square; leaves sessile, lanceolate, ferrate, scabrous, inferior ones opposite; racemes terminal, many flowered, leafy; flowers all on the same side; calyx purple, hairy, sometimes quinquefid; corolla rose-coloured; helmet entire, lips cut into obtuse equal parts; anthers smooth; capsule somewhat compressed, hairy; seeds numerous, small, striated. Common in meadows and pastures, flowering in July and August.

BARTUS, in *Geography*, a town of Hungary, 16 miles N.W. of Palotza.

BARUCH, in *Scripture Biography*, was the son of Neriah, of the tribe of Judah, and the faithful disciple and servant of the prophet Jeremiah, who employed him as his secretary or amanuensis. This prophet having received orders in the reign of Jehoiachin king of Judah, whilst he was in prison, to write all his prophecies till that time, dictated them to Baruch, by whom they were read to the people assembled in the temple on occasion of the feast of expiation, B. C. 605. Baruch terrified by the threats contained in the roll which he had read to the people, was encouraged by an assurance, that, notwithstanding all the calamities which would befall Judah and Jerusalem, he should obtain a deliverance. (Jer. xlv.) Archbishop Usher and Dr. Prideaux are of opinion, that this roll was read a second time to the people, in the fifth year of Jehoiachin, B. C. 604.; after which it was committed to the flames by the king himself; and the Jews keep an annual fast, even to this day, in commemoration of the burning of the roll; the day marked for it in their calendar is the 29th day of Cisleu, the ninth month of the Jewish year, and corresponding to our November. After the burning of this roll, another was immediately written, by God's special command, from the mouth of the prophet by the hand of Baruch; and to this were added many other words, and particularly that prophecy with respect to Jehoiachin and his house, which is denounced against them for this impious fact, in the 30th and 31st verses of the 36th chapter of Jeremiah. In the fourth year of Zedekiah (B. C. 594.), Baruch went to Babylon with his brother Seraiah, and carried thither a written account of the prophecies contained in the 50th and 51st chapters of Jeremiah, which denounce the judgments that were to be executed upon Chaldaea and Babylon, by the Medes and Persians. Baruch, having read these prophecies to Jehoiachin and the other captives, threw the roll that contained them into the Euphrates, as the prophet had commanded him. Baruch accompanied Jeremiah into Egypt, and after the death of the prophet, he retired to Babylon, where, according to the rabbins, he died in the 12th year of the captivity. The book of Baruch, contained in the Apocrypha, is an epistle sent, or feigned to be sent, by king Jehoiachin and the Jews in captivity with him at Babylon, to their brethren that were still left in Judah and Jerusalem; with an historical preface, in which it is related, that Baruch being then at Babylon, drew up this epistle in the name of the king and the people, by their appointment, and read it to them for their approbation; and that a collection having been made, the epistle with the money was sent to Jerusalem. No Hebrew copy of this book is extant; but there are three other copies, one in Greek and the other two in Syriac. The Jews have not received this book into their canon; nor is it found in the ancient catalogues of the scriptures, cited by the fathers and the councils. In the latter catalogues, it is annexed to the book of Jeremiah, and cited by some of the fathers as a part of Jeremiah. St. Jerome (Præf. in Jerem.) expressly rejects it out of the canon; nor does he translate it, because it was not in Hebrew, nor received by the Hebrews. On the other hand, St. Cyril of Jerusalem, and the Laodicean council held A. D. 364, mention Baruch among the canonical books of scripture. In both the catalogues which they have given, these words occur: "Jeremias cum Baruch Lamentationibus et Epistola." But it has been alleged, that by these words they meant to express no more than Jeremiah's prophecies and lamentation; that by the epistle, is meant merely the epistle in the 29th chapter of Jeremiah; and that the name of Baruch is added, only because he had collected these together, and annexed the last chapter, which is supposed to be

Baruch's, the prophecies of Jeremiah, ending with the 51st chapter, as it is positively said in the last words of it: and it must be acknowledged, says Dr. Prideaux, that as neither in St. Cyril, nor in the Laodicean council, any of the other apocryphal books are named, it is very unlikely that by the name of Baruch, in either of them should be meant the apocryphal book under this title, which has the least pretence of any of them to be canonical. Although the church of Rome has admitted it, and its authority has been sanctioned, after some hesitation and difficulty, by the canon of the council of Trent, it is configned by Protestants to the class of apocryphal books. Prid. Conn. pt. i. b. i. vol. i. p. 87, &c. Dupin's Eccl. Hist. vol. i. p. 28.

BARUCO, or **BARICA**, **CAPE**, in *Geography*, is the western point of Golfo Dulce, or Fresh-water bay, and distant from it about four leagues, on the S.W. side of the isthmus of Panama, in the Northern Pacific ocean, S.S.E. from Cano island, and S.E. from the gulf of Salinas. N. lat. 8° 20'.

BARUD, the name of several small places of Egypt, on the east and west side of the Nile, situate not far from Mansalout, Siout, and Dendera.

BARVER, a town of Germany, in the circle of Westphalia, and county of Diepholz, six miles E.N.E. of Diepholz.

BARVILISKI, a town of Lithuania, in the palatinate of Troki, 28 miles S.W. of Troki.

BARULES, in *Church History*, a sect which maintained that the Son of God had only a phantom of a body; that souls were created before the world, and that they lived all at one time.

BARUM, in *Geography*, a town of Germany, in the circle of Lower Saxony, and principality of Luneburg; 10 miles south of Luneburg.

BARUTH, in *Commerce*, an Indian measure containing 17 gantans; it ought to weigh about three pounds and a half avoirdupois.

BARUTH, in *Geography*. See **BAIROUT**, and **BERYTUS**.

BARUTH, a town of Germany, in the circle of Upper Saxony, 22 miles S.S.E. of Potsdam, and 34 N.E. of Wittenberg.

BARWICK, **PETER**, in *Biography*, of a respectable family of Witherlack in Westmorland, was at a proper age admitted of St. John's college in Cambridge, where, in 1642, he took his degree of Bachelor in Arts. Quitting that seminary during the troubles which at that time disturbed the country, he was entertained at the house of Mr. Sacheverel of Leicestershire, as tutor to his son. In 1655, he took his degree of Doctor in Medicine, and soon after was made physician in ordinary to king Charles II.; which occasioned him to come to London, where he soon acquired considerable reputation for his skill in his profession. He is said to have excelled particularly in his treatment of the small-pox, and of putrid and malignant fevers; perhaps following the method recommended by Sydenham in those complaints: but he has left no publications on these subjects. He wrote very ably in defence of Harvey's doctrine of the circulation, at that time much agitated; and M. Carrera attributes to him a treatise, published in London, 1671, 4to. "De iis quæ Medicorum Animum exagitant." But the work by which he is principally known, is the life of his brother John Barwick, late dean of St. Paul's, written in elegant Latin. It was published in 1721, in large 8vo, by Hilkiah Bedford, and an elegant portrait of the doctor, engraved by Vertue, affixed to it. His defence of the "Eikon Basilike," against Dr. Walker, which was written in the 74th year of his age, "does not only shew,"

Granger

Granger says, "the warmth of his loyalty, but discovers not a little of the peevishness of old age." He died August 1705, in the 85th year of his age, highly honoured and respected by all who knew him. Granger's Biog. Hist. of England. Eloy. Dict. Hist.

BARWICK, JOHN, an eminent English divine of the 17th century, and dean of St. Paul's, was born at Wetherlack, a little village of Westmoreland, in 1612; and being designed for the church, he was sent to school at Sedberg in Yorkshire, where he manifested early indications of genius and piety. In 1631, he was admitted into St. John's college in the university of Cambridge, where he became so distinguished, that he was chosen, at the age of twenty, to manage a dispute relating to the election of a master, which was heard before the privy council; and by his conduct in this business, he acquired celebrity in the university, and was also taken notice of at court, and by the ministry. Having taken several degrees at the university, he bore an active part in the civil war, and made one of a party of horse which conveyed the college plate and a small supply of money to Nottingham, where the king had set up his standard. He also published a tract against the covenant, which was so offensive to persons in power, that he was obliged to retire to London, where he rendered all the service in his power to the royal cause. As he possessed talents that justified confidence, he was employed on various occasions of importance by the king and his friends; and he seems to have been successful in his endeavours to reclaim some persons who had been induced to abandon the cause to which he was devoted. During his majesty's confinement in Carisbrook castle, Mr Barwick contrived to preserve for him a free intercourse with his friends; and he also concerted a plan for his escape, which however did not succeed. After the king's death, and when the royal cause seemed to be desperate, Mr. Barwick, though in a very weak state, exerted himself in maintaining a daily correspondence with the ministers of king Charles II. This office he was at length obliged to devolve, first on his brother Dr. Peter Barwick, and then on another of his brothers, whom he endeavoured to rescue, at the hazard of his own life, from the danger to which he was exposed in consequence of a treacherous discovery. When Mr. Barwick was threatened with torture if he did not immediately disclose the names of the persons who were concerned with him, he kept the secret with invincible firmness; upon which he was committed to the Tower by an order of council, dated April 9th, 1650. Here he was confined in a close dungeon, and debarred the use of pen, ink, and paper, and of all books except the bible. In this situation he remained many months, during which his diet was herbs or fruit, and water-gruel made of oatmeal or barley, with currants boiled in it, and sweetened with a little sugar; and yet such was the benefit which he derived from this slender diet, that though he was afflicted with a pthysis, atrophy, and dyscrasy, when he was committed, he recovered beyond all expectation, and grew plump and fat. This fact has been mentioned by many physicians, as a proof of the advantage of temperance, even in the most inveterate diseases. After two years' confinement, he was discharged in 1652, upon giving security to appear at any time within a twelvemonth before the council of state. At the expiration of the year, being satisfied by president Bradshaw, who had been dismissed by Cromwell, that neither he nor his friends would be exposed to any danger from the recognition into which they had entered, he again engaged with ardour in public business, and conferred with several persons whom he had drawn over to the king's service, on various schemes for restoring monarchy. He was also employed in conducting the king's correspondence, which he did with

secrecy and success; and when a restoration was likely to take place, he was sent over by the bishops to represent to the king the state of ecclesiastical affairs. On this occasion, he was received with expressions of cordial esteem by his majesty, and appointed one of his chaplains. Upon his return he visited the university of Cambridge, and took the degree of Doctor in Divinity. Upon the king's restoration he was offered a bishopric, which he declined accepting, that the world might not imagine that his extraordinary zeal for episcopacy was owing to any secret hope he might indulge of being made a bishop. Upon this he was promoted to the deanery of Durham, with which he kept the rectory of Houghton-le-Spring, four miles distant from the city. The revenue which he thus acquired, he liberally employed in repairing public buildings, relieving the poor, and maintaining hospitality. In 1661, he took possession of the deanery of St. Paul's; and by his interest with his majesty he obtained two royal grants; one for the repair of the cathedral, to which he himself contributed; and the other for securing its privileges. The king also appointed him one of the nine assistants to the twelve bishops employed in the Savoy conference; and he was unanimously chosen by the clergy in convocation, their prolocutor. His various engagements brought on his old complaint, which was aggravated by renewed application after a temporary recess, and which terminated in his death, Oct. 22, 1664. By his will he bequeathed the greatest part of his estate to charitable uses. As his time was so much devoted to political and public matters, we may well imagine that his writings were not numerous: they consisted only of three sermons; the piece against the covenant already mentioned; and the life of the bishop of Durham, annexed to his funeral sermon. Many of his letters to chancellor Hyde may be found in Thurlow's Collection of State Papers. Biog. Brit.

BARYGAZA, in *Ancient Geography*. See BAROACH.

BARYGAZENUM PROMONTORIUM, a promontory of India, placed by M. D'Anville at the south entrance of the "Barygazeus Sinus," or the present gulf of Cambaya.

BARYPYCNI, in *Greek Music*. The ancients gave this epithet to five of the eight stable or fixed sounds of their diatonic scale; namely, the hypate hypaton, the hypate-meson, the mese, the paramese, and the nete diezeugmenon. These four terms, barypycne, mesopycne, oxypycne, and apycne imply the lower spits or dense sounds; that is to say, the spits or close intervals, the mean of the spits, the acute of the spits, and the widest of the spits, meaning in the Greek music the hypate, the parhypate, the licanos, and the nete of the tetrachords of the spits kind. By spits or close, the intervals of the semitones in the chromatic and quarter tones in the enharmonic, are implied. See GREEK SYSTEM.

BARITES, or ponderous earth; terra ponderosa, *Schwererde* Germ. *baryte*, Fr.

The English and French names of this earth are derived from the Greek βαρυς, heavy, on account of the high specific gravity of the PONDEROUS SPAR or native sulphat of barytes, which is the commonest form in which this earth appears.

§ 1. Historical notices respecting barytes.

It is to Scheele that Chemistry is indebted for the discovery of this substance in 1774. In his valuable essay on manganese, he informs us that the nitric and muriatic solutions prepared from the native black oxyd of this metal contain besides, an earth differing from all those hitherto known by its strong affinity for sulphuric acid, &c. In 1775 Galin made his analysis of the ponderous spar, and found it to consist of the earth newly discovered by Scheele, and sulphuric acid. Bergman repeated and confirmed the experiments of these chemists, and named the earth terra ponderosa. Mor-

veau proposed the term barote derived from the Greek, which Mr. Kirwan softened into barytes. In this appellation Bergman acquiesced; and it is now adopted by all except the German chemists, who in conformity with their general custom prefer the term *schwererde*, which is a literal translation in their own language of *terra ponderosa*. Weigleb and Afzelius contributed to enlarge our acquaintance with this substance; and in 1793, Dr. Hope published his valuable experiments in the *Edinburgh Transactions*. In 1796, Klaproth augmented our knowledge by his masterly analysis of the native sulphates and carbonates of barytes; and in 1797 Pelletier and Vauquelin gave to the world their able memoirs, confirming the facts already admitted and adding to them many new ones.

§ 2. Method of obtaining pure barytes.

The only way of procuring this earth in a state of sufficient purity for chemical experiment, is to expose crystallized nitrate of barytes in a platina crucible to a moderate red heat till it becomes quite dry and has ceased to give out any vapours: the nitric acid will be wholly decomposed and volatilized, leaving the barytes behind in the form of a greyish white porous mass more or less adherent to the crucible. The nitrate of barytes is obtained either by dissolving the native carbonate of barytes in very dilute nitrous acid; or by heating the native sulphate of barytes in a close crucible with charcoal, and thus converting it into sulphuret of barytes and then treating this with nitric acid, which will dissolve the earth, and leave the sulphur behind. A much more economical way however of preparing this earth, is mentioned by Dartigues. (*Ann. de Chimie*, vol. 40.) Take sulphate of barytes, pulverise it together with charcoal, and expose it for half an hour to a full red heat: by this means the greater part will be converted into sulphuret of barytes. Pour boiling water on the mass, and a clear yellow liquor will be obtained by filtration: add to this, carbonate of soda; and a copious white precipitate of carbonated barytes, four times the weight of the soda employed, will be deposited. This being separated from the solution of sulphuret of soda and washed repeatedly, is to be mixed with charcoal and again heated for about half an hour; the carbonic acid will be for the most part converted into gaseous oxyd of carbon, and the barytes will remain in a caustic state. By a short digestion in boiling water and subsequent filtration, a clear supersaturated solution of barytes is obtained; from which, by evaporation and gently heating in a silver crucible, the pure barytes is readily obtained.

§ 3. Chemical and physical properties.

Barytes obtained by the methods mentioned in the preceding section, is a porous mass of a greyish white colour and easily reducible to powder: its sp. gr. in this state cannot be ascertained with much accuracy: Fourcroy states it at 4, Hassenfratz only at 2.374. It is the most active of the alkaline earths; and from its ready solubility, has been arranged by some modern chemists among the proper alkalies. It has a harsh caustic taste, and acts upon the animal economy as a violent poison. It is destitute of smell. It changes syrup of violets green, and the lemon yellow of turmeric to a brownish orange.

By a strong heat it becomes harder, denser, and acquires externally a blueish green tinge. When strongly urged by the blowpipe or a stream of oxygen gas upon a piece of charcoal, it fuses and is partly imbibed by the charcoal and partly volatilized, communicating a yellow colour to the flame.

Its affinity for water is very considerable. When exposed to the air, it gradually imbibes moisture, swells, and falls to

pieces; attracting at the same time the carbonic acid of the atmosphere and becoming mild: hence the necessity of keeping it in dry well-stopped vials. When sprinkled with a little water, it exhibits the same appearances as quicklime, but with greater energy; the mass becomes white, is remarkably increased in bulk, and a large quantity of heat is evolved. If stirred up while hot with an additional portion of water to the consistence of a thin paste, it assumes, as it cools, the state of a solid, made up of confused needle-form crystals; but this by exposure to the air becomes carbonated and falls into powder.

Water boiled upon pure barytes, is capable of taking up half its weight of this earth; the greater part of which it deposits by cooling, in slender delicate crystals implanted into each other, or, by carrying on the process very slowly, in the form of compressed hexahedral prisms terminated by a four-sided pyramid, and of a brilliant fatty lustre. These crystals appear to be composed of 53 parts of water and 47 of barytes. By a boiling heat, they completely liquefy; and at length the water being evaporated, a white powder remains behind, which is pure barytes. By mere exposure to the air they become efflorescent, and the earth is found to be carbonated. They are soluble in about $17\frac{1}{2}$ parts of water at the temperature of 60° . The fluid that remains after the deposition of the crystals of barytes retains $\frac{2}{10}$ of the earth in permanent solution, and is called barytic water; improperly, barytic lime water. This solution is perfectly limpid and colourless, has an acrid taste, and possesses properties very analogous to lime water. By exposure to the air, it becomes covered with a crust of carbonated barytes; and this being removed or falling to the bottom, a fresh crust begins to be formed till the whole of the earth is thus separated from the water.

Barytes, like the other alkaline earths, combines with all the known acids; and the barytic salts thus produced are for the most part readily crystallizable, and are distinguished by the strong mutual affinity of their elements: sulphuric acid in particular is dislodged by it from every other combination.

Among the simple inflammables, phosphorus and sulphur appear to be the only ones capable of uniting with barytes. If alternate portions of phosphorus and pure barytes are put into a strong glass tube closed at one end and exposed to a red heat, the phosphorus melts, sublimes, and combines with the barytes that is in contact with it into a brown fusible mass of a metallic lustre, the sulphuret of barytes. This substance when breathed upon exhales a strong fetid odour, is luminous in the dark, changes gradually by exposure to the air into phosphat of barytes, and immediately decomposes water giving out phosphorated hydrogen gas.

The affinity between sulphur and barytes is very considerable. Pure barytes digested in warm water with sulphur will take up more than a quarter of its weight of this substance; being then evaporated to dryness and heated red hot in a crucible, the result is a reddish yellow inodorous mass, sulphuret of barytes. Its properties have been very little examined into, on account of the great ease with which it is decomposed. Sulphuret of barytes has a remarkably powerful attraction for water, is very soluble in this fluid even when cold, but is still more so in hot water. In these cases, however, a decomposition of part of the water is effected; the hydrogen uniting with a portion of the sulphur, and the oxygen with another portion. The new combinations that take place in this process are very interesting, and having been ably investigated by Berthollet, we shall treat of them somewhat at length.

When sulphuret of barytes is thrown into hot water it immediately

immediately dissolves, the liquid becomes of a yellow colour and exhales a strong smell of sulphurated hydrogen; a white earthy sediment is deposited, and as the liquor cools, a considerable quantity of crystals either acicular, prismatic, or in plates, make their appearance: which being dried by pressure between filtering paper become perfectly white. Thus sulphuret of barytes by the action of water furnishes three distinct products. 1. The earthy sediment is regenerated sulphat of barytes; being produced by the oxygen of the water combining with part of the sulphur into sulphuric acid, and this as soon as formed saturating itself with barytes. 2. The crystals are hydrosulphuret of barytes, a salt remarkable for being the only one of the earthy or alkaline hydrosulphurets that is capable of being crystallized. It is very little alterable by exposure to the air, is easily soluble in water, and is decomposable by the mineral acids with extrication of sulphurated hydrogen gas. Besides being produced in the decomposition of sulphuret of barytes, it may be made in the direct way by passing sulphurated hydrogen gas through a Woulfe's apparatus containing barytes diffused in water. 3. Besides the sulphat and hydrosulphuret of barytes, there remains from the decomposition of the sulphuret of barytes, a yellow liquor, which, by the addition of muriatic acid, gives out a large quantity of sulphurated hydrogen, and yields at the same time a copious precipitate of sulphur: hence it appears to be sulphuret of barytes, intimately mixed or more probably combined with sulphurated hydrogen.

There are therefore three modes in which sulphur can combine with barytes: the first is simple dry sulphuret of barytes, incapable of uniting with water without decomposition; the second is hydrosulphuret of barytes, crystallizable, soluble in water, and decomposable by muriatic acid without depositing sulphur; the third is hydrosulphurated sulphuret of barytes, soluble in water, not crystallizable, and when decomposed by muriatic acid giving out both sulphur and sulphurated hydrogen.

Barytes, in consequence of its alkaline properties, acts on vegetable and animal matter with great energy; it forms insoluble soaps with oils, corrodes and dissolves muscular fibre, &c.

In the dry way, barytes dissolves silice in the same manner as potash does: three parts of barytes and one of silice being intimately mixed and fused together, produce a yellowish green mass entirely soluble in nitric, muriatic, or acetic acid; from which the silice may be separated in the usual way. In the moist way barytes being mixed with newly precipitated alumine forms a compound insoluble in water, but which is readily taken up by an excess of barytes.

Barytes dissolves certain metallic oxyds, especially those of lead; but these combinations have not been much attended to.

Barytes was for a long time supposed to be a very refractory metallic oxyd. Bergman, Lavoisier, and other eminent chemists adopted this opinion from its great specific gravity, from the greenish hue that it communicates by fusion with the other earths, and from its being precipitable from its solutions in acids by prussiat of potash. But, in answer to these surmises, it may be remarked, that metals in proportion as they become oxygenated approach to the state of acids; whereas barytes possesses alkaline properties in a very eminent degree: and that prussiat of potash when quite pure does not precipitate barytes; this appearance being always occasioned by the presence of sulphat of potash, with which the prussiat is generally contaminated.

Barytes is an active poison to animals; as are most of its salts. It is not made use of in the large way, but is of considerable importance in the laboratory as a test for sulphuric

acid and an effectual reagent to separate this substance from all its other combinations.

The order of the affinities to which barytes is subject, as far as they have been investigated, appears to be: in the moist way,—sulphuric acid, oxalic, succinic, fluoric, phosphoric, saccholaric, nitric, muriatic, citric, tartareous, arsenic, formic, lactic, benzoic, acetons, boracic, sulphureous, carbonic, and prussic acids, water, fat oil, sulphur, alumine, silice: in the dry way,—phosphoric acid, boracic, arsenic, sulphuric, fluoric, and muriatic acids, sulphur, oxyd of lead, silice, and alumine.

Gren Sytematisches handbuch. Annales de Chimie. Pelletier Ess. Chimiques. Fourcroy Syst. des connoiss. Chimiques. Thomson's Chemistry. Pearson on Chemical Nomenclature, &c.

BARYTONO, in *Musik*. See BARITONO.

BARYTONUM, from *βαρυς*, grave, and *ωνος*, accent, in the Greek *Grammar*, denotes a verb, which having no accent marked on the last syllable, a grave accent is to be understood.

BARZAURA, in *Ancient Geography*, a town of Asia, in the Paropamisus. Ptolemy.

BARZETO, a town of Italy, in the duchy of Parma, 17 miles S.S.W. of Parma.

BARZIZIIS, CHRISTOPHER DE, in *Biography*, professor of medicine at Padua in the beginning of the sixteenth century, published in 1517, "*De Febrium Cognitione et Cura Liber*," 4to. Lugduni; "*Introductorium, sive Janua ad omne Opus practicæ Medicinæ*," Augusta-Vindeli, fol. 1594, with other works of less note. Haller. Bib. Med. Pract.

BARZOD, in *Geography*, a town of Hungary, and capital of a county to which it gives name, seated on the Hernach, between Cassovia and Agria.

BAS, JAMES PHILIP LE, in *Biography*, a modern French artist, flourished about the year 1754, by whom we have some excellent prints. His great force seems to lie in landscapes and small figures, which he executed in a superior manner. His style of engraving is extremely neat; and yet he proves the freedom of the etching, and harmonises the whole with the graver and dry point. We have also a variety of pretty vignettes by this artist; among which are most of those that adorn the 8vo. edition of Rollin's *Ancient History* in English, published by the Knaptons in 1754. Of his most esteemed works, the following may be enumerated: viz. "*The Works of Mercy*," a set of several "*Dutch Merry-Makings, Fairs, &c.*" both from Tenier; "*The Italian Chase*," and the "*Milk-pot*," and also the "*Wild Boar*," from P. Wouvermans; several plates of "*Hunting, &c.*" from Van Falens; the "*Sea ports of France*," after Vernet; the "*Environs de Groningue*" and the "*Environs de Gueldres*," from Ruysdaal. Strutt.

BAS, JOHN LE, a surgeon and accoucheur of considerable eminence, born at Orleans, was admitted at the academy of surgeons of Paris, in 1756, where he resided. Called upon in 1764 to give an opinion as to the legitimacy of a child born ten months and seventeen days after the death of the supposed father, he decided in its favour; but the cause being referred to another court, the assistance and opinion of Bouvart, Ant. Lewis, Petit, and several other physicians and surgeons, were demanded, who unanimously declared against the decision of Le Bas. This gave rise to a furious literary dispute, in the course of which several pamphlets were written on each side. Le Bas defended the part he had taken, by the authority of Aristotle and Pliny, supported by Schenklius and other modern recorders of extraordinary events, as well as by the decisions of the courts of law in various parts of Europe, which had been sometimes

given in favour of births protracted to even more than twelve months, which Le Bas thinks might, and, he had no doubt, had happened. Bouvart and Louis, on the contrary, contending against the authority of these pretended cases of protracted gestation brought by their antagonist, which they do not admit to have been completely proved in any one instance, fix the time of parturition in women to nine calendar months from the time of conception; allowing it may be extended beyond that time ten or twenty days, and denying that in any one well-authenticated case, proof had been produced of a woman's being delivered of a living child later than that period. This opinion is now, we believe, universally established. The following are the titles of the books written by Le Bas on the subject: "Question important: Peut-on déterminer le tems de l'accouchement," Paris 1764, 8vo. "Nouvelles Observations sur les naissances tardives," 1765, 8vo.; written in answer to Louis, who had confuted his arguments, and denied the authenticity of the cases brought in support of them. "Lettre à M. Bouvart, au sujet de sa dernière consultation," 1765, 8vo. Bouvart had taken the same side with Louis. "Réplique à un ouvrage de M. Bouvart," 1767, 8vo. This is written with much acrimony; the last resource, when defending a bad cause. Haller. Bib. Chirurg.

Bas, in *Geography*, a small island in the English channel, near the coast of France, in the district of St. Pol. de Leon, near Penpoul, the harbour of St. Pol; one French mile in length, and $\frac{3}{4}$ of a mile in breadth; difficult and dangerous of access on account of the rocks overgrown with sea-weeds. The eastern part of the island is rather mountainous, but towards the west and north-west the coast is lower, and well cultivated. The whole population comprehends about 800 persons, who inhabit three villages, viz. Porfénéve, Carn, and Goualen. The island is defended by four batteries and two forts, with eleven pieces of cannon and 80 canoneers, besides a garrison of 50 men to guard the coasts. It has only one spring of water; the soil is sandy; the men are all sailors, and the women cultivate the ground. The richest proprietor here does not possess more than six or seven cows, of which there are only about 200 on the whole island. Not a single tree grows here. The sea abounds with fish. The inhabitants live together in fraternal concord, and consider themselves as members of one family. N. lat. $48^{\circ} 50'$. W. long. 4° .

Bas, *Point de*, is the southern cape of a bay which runs in eastward from Quiberon bay on the south of Vilacre river, on the west coast of France.

Bas en Bassel, a town of France, in the department of the Upper Loire, and chief place of a canton in the district of Yssengeaux; one league north-west of Monistrol. The place contains 5098 and the canton 11,173 inhabitants; the territory includes $207\frac{1}{2}$ kilometres and six communes.

BAS Relief. See Basso rilievo.

BASAAL, in *Botany*, the name of an Indian tree, growing about Cochín. Ray's Hist.

BASAG, in *Ancient Geography*, an island of the Indian ocean, near Arabia Felix, according to Pliny.

BASALT; artificial, or black porcelain, a composition having nearly the same properties with the natural basalt, invented by Messrs. Wedgwood and Bentley, and applied to various purposes in their manufactures.

BASALT, in *Mineralogy*. *Argilla basaltica*, Werner; *figure trap* of Kirwan.

The colour of this mineral is generally greyish black, more rarely blueish or brownish black; its surface is usually reddish brown, from a partial decomposition. It is found in large masses, composing entire insulated mountains of a

somewhat conical form. Of itself it is destitute of lustre, but not unfrequently contains shining particles of olivin or basaltic hornblende. Its fracture is uneven, passing into fine splintery, sometimes approaching to the even or flat conchoidal. It flies, when broken, into indeterminate rather sharp-edged fragments.

The most usual form of basalt is that of columns, straight or curved, perpendicular or inclined, from three inches to three feet in diameter. These pillars are divided either by simple sections at right angles to their axes, or by articulations formed by the convex end of one piece inserted into the concave extremity of the adjoining one. The forms of the columns are pentangular, hexangular, octangular, rarely triangular or quadrangular. Basalt also sometimes occurs in tables, or in globular or elliptical concentric masses, called by the French *basalte en boules*.

It gives a clear ash-grey streak, is almost hard enough to give fire with steel, and is very difficultly broken. It is generally opaque, though sometimes slightly translucent on the edges. It is remarkably sonorous when struck with the hammer. Sp. gr. according to Bergman, 3; Brissón, 2.864. It is sometimes magnetic.

Before the blowpipe, basalt fuses without addition into a black opaque glass, attractable by the magnet. When heated in a charcoal crucible, according to Klaproth, it fuses into an ash-grey mass, of a dull earthy fracture, and minutely spongy texture, overlaid with grains of iron: it loses in this process 9 per cent. of its weight. In a clay crucible, it fuses into a dense glass, opaque in mass, but transparent, and of a clove-brown colour, in thin splinters.

Its constituent parts, according to Bergman, are;

Silex	—	50
Alumine	—	15
Lime	—	8
Magnesia	—	2
Iron	—	25
		100

The geological characters of basalt, and the various controversies with regard to its origin, and that of the other *Rocks of Secondary Transformation*, will be treated of at large in their proper place. It will be sufficient to mention here, that basalt belongs to the stratified mountains, and that it very rarely contains any petrifications. When in mass, it never incloses any metallic veins; and when it occurs in the form of dykes, in coal strata or metalliferous rocks, it produces a total separation of the ore or coal on each side of the dyke.

It is seldom if ever quite pure, being generally mixed with basaltic hornblende, common hornblende, and olivin; more rarely with zeolite, felspar, quartz, schorl, and calcareous spar. Mica is sometimes found on its surface, though very seldom penetrating its substance. When mingled with these in considerable proportion, it is easily decomposable into a remarkably fertile clayey loam.

The north-east coast of Ireland presents the most perfect and magnificent ranges of basaltic columns in the world: the celebrated Giants' causeway is an assemblage of many thousand articulated pillars projecting into the sea, at the foot of a lofty basaltic promontory, exhibiting a polygonal pavement somewhat resembling a solid honeycomb. The promontory at Fairhead is a vast colouade of upright basaltic pillars, the shafts of which are 250 feet in length. Scotland also contains many beautiful specimens of columnar basalt: the little island of Staffa in particular almost entirely consists of basaltic pillars, both vertical and bending. The central district of Auvergne in France, and the northern parts

parts of Italy at the foot of the Alps, as well as Saxony and Hesse in Germany, are also remarkable for their basaltic columns.

Besides the use of basalt as a material for building and paving, it has of late been employed as an ingredient in the manufacture of glass bottles; it serves instead of more costly substances, and the glass, though black and opaque, has the advantage of being considerably stronger than the common green kind. When calcined and pulverized, basalt is an excellent substitute for puzzolana in the composition of mortar, to which it gives the property of hardening under water. Emmerling. Brochant. Kirwan. Ann. de Chimie.

BASAN, or BASHAN, in *Ancient Geography*, otherwise called *Batanæa*, lay north of the tribes of Gad and Reuben, and in the half tribe of Manasseh, and was bounded by Gilead and the Ammonites on the east, by the brook Jabbok on the south, by mount Hermon on the north, and by Jordan on the west. Og was king of Bashan, when the Israelites conquered it. After the Babylonish captivity, it was subdivided; so that only a part was called *Batanæa* or *Bafan*, another part *Trahonitis*, a third *Anrunitis* or *Ituræa*, and some part of it *Gaulonitis*. It was a country famous for its pastures, and its breed of large cattle.

BASANITE of Kirwan, in *Mineralogy*. See SILICEOUS SCHISTUS.

BASANITES, in *Natural History*, a name given by many authors to the touchstone, used for trying gold, &c. Pliny speaks of a basanites which yielded a bloody juice, and was good against diseases of the liver.

BASANITUS Lapis, in *Ancient Geography*, the name of a mountain in Egypt, according to Ptolemy.

BASANUS, in *Natural History*. See TOUCHSTONE.

BASARA, in *Ancient Geography*, a town of Palestine, in Galilee, 20 stadia from Gaba, in the vicinity of Ptolemais. Josephus.

BASARTSCHIK, in *Geography*, a considerable town of Romania, in Turkey of Europe. It is tolerably well built, has broad and clean streets and good trade, and is seated on the river Maritz. N. lat. 40° 49'. E. long. 24° 31'.

BASARUCO, in *Commerce*, a small base coin in the East Indies, being made only of very bad tin. Of this coin there are two sorts, good and bad; the value of the base sort is $\frac{1}{6}$ lower than that of the good. Three basarucos are equal to two rees of Portugal.

BASCANIA, in *Antiquity*, ridiculous or grotesque figures hung up by the ancient smiths before their furnaces, to divert envy.

BASCARA, in *Geography*, a town of Africa, in Biledulgerid. The soil in its vicinity is fertile in grain and fruits, particularly dates, which are excellent.

BASCHARAGE, a town of France, in the department of the Forêts, and chief place of a canton in the district of Luxembourg. The place contains 838 and the canton 9422 inhabitants; the territory includes 245 kilometres and 13 communes.

BASCINNO, a town of Italy, in the kingdom of Naples, and province of Abruzzo Ultra, 4 miles S.S.E. of Teramo.

BASCULUMBAI, a town of Asiatic Turkey, in the province of Natolia; 36 miles east of Pergamo.

BASE, in *Architecture*, denotes an assemblage of mouldings constituting the lower part of a column, of a pier, or of a pedestal.

In the Grecian remains of the Ionic order, the lower torus, astragal, or fillet of the base, rests immediately on the upper step of the building; but in those of the Corinthian order, a square plinth is added to the base. This practice is observed in all the Roman works, with the exception of the

temples of Vesta at Tivoli and at Rome; small circular buildings, in which a plinth radiating to the centre would have had an unsightly diminution. Modern architects have universally given plinths to their bases; and the following rules may be stated from their works: the height of their bases of columns to be half a diameter, those of pedestals, two ninths of the height of the respective column and pedestal; the plinths of the Tuscan and Doric orders, one half the height of the base; and one third in the Ionic and Corinthian. For the particular proportions of the mouldings, we refer to the plates.

The *Attic* or *Atticurgic Base* consists of two toruses and fillets, with an intermediate scotia. (See *Plate XVI. of Architecture*; and *Plate I. fig. 1.* from the temple of Jupiter Olympius at Athens; and *fig. 2.* from the temple of Minerva Polias, of the same place.) This base, probably the most ancient of any, is employed in all the Athenian remains of the Ionic and Corinthian orders; in Roman antiquities, it is frequently used in the Corinthian order, and constantly in the Ionic; and it has been adopted in every order by modern architects. It may be observed in this place, that, of the Grecian Ionic bases, the upper torus is frequently fluted. See *Plate I. fig. 2. Plate XXVIII.*

The *Tuscan Base*. The remains of antiquity do not furnish any complete specimen of the Tuscan order; and modern architects have accordingly varied in this order more than in any other; the base, however, has been determined by all to consist of a fillet and torus. See *Plate XIV. of Architecture.*

The *Doric Base*. It has been the practice of antiquity to execute the Doric order without a base. The massive strength of this dignified order required no additional stability from a base, the projecting mouldings of which would have embarrassed the comparative narrowness of the mono-triglyph intercolumniation. But modern architects having adopted a column modelled rather on Roman than Grecian proportions, have for the most part, with great propriety, added a base to their slender order. The Doric base invented by Vignola (see *Plate I. fig. 3.*) consists of a fillet, astragal, and torus; all other architects have used the Attic base.

The *Ionic Base*. The base peculiar to this order, as described by Vitruvius (see *Plate I. fig. 4.*), consists of a torus and fillet resting upon two scotias, divided by astragals and fillets. On this base there is an example in the remains of the temple of Minerva Polias at Priene. (See *Plate XXVIII.*) However, the practice of ancient and modern artists, with few exceptions, has given the Attic base to this order.

The *Corinthian Base* (see *Plate XXIX.*) differs from the Attic, in having two scotias with astragals between the toruses. This base is found in the Pantheon, and in the three columns of the Campo Vaccino. In the other Roman and in the Grecian antiquities of this order, the Attic base is employed.

The *Composite Base*. The composite order has no peculiar base, and uses the Attic and Corinthian bases indifferently. Vitruvius. Stuart's Athens. Desgodetz Edif. de Rome. Arch. di A. Palladio. Regola di J. B. da Vignola.

BASE, *Rudentée*, is that which has its toes cut like cables.

BASE, in *Fortification*, denotes the external side of the polygon; or that imaginary line which is drawn from the flanked angle of a bastion to that which is opposite to it.

BASE of a Figure, in *Geometry*, denotes the lowest part of its perimeter: in which sense, the base stands opposed to the vertex, which denotes the highest part.

BASE of a Triangle, is properly the lowest side, or that which lies parallel to the horizon.

Thus, the line AB is the base of the triangle ABC,
Plata

Plate III. *Geom. fig. 38.* Not but, on other occasions, the lines, AC, or BC in the triangle, may be made the base.

In a right-angled triangle, the base is properly that side opposite to the right angle, i. e. the hypotenuse.

Base of a *solid Figure*, is its lowest side, or that whereon it stands. Thus the circular plane DFE is the base of the cylinder ABDE. *Plate III. Geom. fig. 39.*

Base of a *conic Section*, is a right line in the hyperbola and parabola, formed by the common intersection of the secant plane, and the base of the cone.

Base, *Altern.* See ALTERN.

Base, in *Gunnery*. See CANNON.

Base, in *Heraldry*, signifies the bottom of the shield; and the charges thereon are said to be in base.

Base, *Distinct*, in *Optics*. See DISTINCT.

Base of the *Heart*, in *Anatomy*, denotes the broader or upper part of that viscus, to the sides of which the two auricles are affixed. This is sometimes also called the vertex or head, *κεφαλή*; in opposition to which, the lesser or narrower part is called *apex* or *muero*, the point or tip of the heart.

Some also give the denomination *base* to the root of the *os hyoides*.

Base, or BASIS, in *Chemistry*, a term which was applied, by the old chemists, to designate those substances of a fixed, inert, passive nature, which combined with, and were acted upon, by more volatile or active menstua. Thus the alkalis, earths, and metallic oxyds, which form compound salts by uniting with acids, were called the bases of these salts. Modern chemists, though they maintain that in every combination the nifus or force of affinity between two ingredients is mutual and equal, have yet retained the term, for the sake of precision, to express either species or families of salts, which differ with regard to the acid, but agree as to the alkali, earth, or metallic oxyd which they contain. Thus salts with a base of potash, include all those species which are formed by the combination of the various acids with the particular alkali potash. Again, salts with an alkaline base comprehend the three families of salts with bases of potash, soda, or ammonia, as distinguished from the other salts with earthy or metallic bases. The utility, therefore, of this mode of expression is evident; for though the compound salts are usually divided into genera, according to their acids, as sulphats, nitrats, muriats, &c. yet it is often desirable to arrange them according to their other element or base, for which the Lavoisierian nomenclature has not particularly provided.

The term base is also used on other occasions as a method of denoting species; as when we say, sulphuric acid is composed of oxygen united with a base of sulphur; the vegetable acids of oxygen and a compound base of hydrogen and carbon. Sometimes also the word base is applied in a more indefinite manner; as in the expression, phosphat of lime is the base of animal bone, azot is the base of muscular fibre: where it means merely the characteristic or principal part.

Base, Engl. BASSE, Fr. Basso, Ital. in *Music*, the lowest part in the harmony of a musical composition. We prefer the derivation of the word from *basis*, Lat. to baffle or basso; as the word basis is already naturalized in the use that is made of it in architecture, the base of a pillar. Sir Francis Bacon uses it musically for a deep or grave sound: "In pipes the lower the note-holes be, and the further from the mouth of the pipe, the more base sounds they yield" *Nat. Hist.* N° 178. And Dryden thus expresses the string of an instrument that gives a base sound:

"At thy well-sharpen'd thumb from shore to shore,
The trebles squeak for fear, the bases roar."

Dr. Johnson says, base is applied to deep, grave sounds; it is frequently written bass, though the comparative baser seems to require base.

The base is the most important of all the parts of polyphonic compositions, being the foundation upon which all the other parts are built; and it has long been a maxim among musicians, that "if the base be good, the harmony and modulation are seldom defective."

The word base is applied to various purposes in music; as base-viol, principal base, continued base, ripicno base, ground base, thorough-base, &c. most of which explain themselves: the rest will be further noticed in their places. But the base to any common chord or part of a chord, called by the Italians *basso principale*, and by the French *basse fondamentale*, is what chiefly belongs to this article, and requires a clear explanation of its use.

A principal or fundamental base, in practice, is that base which carries the common chord of $\frac{2}{3}$, or the chord of the 7th, $\frac{9}{5}$.

In the *Encyclopedie Methodique*, there are rules given of M. Sulzer, for arranging the parts to a low base, which M. Framery says are excellent; yet he has something to object to every one of them. We shall not dispute with either of those able musical critics, their rules or exceptions; we fear that both will be unintelligible to young composers, and that an experienced composer will hardly consult a dictionary for the arrangement of the several parts in his compositions. All we shall recommend to the young harmonist, or juvenile organist, is to accompany low notes in the base by wide intervals. In common chords, when the base is low in the scale, thirds have a very growling bad effect, particularly on the organ. In filling up the parts with the left hand, when the right hand has common chords or divisions derived from common chords, the left hand should only give the fifth and eighth to the base. For the fundamental and supposed base to the treble scale, major, minor, and chromatic, see COUNTERPOINT, COMPOSITION, SCORE, COMMON CHORDS, and THOROUGH-BASE.

BASSE *Fondamentale*. The general acceptance of the term base, in practical music, has been given in the preceding article. We shall now endeavour to trace the history of the fundamental base in theory; which Rameau and his adherents regard as a discovery in music, equal to Newton's doctrine of gravitation in astronomy.

The earliest notice in England of the phenomenon upon which the fundamental base of Rameau has been built, was in the Royal Society, in a paper written by Dr. Wallis "on the trembling of consonant strings," *Mar. 1677.* N° 134. p. 839. *Abridg.* vol. i. p. 606.

"It hath long been observed, that if a viol-string, or lute-string, be touched with the bow or hand, another string on the same or another instrument not far from it (if in unison to it, or an octave, or the like) will at the same time tremble of its own accord. But I can now add, that not the whole of that other string doth thus tremble, but the several parts severally, according as they are unisons to the whole or the parts of that string so struck." (Here he gives the several divisions into which a string, when caused to sound, divides itself, and a delineation of the forms of the several consonances on a plate; but of these we shall have further occasion to speak hereafter.)

"This was first of all (that I know of) discovered by Mr. William Noble, M.A. of Merton college; and by him shewed to some of our musicians about three years since: and after him by Mr. Thomas Pigot, A.B. of Wadham college,

college, without knowing that Mr. Noble had discovered it before. As we are now only proving a claim, we need cite no more of this paper; at the end of which another paper is referred to (N^o 135, p. 879.), which reference says: "Concerning these phenomena, an exquisite solution is given by Dr. Narcissus Marsh, in Dr. Plot's Natural History of Oxfordshire."

D'Alembert (*Elémens de Musique*) speaks of Rameau as the discoverer of the harmonics, as well as author of the system built upon them. In the preface to the second edition of his *Elements of Music*, in which he has abridged and methodized the musical tracts of Rameau, he says; "it was Rameau who first began to reduce chaos into order, and throw a light upon the principles of harmony."

"He found in the resonance of a single string or sounding body, the most probable origin of harmony, and of the pleasure which it affords us: he developed this principle, and shewed whence the phenomena of music were derived," &c.

And Rousseau, *Dict. de Mus. art. Harmonie*, says, that "Pere Merfenne and M. Sauveur having found that every sound, though seemingly a simple unison, was always accompanied by other sounds less distinguishable, which formed with it the common chord major; and M. Rameau, setting off from this experiment, made it the basis of his harmonical system, which M. D'Alembert at length took the trouble of explaining to the public."

Rameau himself, in his *Nouveau Système de Musique*; published 1726, says "we have in our nature the germ of harmony without knowing it. It is however easy to perceive it in the sound of a string, a pipe, &c, in the tone of which there are three different sounds at once." In a note he adds, "this experiment is cited by different authors." But he does not seem to know their names. Rameau's account seems to have been taken from our *Phil. Trans.* quoted above, where it was supposed to be an English discovery. But in p. 17 of his treatise, he refers to Merfenne's *Harm. Universelle*, chap. des Instrumens, p. 209, for the invention; but Merfenne, in the very title of the chapter alluded to, relinquishes all claim to the discovery, by merely promising his readers "to explain many circumstances and properties of motion, natural or forced, oblique or perpendicular, where the ideas and experiments of Galileo are examined."

This puts it out of all doubt who was the first discoverer of this musical phenomenon. But the name of the true claimant does not seem to have been mentioned by any writer in England before the year 1748, when Dr. Smith first published his *Harmonics*; who begins the first section of that scientific work in the following manner. "Sound is caused by the vibrations of elastic bodies, which communicate the like vibrations to the air, and these the like again to our organs of hearing."

"Philosophers are agreed in this, because sounding bodies communicate tremors to distant bodies. For instance, the vibrating motion of a musical string puts others in motion, whose tension and quantity of matter dispose their vibrations to keep time with the pulses of air propagated from the string which was struck. Galileo explains this phenomenon by observing, that a heavy pendulum may be put in motion by the least breath of the mouth, provided the blasts be frequently repeated, and keep time exactly with the vibrations of the pendulum; and also by the like art in raising a large bell; and probably he was the first that rightly explained that phenomenon."

And now, having traced this curious discovery to the fountain head, we shall draw all further information from that source.

The admirable Galileo, perhaps the most acute and useful experimental philosopher of any age or country, in his first dialogue (*Opera di Galileo*, vol. ii. Bologna 1655), after discussing the vibrations of pendulums, which he first applied to the measuring of time, proceeds with his friends Sagredo, an intelligent inquirer into mechanical powers, who asks questions of difficult solution; and Simplicius, a young philosopher, curious concerning the causes of common effects. Galileo, under the name of Salviati, after discussing the doctrine of motion, and the range of cannon-balls, says; "vengo ora da i quesiti di V. S. dirvi qualche mio pensiero sopra alcuni problemi attenenti alla musica;" and now, at your request, gentlemen, I shall give you my thoughts on some musical problems, a noble subject, on which so many great men have written, and, among the rest, Aristotle himself; concerning which he has left us many curious problems; so that if by such easy and intelligible experiments I shall be able to account for the wonderful phenomena of sound, I may perhaps hope that my reflections would amuse you.

"Sagredo. They will not only amuse me, but are what I most particular wish for, being extremely delighted with all musical instruments; and though I bestowed much meditation on harmonical consonances, I have always remained perplexed and unable to account for one of these intervals pleasing me more than another. For some not only give me no pleasure, but are extremely offensive to my ear; and that common problem of two strings tuned in unison, when one of them is caused to sound, the other not only vibrates but actually sounds, I still am unable to solve; nor do I clearly understand the forms of consonances, or many other particulars concerning them."

"Salviati. Let us try whether from our doctrine of pendulums we cannot acquire some information concerning these difficulties. And as to the first doubt, which is, whether it be true that the same pendulum performs all its oscillations, whether its swing be the greatest, the mean, or the least, exactly in equal times? I shall depend on what our professor told us, who has clearly demonstrated that a pendulum subtending any arcs whatever, passes them all in equal times, i. e. whether of 180°, or 60, 10, 2, $\frac{1}{2}$ a degree, or of four minutes, supposing them all to terminate in the lowest point, which touches the horizontal plane—all is performed in equal times." This accounts for the tone of a string not sinking or changing as the vibrations become more feeble. Here too he gives the ratio of vibrations; and afterwards the history of his discovering in a church, from the swing of a lamp, the laws of a pendulum, and that all its oscillations were isochronous. This doctrine he applied to the vibrations of musical strings, upon the number of which the gravity and acuteness of sounds more depend than on their length, tension, or thickness. It seems as if few discoveries had been made in the philosophy of sound since this dialogue was written. Galileo has demonstrated that if a string sounding C, for example, be divided by a moveable bridge into half, each half would be an octave to the whole; if divided into three parts, each would be a fifth to the octave; divided into four parts, each would be a fifteenth or double octave to the whole; if into five parts, each would be a major seventeenth (commonly called a tierce or sharp third) to the fifteenth or double octave.

Though these divisions are the same as the ratios ascribed to Pythagoras, and those of Euclid in the section of the canon; and though long before Galileo's time, the chorus of a full organ had been constructed on the principle of the harmonics to a fundamental base, there can be no doubt but that this great philosopher first caught nature in the fact of producing

producing invisibly, and without human aid, the sweetest chord in the whole system of harmony.

Here all the phenomena are represented and explained, of kindred strings being caused to tremble and sound merely by the tremors occasioned in the medium by the tone of a neighbouring string or sounding body.

Here too the theory of tuning strings, not only by tension but by weights, is explained; from which proportions, doubtless, the lyrichord of Plenius was tuned by weights instead of tension, some fifty years ago.

Having justly restored to Galileo the discovery of the harmonic proportions into which every single string and sounding body divides itself when caused to sound, it seems unnecessary further to explain this phenomenon here. We shall therefore proceed to the system built on this foundation by Rameau, under the title of *BASSE Fondamentale*; concerning which, not only the author, but the French nation, have gloried as much as if he had discovered and conquered a new world in the celestial regions of harmony.

BASSE Fondamentale, or *Fundamental Base*, was first formed into a system by Rameau, and though the Italians meant the same thing by *basso principale*, so early as the time of Zarlino, it was not so clearly explained; nor were

its derivation or derivatives, from a physical experiment, then generally known in Italy.

The natural harmony or common chord to every base, consists of the third, fifth, and eighth above the base; or their octaves, which the Germans call the triad: or rather the unison, or any given sound, with its third and fifth, constitute their triad, without the octave. If instead of the fundamental or lowest sound (which Rameau calls the generator) the base takes the third or fifth of that chord instead of the lower sound or principal base, the harmony is said to be inverted; and the lowest part, carrying the chord of the sixth, or $\frac{6}{4}$, is called the supposed base, and sometimes the *basso continuo*. (See *SUPPOSED Base*, and *BASSO-Continuo*.) If any sound is added to the common chord, except the seventh, the base is no longer fundamental.

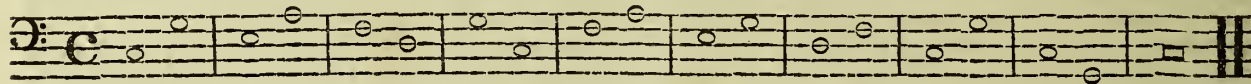
The fundamental base should move by consonant intervals; as 3d, 4th, 5th, or 6th: never rising or falling one note or degree with perfect and similar harmony to both; as it would occasion a violation of the rule against 5ths and 8ths in succession, and preclude all relation and connection of chord to chord. Common chords may be given to the following fundamental bases in succession.



In a regular ascent or descent of the scale in modern harmony, the rule for accompanying the octave (see *REGLE DE L'OCTAVE*) allows only common chords to the key note and the 5th of the key; which are consequently fundamental

bases: the chords of the 6th and $\frac{6}{4}$ th are given to the rest.

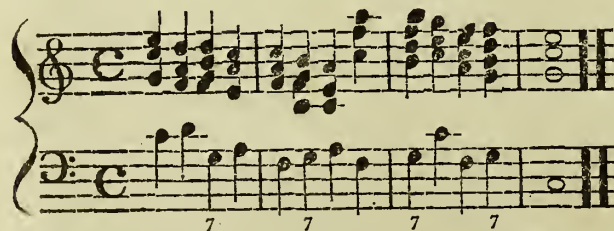
Rameau (*Traité de l'Harmonie*, p. 190.) has made all the following bases fundamental, by accompanying them with common chords.



By contrary motion, however, the principal base may have, and often has had, common chords with good effect, when ascending diatonically.



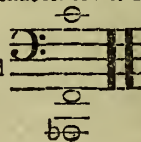
And if the seventh were added to many of these chords, they would be still more interesting, without divesting the base of the title of fundamental.



Of all the experiments that have been made in physical harmony, there has been no satisfactory origin found of

minor modes, or keys with flat 3ds. From whatever grave sound the harmonies have been observed to arise, they are all component parts of major chords, or keys with sharp 3ds. In Rameau's *Génération harmonique*, chap. xii. *origine du mode mineur*, where we expected all would be cleared up, we found his derivation of this mode more perplexed and perplexing than any part of his book. He tells us that we are to find indications given by nature of the minor mode below the principal sound, which causes the 12th and major 17th below it to vibrate though not to sound. And M. D'Alembert in the first edition of his "Elements" seems satisfied with this solution. When, after telling us that the 12th and 17th major are produced by every sound immediately after it has been heard in its totality; that is, the tone of the whole string or sounding body. That the 12th and 17th arising from this string or principal sound, are called its harmonics, and form, when approximated for the convenience of the hand, the common chord major or triad of unison 3d and 5th. But to acquire a natural origin of the minor mode, if we tune the 12th and major 17th below any sound, below C for example, which will be an octave below the 5th and a double octave below the inferior major 3d, to C, we shall find when C is struck, that its lower 12th and

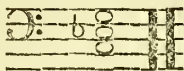
major 17th will vibrate but not sound



But

this

this origin neither satisfied theorists nor practical musicians. And in M. D'Alembert's second edition of his "Elements" he changed his ground, and instead of the chord minor of F,

he adopted that of C: , in which G is an

harmonic of C as well as of E♭. But this solution of the difficulty, fetched from far, and by no means satisfactory, was changed in the article Fondamentale of the 7th volume of the Encyclopedie, to ACE, without succeeding in proving it to be the work of nature.

The abbé Feytaud, in the new Encycl. methodique, says, that F is the fundamental base of A minor. But though among the harmonics of a single base note there is, at the top of the chord, a sound something resembling a 7th, it is not a major 7th; nor can F, or any grave sound, produce a major 7th. All the harmonics produced by F, are the following, and in the following arithmetic order:

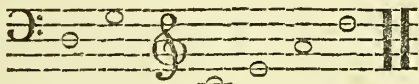
1 8 12 15 17 19 21 22.
F f c f a c e♭ f.
1 2 3 4 5 6 7 8.

A major 7th may be joined to the common chord of F in practice, without taking from it the title of fundamental; but it is not one of its harmonics; ergo, F is not the fundamental base to A minor. Nor does nature give any indication of a minor chord either in the harmonics, or 3d sound produced by two trebles. See TERZA SUONA.

BASE-VIOL. This instrument is now often confounded with the violoncello, though not of the same kind. In the 17th century every musical family had a chest of viols; all with six strings, and the finger-board fretted. The base-viol was the largest of these instruments, and called in England the six-stringed base; but in Italy, viol da gamba, on account of its resting on the leg of the performer. The tenor viol, the next in size of that class, is called viol da braccia, from its resting on the arm or shoulder when played on. The smallest and highest of these instruments is called the treble viol.

A complete chest of viols contained eight instruments; two first trebles, two second trebles, two tenors, and two bases; all strung and tuned alike, by 4ths and 3ds, and the necks fretted. The accordatura of the open strings is as follows.

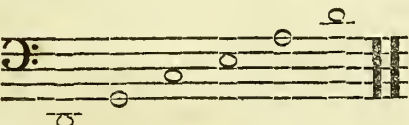
Treble Viol.



Tenor Viol;
or, Viol da Braccia.



Base Viol;
or, Viol da Gamba.



From the time of queen Elizabeth till that of Charles II, in all private concerts (we had none that were public then) these, except the common flute, were the only instruments that were admitted into a gentleman's house; and indeed from the feebleness of the tone they may very properly be called stromenti da camera, chamber instruments. At first, where voices could not be procured, the several parts of full anthems, services, and other choral mu-

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sic were adapted to viols. The first music that was composed expressly for them was fantasias; the taste for which was brought from Italy previous to sonatas and concertos. The passages given to these viols, at this time, discover no kind of knowledge of the expressive power of the bow; and even Orl. Gibbons, who composed so well for voices in the church, seems very little superior to his contemporaries in his productions for instruments. Indeed, his madrigals of five parts, as well as those of many others, are said in the title page to be apt for viols and voices; a proof that with us, as well as the ancient Greeks and other nations, there was at first no music expressly composed for instruments; consequently, the powers of these instruments must have been circumscribed; and when this music was merely played, without the assistance of human voices and of poetry, capable of no great effects. The subjects of Orlando Gibbons' madrigals are so simple and unmarked, that if they were now to be executed by instruments alone, they would afford very little pleasure to the greatest friends of his productions and those of the same period. At the time they were published, however, there was nothing better with which to compare them; and the best music which good ears can obtain, is always delightful till better is produced. Air, accent, grace, and expression, were now equally unknown to the composer, performer, and hearer; and whatever notes of one instrument were in harmony with another were welcome to the player, provided he found himself honoured from time to time with a share of the subject, or principal melody; which happening more frequently in canons and fugues than in any other species of composition, contributed to keep them so long in favour with performers of limited powers, however tiresome they may have been to the hearers when constructed on dull and barren themes. See FANTASIA, SONATA, and CONCERTO.

BASE, in Law.—Base estate is that estate which base tenants have in their lands.—Base fee denotes a tenure in fee at the will of the lord; by which it stands distinguished from socage, or free tenure. (See FEE.)—Base court, is any court not of record. Such, e. gr. is the court-baron.—Base tenure, bassa tenura, denotes holding by villenage, or other customary service; as distinguished from the higher tenures in capite, or the military service.

BASE rocket, reseda, in Botany. See RESEDA.

BASE Knights, bas chevaliers, denote the inferior order of knights as distinguished from barons and bannerets, who were the chief or superior knights.

BASE Point, in Heraldry. See POINT, and ESCUTCHEON.

BASE Ring of a Cannon, is the great ring next behind the touch-hole.

BASEDOW, JOHN BERNARD, in Biography, was born at Hamburgh in 1723; and though the early part of his education was neglected by reason of the severity of his father, which obliged him to abscond, and to live almost a year as a domestic with a land surveyor at Holstein, he afterwards returned to his native place, and successfully pursued his studies in the Gymnasium from the year 1741 to 1744, under professor Reimarus. Here his proficiency was such, that he was enabled to subsist at the age of 16 years, independently of his parents. As it was his father's ambition to make his son a clergyman, he went to Leipzig in 1744 for the purpose of studying theology. Here he continued two years, and attended the lectures of professor Crusius. These lectures and the writings of Wolff, which he also perused, unsettled his mind with respect to many doctrines which he had imbibed, and excited some doubts in his mind concerning the truth of the Christian revelation;

but by further examination of this interesting controversy, he became a firm believer of the truth of the divine mission of Christ, though he denied many of those doctrines which some Christians deem to be essential articles of the Christian faith. In 1749, he was appointed private tutor to the son of a gentleman in Holstein; in this situation he had an opportunity of submitting to the test of experience the plan of an improved method of education, which he had for some time held in contemplation. The attempt succeeded to his wishes; and though his pupil was only seven years of age, when he undertook the charge of him, he was able in the space of three years not only to read Latin authors, but to translate from the German into that language, and to speak and write it with a degree of fluency. He had also made considerable progress in the principles of religion and morals, in history, geography, and arithmetic. This success advanced his reputation; so that in 1752 he was admitted to the degree of master of arts at Kiel, and in the following year he was chosen professor of moral philosophy and the belles lettres in the academy at Soroe in Denmark. Here he published several works, which were well received; particularly his "Practical Morality for all conditions," containing hints of his improved plan of school education. His lectures on morality and religion were much frequented; but as he spoke with freedom on some points of theology that were generally received, he was removed by the Danish court to the gymnasium at Altona, and allowed the salary which he had enjoyed as professor. In the 40th year of his age he began, in opposition to the advice and remonstrance of his friends, to attack publicly many received tenets of the church, and he published his "Philalethy," in which he suggests doubts concerning the eternity of future punishment; his "Methodical Instruction in Natural and Revealed Religion," in which he avows his dissent from the common doctrine concerning Jesus Christ, the Holy Ghost, inspiration, baptism, the Lord's supper, &c.; his "Theoretic System of Sound Reason;" and some other works of a similar kind. In consequence of these publications he was represented by Gotze, Winkler, and Zimmermann, clergymen of Hamburg, as holding opinions hostile to revelation, as a man void of principle, and as an enemy to religion. The populace likewise were incensed, and threatened to stone him. He was preserved, however, from becoming a victim to intolerance, by the protection of count Bernstorff and some other friends at Copenhagen. In these circumstances he directed his attention to an improvement of the usual method of school-education; and for his encouragement in the prosecution of it, he was released by the Danish court from attendance at the gymnasium of Altona, and allowed a pension of 800 dollars. Having solicited and obtained considerable subscriptions, he published in 1769 the heads of his "Elementary Book;" which he submitted to the inspection of many respectable and learned friends, by whom it was approved. In 1771, the sum which he had collected amounted to 15,000 rix-dollars; of which a thousand had been contributed by the empress of Russia, who read his plan and invited him to Petersburg. Although he met with some opposition, he obtained very considerable encouragement; and he was invited by the prince of Dessau, with the promise of a pension of 1100 rix-dollars, to establish the school which he had projected in his territories. Accordingly, he removed to Dessau, which afterwards became the chief place of his residence. Having published several detached parts of his work, he determined in 1772 to continue it. In the following year he published the principles of "Arithmetic and the Mathematics," and in 1774 his grand treatise in four volumes, with 100 copper-plates, under the title of "Ele-

mentary Work," by way of distinction from his "Elementary Book" which he had published in 1770. This publication was favourably received, and was soon translated into Latin and into French. As he had bestowed six years' labour on the completion of this work, his health declined; and in this state he wrote his "Legacy for the Conscience," being a work on the principles of natural and revealed religion. The prince of Dessau, having permitted him to establish his school in any place which he found most convenient, he travelled to Frankfort on the Mayne; and on his 51st birth-day, he determined to put his plan in execution, and, on account of its humane object, to give his seminary the name of the "Philanthropium." "This school was intended to be a seminary for rearing up young teachers and professors, and a pattern for all the other schools of Germany. The children of wealthy parents were to be admitted for the sum of 250 rix dollars per annum; all the former errors in education were to be carefully guarded against; and the children of poor people were to be educated in it also, either to render them fit for becoming teachers themselves in schools of lower rank, or for being useful servants in respectable families." At Dessau, whither Bafedow returned from Frankfort, on the 27th of December 1774, the 6th birth-day of the hereditary prince of Dessau, he opened his "Philanthropium," appointing Wolke as head master, and undertaking the direction of it for seven years, promising to read lectures, and to give a few hours' instruction daily to the pupils without any emolument. The plan, however, was not encouraged agreeably to Bafedow's expectations, and he therefore relinquished it. His disappointment and other circumstances led him to seek relief from drinking, by which he impaired his health and injured his reputation. In the melancholy period that elapsed from 1778 to 1783, he employed himself in examining the nature of pure Christianity; and whatever may be thought of his peculiar opinions with regard to some of its doctrines, he appears to have been a friend to truth, and a zealous advocate for religion and virtue. In 1785 he published a plan by which children might be more easily taught to read, and distributed 500 copies of it in various schools. His plan was introduced by himself in two schools at Magdeburg, and it succeeded to his wishes. Having experienced great friendship at Magdeburg, he removed to this city towards the close of his life, and died there in 1790 in the 67th year of his age. Bafedow is represented by his biographers as a man of acute judgment and penetration, and possessed of great sensibility and a lively imagination. His works, which relate chiefly to religious subjects or to education, amount to upwards of 50 different treatises. *Beitrage zur Labers geschichte*, &c. or Biographical Anecdotes of Joh. Beruh. Bafedow, taken from his own works, and from other authentic sources, 8vo. Magdeburg, 1791.

BASELECE in *Geography*, a town of Italy, in the kingdom of Naples and province of Capitanata, 7 miles S.S.W. of Volturara.

BASELS, **BASELLI**, in our *Old Writers*, a kind of coin, abolished by king Henry II. 1158.

BASELLA, in *Botany*. Lin. gen. 382. Reich. 413. Schreb. 520. Juss. 84. Gærtn. t. 126. Class and order, *pentandria trigynia*. Nat. Order of *Malvaceæ*; *Atriplices* Juss. Gen. Char. *Calyx* none. *Cor.* seven-cleft, pitcher shaped; two outer divisions broader, one within the rest, converging above, fleshy at the base. *Stam.* filaments five, tubulate, equal, fastened to the corolla, and shorter than it; anthers roundish. *Pist.* germ superior, subglobular; styles three, filiform, of the length of the stamens; stigmas oblong, on one side of the tops of the styles. *Per.* corolla permanent,

manent, closed, fleshy, counterfeiting a berry. *Seed*, single, roundish.

Eff. Char. *Cal.* none. *Cor.* seven-cleft; two opposite divisions shorter, at length berried. *Seed*, one.

Species, 1. *B. rubra*, red Malabar night-shade, cuscuta Lin. hort. Cliff. 39. *Gandola rubra*, Rumph. Amb. t. 154. f. 2. "Leaves flat; peduncles simple." It has thick, strong, succulent stalks and leaves, of a deep purple colour; climbing to the height of eight or ten feet, and producing many side-branches; in the bark-flowe living through the winter, and producing great quantities of flowers and seeds. The fruit is a sort of spurious berry, of a very dark red colour, a little flattened, furrowed cross-wise at top, and containing a single nut. A native of the East Indies, Amboina, Japan, &c.; and cultivated, in 1739, by Miller. From the berries a beautiful colour is drawn, but when used for painting, it changes to a pale colour; the juice is said to be used for staining calicoes in India. 2. *B. alba*, white Malabar night-shade, *Gandola alba*, Rumph. Amb. Pluk. Alm. t. 63. f. 1. *Murasakki*, Kæmpf. Amæn. 784. The fluk smaller, the leaves oblong and flaccid, and the flowers and fruit smaller than in the foregoing. Miller raised from seeds, sent by Jussieu, two varieties; one with the purple leaves and stalks, the other having leaves variegated with white. Cultivated by bishop Compton in 1691. A native of China and Amboina. 3. *B. lucida*, shining Malabar night-shade; "leaves subcordate; peduncles crowded, branching." A native of the East Indies. 4. *B. nigra*, black Malabar night-shade; "leaves round-ovate; spikes lateral." Stem perennial, twining, slender, round, succulent, branched; leaves thick, smooth, entire, alternate, petioled; flowers purple and white, lateral, few, in long, solitary spikes. Calyx three, roundish, acuminate, very small scales; corolla one-petalled, with a short swelling tube, and a six-cleft border; germ four-lobed; styles shorter than the filaments; berry roundish, deep black, small, four-lobed, with four blunt concave clefts at top. Lourciero apprehends, that the berry is formed from the germ, and not from the corolla. He thinks that this plant is the same with the "*Gandola alba*" of Rumphius; but different from the *B. alba* of Linnæus. Perhaps none of these are specifically distinct. A native of China and Cochin, in the hedges and fences of their gardens.

Propagation. These plants are propagated by seeds, sown on a hot-bed in the spring, and planted, when fit to remove, each in a separate pot, filled with rich earth, and plunged in a tan-bed, where they must be treated like other exotics. They may be also propagated by cuttings, which should be laid to dry for a day or two after being separated from the plant, before they are planted, that the wound may heal; otherwise they will rot. These should be treated in the same manner with the seedling plants. These plants flower from June to autumn, and the seeds ripen in September and December. Martyn's Miller's Dict.

BASELLI, BENNET, in *Biography*, son of Mark Basel, physician of Bergamo, a town in the Venetian territories, studied anatomy and medicine at Padua, assisted by Fabricius ab aqua pendente, and other celebrated matters, under whom he is said to have made great proficiency in the knowledge of his profession. Returning to Venice in 1594, he was refused admission into the college of physicians there, on account of his practising surgery jointly with medicine. Irritated by the injustice, as he thought it, of the law by which he was rejected, he published at Bergamo, in 1604, a defence of surgery, under the title of "*Apologiæ, qua pro chirurgiæ nobilitate strenue pugnatur, libri tres*, 4to. Eloy. Dict. Hist.

BASEMENT, in *Architecture*. *Stereobata*, *Stylobata*.

Soubassement, Fr. The lower part or story of a building when it is in the form of a pedestal, with a base or plinth die, and cornice or plat-band.

In the Roman antiquities, the temples are generally raised on a basement which has exactly the members and proportions of a pedestal to the columns of the portico; but in modern architecture, the basement constituting the lower story of a habitation has its proportions regulated by the nature of the apartments which it contains. The Italian palaces have frequently the summer habitations on the basement, which in that case is often as high as the principal story; but when it only contains offices, it sometimes does not exceed one half of that height. These proportions may be considered as extremes, which it will not be proper to exceed; for the principal story loses its importance when too much elevated, while a very low basement will not admit any tolerable proportions of windows and doors.

Basements are commonly decorated with rustics of various kinds; they are crowned with a cornice or plat-band, and supported on a base or socle. The height of the rustics, including the joint, should never be less than one module of the order of the principal story, neither should it much exceed this measure; the plat-band should be the same height, as a rustic, and the socle or plinth rather more. When the basement is finished with a cornice, it should also have a regular moulded base; the height of the cornice may be about one seventeenth of the whole basement, and the base about twice as much. Chamber's Civil Architecture. Desgodetz. edif. de Rome.

BASENTELE, in *Geography*, a town of Italy, in Calabria, where the emperor Otho II. was vanquished and made prisoner.

BASHARIANS, a sect of Mahometans, being a branch or subdivision of the Motazalites.

The Basharians are those who maintain the tenets of Bashar Ebu Motamer, a principal man among the Motazalites, who varied, in some points, from the general tenets of the sect, as extending man's free agency to a great length, even to the making him independent. He asserted, that God is not always obliged to do that which is best; for that, if he pleased, he could make all men true believers. Accordingly he taught, that God might doom an infant to eternal punishment; but taught at the same time, that he would be unjust in so doing. These sectaries also held that if a man repent of a mortal sin and afterwards return to it, he will be liable to suffer the punishment due to the former transgression. Vide Sale's Prelim. Disc. to the Koran, p. 162.

BASHAW, PASCHA, or PACHA, a Turkish governor of a province, city, or other district. The Arabs pronounce it Bashaw; but the word is Turkish, and properly Pashaw, denoting viceroy; whence is derived Pacha. As some of the provinces of the Turkish empire are too extensive for the government of the Pacha, this officer has a variety of sub-delegates; but it is in reality the sultan who dictates and commands, under the varied names of Pacha, Motfallam, Kaiem-Makam, and Aga; nor is there one in this descending scale, even to the lowest Delibashe, who does not represent him.

All Egypt is, on the part of the grand seignior, governed by a bashaw; who has in reality but little power, but seems principally to be meant for the means of communicating to his divan of *beys*, and to the divans of the several military *ogiacs* (that is their bodies), the orders of the grand seignior, and to see that they be executed by the proper officers.

When Selim, sultan of the Ottomans, put a period to the dynasty of the Mamlouks in 1517, he was sensible that

if he established a pacha in Egypt with the same authority which was possessed by the pachas in other provinces, the distance from the capital would be a strong temptation to revolt. For preventing this inconvenience, he projected such a form of government, that the power being distributed among the different members of the state, should preserve such an equilibrium as should keep them all dependent upon himself. The remnant of the Mamlouks who had escaped his first massacre, appeared proper for this purpose; and he next established a divan or council of regency, composed of the pacha and the chiefs of the seven military corps. The office of the pacha was, as we have observed, to notify to this council the orders of the Porte, to expedite the tribute to Constantinople, to watch over the safety of the country against foreign enemies, and to counteract the ambitious views of the different parties. On the other hand, the members of the council possessed the right of rejecting the orders of the pacha on assigning their reasons, and even of deposing him; and it was necessary that they should ratify all civil or political ordinances. It was also agreed, that the 24 governors or beys of the provinces, should be chosen from the Mamlouks. This form of government has not ill corresponded with the views of Selim, since it has subsisted about two centuries; but within the last 50 years, the porte having relaxed its vigilance, innovations have taken place, and the power of the Mamlouks has superseded and almost annihilated that of the Turks. In order to restrain the pachas, the porte had suffered the divan to extend its power, till the chiefs of the Janizaries and Azabs were left without controul. Hence Ibrahim, one of the Kiayas, or veteran colonels of the Janizaries, about the year 1746, rendered himself in reality master of Egypt; and the orders of the sultan vanished before those of Ibrahim. About the year 1766, Ali Bey (see ALI BEY) rendered himself absolute master of the country. Since the revolution of Ibrahim Kiaya, and the revolt of Ali Bey, the Ottoman power has become more precarious in Egypt than in any other province; so that though the porte still retains there a pacha, this pacha, confined and watched in the castle of Cairo, is rather the prisoner of the Mamlouks than the representative of the sultan. He is deposed, exiled, or expelled at pleasure; and on the mere summons of a herald clothed in black, called "Caracoulouk," he must descend from his high station, or be deposed. Some pachas, chosen expressly for that purpose by the porte, have endeavoured by secret intrigues to recover the power formerly annexed to their title; but the beys have rendered all such attempts to dangerous, that they now submit quietly to their three years' captivity, and confine themselves to the peaceable enjoyment of their salary and emolument.

After sultan Selim I. had taken Syria from the Mamlouks, he subjected that province, like the rest of the empire, to the government of pachas or viceroys, as the term signifies. (See SYRIA.) In each province the pacha, being the image of the sultan, is, like him, an absolute despot. All power is united in his person; he is chief both of the military and of the finances, of the police and of the criminal justice. He has the power of life and death; he has the power of making peace and war; and in a word, he can do every thing. These powers in their unlimited extent belong only to the pacha with three tails. The power of the pacha with two tails is not so considerable, nor his department so extensive; he cannot put any one to death without a legal trial; he is, like another, chief of the armed force of his department; but when he takes the field, he is obliged to unite his standards to those of the pacha with three tails, and to march under his orders. The main object of such power vested with the pacha, is to

collect the tribute and to transmit the revenue to their master. This duty fulfilled, no other is required from him; the means employed by the agent to accomplish it is a matter of no concern: those means are left to his discretion; and such is the nature of his situation, that he cannot be delicate in his choice of them; for he can neither advance, nor even maintain himself, but in proportion as he can procure money. The place he holds depends on the favour of the visier, or some other great officer; and this can only be obtained and secured by bidding higher than his competitors. He must therefore raise money to pay the tribute, and also to indemnify himself for all he has paid, support his dignity, and make a provision in case of accidents. Accordingly, the first care of a pacha, on entering on his government, is to devise methods to procure money, and the quickest are invariably the best. The established mode of collecting the miri and the customs, is to appoint one or more principal farmers, for the current year, who, in order to facilitate the collection, divide it into lesser farms, which are again subdivided, even to the smallest villages. The pacha lets these employments to the best bidder, wishing to draw as much money from them as possible. The farmers, who, on their side, have no object in taking them but gain, strain every nerve to augment their receipt. Hence an avidity in these delegates always bordering on dishonesty; hence those extortions to which they are the more easily inclined as they are sure of being supported by authority; and hence, in the very heart of the people, a faction of men interested in multiplying impositions. The pacha may applaud himself for penetrating into the most hidden sources of private profits, by the clear-sighted rapacity of his subalterns; but what is the consequence? The people, denied the enjoyment of the fruit of their labour, restrain their industry to the supply of their necessary wants. The husbandman only sows to preserve himself from starving: the artist labours only to support his family; if he has any surplus, he carefully conceals it. Thus the arbitrary power of the sultan, transmitted to the pacha, and to all his subdelegates, by giving a free course to extortion, becomes the main spring of a tyranny which circulates through every class, whilst its effects, by a reciprocal re-action, are every where fatal to agriculture, the arts, commerce, population; in a word, to every thing which constitutes the power of the state, or, which is the same thing, the power of the sultan himself.

This power is not subject to less abuses in the army. Perpetually urged by the necessity of obtaining money, on which his safety and tranquillity depend, the pacha has retrenched, as far as possible, the usual military establishment. He diminishes the number of his troops, lessens their pay, winks at their disorder; and discipline is no more.

It sometimes happens that the pachas, who are sultans in their provinces, have personal hatreds against each other. To gratify these, they avail themselves of their power, and wage secret or open war; the ruinous consequences of which are sure to be felt by the subjects of the sultan.

It also happens that these pachas are tempted to appropriate to themselves the power of which they are the depositaries. The porte, in order to counteract their ambitious views, often changes the residence of the pachas, that they may not have time to form connections in the country; but as all the consequences of a bad form of government have a mischievous tendency, the pachas, uncertain of to-morrow, treat their provinces as mere transient possessions, and take care to make no improvement for the benefit of their successors. On the contrary, they hasten to exhaust them of the produce, and to reap in one day, if possible, the fruit

of many years. It is true, these irregularities, every now and then, are punished by the bow-string, one of the practices of the porte which best displays the spirit of his government. The ostensible reason is always for having oppressed the subjects of the sultan; but the porte, by taking possession of the wealth of the extortioner, and restoring nothing to the people, leaves sufficient room to think that the government is far from disapproving a system of robbery and plunder which it finds so profitable. Every day, therefore, affords fresh examples of oppressive and rebellious pachas; and if none of them have hitherto succeeded in forming a stable and independent government, it is less owing to these wise measures of the divan, and the vigilance of the Capidjis, than their own ignorance in the art of governing. The pachas regard nothing but money; nor has repeated experience been able to make them sensible that this, so far from being the pledge of their security, becomes the certain cause of their destruction. They are wholly devoted to amassing wealth, as if friends were to be purchased. As the pacha possesses the power of life and death, he exercises it without formality and without appeal. Wherever he meets with an offence, he orders the criminal to be seized; and the executioner, by whom he is accompanied, strangles him, or takes off his head upon the spot; nay, sometimes he himself does not disdain this office. This duty he frequently commits to a deputy, called WALI. The administration of justice in civil suits is the only species of authority which the sultans have withheld from the executive power of the pachas. The officers appointed for this purpose are, by a wise regulation, all independent of the pachas. See CADİ.

To the governors of provinces were formerly given indifferently the names of pacha and of beglerbeg, or beyler-bey: the latter at this day is reserved for the pachas of Manastir and of Cutayé: they have the pre-eminence over the other pachas, and generally command the troops which are brought into the field. The beyler-bey of Manastir has under his orders the European troops, and the beyler-bey of Cutayé those of Asia. They are nevertheless subordinate to the grand visier, when the latter takes the general command of the armies. Formerly, the name bashaw, or pacha, was appropriated to such as had two ensigns or horse-tails carried before them; those who had the honour of three tails, called visier-bashaws, were denominated begler-begs; and those who had only one, fanchiachebs.

The appellation of bashaw is also given by way of courtesy at Constantinople, to the lords about the grand seignior's court, the officers in the army, and almost every person of any figure.

A bashaw is made with the solemnity of carrying a flag or banner before him, accompanied with music and songs by the mirialem, an officer on purpose for the investiture of bashaws.

Bashaw, used absolutely, denotes the prime visier; the rest of the denomination being distinguished by the addition of the province, city, or the like, which they have the command of; as the bashaw of Egypt, of Palestine, &c. The bashaws are the emperor's sponges. We find loud complaints among Christians of their avarice and extortions. As they buy their governments, every thing is venal with them. Volney's Travels into Egypt and Syria, vol. i. ch. 10. vol. ii. ch. 33. Olivier's Travels in the Ottoman Empire, ch. 17. Russell's Aleppo, vol. i. p. 135, &c.

There are also sub-bashaws, or deputy-governors under the first. Phil. Trans. N° 218.

BASHAW, *Captain*, is the title of the Turkish high-admiral, who commands the naval forces of the Ottoman empire,

and is at the head of all the maritime establishments. He usually commands in person the fleets and all the naval forces of the empire; he nominates to all places and employments; he orders the building and repairing of ships; but the "Terfana-emini" is properly the naval minister, since he has the administration of the funds appropriated to the navy, the direction of supply of stores to the arsenal, the care of the equipment of ships, and the superintendence of all the works. He has under him chiefs, deputies, and different harbour masters, as well for the execution of his orders and for private superintendence, as for the police.

BASHEE ISLANDS, in *Geography*, a group of five islands situated in the Chinese seas, north of the Philippine islands, and south of Formosa. They are said to be so called by Dampier from the name of a liquor made of the juice of the sugar-cane and a small black grain, and used by the inhabitants. This name was given to the most easterly of the group, and at length was applied to them all. The productions of these islands are plantains, bananas, pine-apples, sugar-canes, potatoes, yams, and cotton; their quadrupeds are goats and hogs. The people, according to Dampier, are kind and hospitable. The names of the islands are Orange, Grafton, Monmouth, Isle of Goats, and Bashee. This group is represented in the "Missionary Voyage," p. 308. as consisting of six or seven islands; the northernmost of which lies in N. lat. 21°. E. long. 122° 6'. The two to the south-east are high; some of the others are of moderate height; the most northern except one is high and craggy at top; and between these two lie two small rocks above water. Between these islands and those of Botol Tabacco-Xima, is a channel about 16 miles wide.

BASHEE, or *Bachi*, the most easterly island of the preceding group, appearing of a circular form, and being about 2 leagues in diameter. It has a town of the same name. N. lat. 21° 45'. E. long. 122° 15'.

BASHKIRS, or BASCHKIRS, a people of the Russian empire. They call themselves Bashkourt; and derive their origin partly from the Nogay-tartars, and partly from the Bulgarians. Probably they are Nogays, whom the Bulgars adopted among them: their country at least is a part of the ancient Bulgaria. They formerly roamed about the southern Siberia under the conduct of their own princes: to avoid the molestations of the Siberian khans, they settled in their present possessions, spread themselves about the rivers Volga and Ural, and were subject to the Kazanian khanate. On the overthrow of that state by czar Ivan II. they voluntarily took refuge under the Russian sceptre: they afterwards, however, frequently revolted against the government, whereby their prosperity as well as their population have been considerably diminished. In the year 1770, they consisted of twenty-seven thousand families, having their homestead in the governments of Ufa and Perme. The Bashkirs have been long without khans; and all their nobility have been gradually destroyed in the civil wars. At present every tribe or wolost chuses for itself one or more ancients, or starshinis; and the whole nation composes 34 wolosts. The huts or houses, which they inhabit during winter, are built after the Russian fashion; the principal part, which the family commonly possesses, is furnished with large benches, which serve for beds; the chimney, of a conical form, and of the height of an ordinary man, is in the middle of this division, and so ill constructed, that they are very liable to smoke: on this account the Bashkirs are very subject to various complaints of the eyes. In summer this people inhabit what the Russians call Jurtes; they are tents or covers of felt, which, like the huts, have several divisions and a chimney in the centre. A winter village

village contains from ten to fifty huts; but the summer encampment never exceeds twenty jurtes. These jurtes are a kind of barracks.

The Bashkirs have some knowledge of the art of writing, and have schools; but as it is from their own nation that they elect their priests and the instructors of youth, they remain in the profoundest ignorance. With some knowledge of tillage, they retain a liking to the pastoral life; which spoils them for agriculture. They sow but little grain; consequently their harvests afford them only a few resources for the winter, being far from sufficient for their whole consumption. They apply with greater success to the cultivation of bees; making hollows in the trees to serve the purposes of hives; which, to secure from the attacks of the bears, they have invented a variety of ingenious contrivances both as weapons and traps. One man, in frequent instances, is known to possess at least five hundred hives. They have the art of finding out the mountains that contain mines; but, like the Tartars, they would think themselves disgraced by working them themselves. It must be owned, however, that they have not the strength of body which that labour requires. Their practice is to let them out for a term of sixty years to Russian contractors, assigning to them at the same time a tract of forest necessary for the forges. The poorest of them serve for wages in transporting the ore.

The women understand the art of weaving, fulling, and dyeing narrow coarse cloths; they likewise make the clothes for the whole family. They make a small quantity of linen of hemp; but they prefer weaving the filaments of the common nettle, as that plant requires no culture, and the linen they make of it is extremely coarse. They have not the unwholesome practice of steeping their hemp or their nettles in water, but leave them to dry in the air on the top of their huts during the autumn and winter; then stripping off the bark, they pound them in wooden mortars. The men follow the more difficult business of making felt and of tanning leather. Both sexes wear shirts of the cloth made of nettles; they also wear wide drawers, which descend to the ankle-bone, and a sort of slippers, like people in the East. Both men and women wear a long gown, that of the men being generally of red cloth bordered with fur; this they bind round their middle with a girdle, or with the belt to which they fix their scymitar. The poor have a winter pelisse of sheep skin, and the rich wear a horse skin in such a manner that the mane covers their back and waves in the wind. The cap is of cloth like the frustum of a cone, and 10 inches high; and that of the rich is usually ornamented with valuable furs. The gown of the wives is made of fine cloth or silk, buttoned before as high as the neck, and fastened by a broad girdle, which the richer classes have made of steel. Their necks and throats are covered with a sort of shawl, on which are several rows of coins, or a string of shells.

The principal wealth of this people consists in their flocks; it is especially from their horses that they derive the necessities of life; meat, milk, vessels, garments. They have nearly as many and even rather more sheep than horses; and their horned cattle are about half as numerous; they likewise bring up some goats, and only the rich have camels. A man of the ordinary class has seldom fewer than between thirty and fifty horses, many possess five hundred, and some a thousand, two thousand, and more. Their sheep are of the broad-tailed species; they esteem the others for the fineness of their wool.

The most opulent of the Bashkirs are those who dwell to the east of the Ural, and in the province of Iset. Some of them are owners of not less than four thousand horses,

who fatten in the richest pastures: the wasps and gnats oblige them in the month of June to quit these fine meadows, and retreat to the mountains; the horses then lose their flesh and pine away, but regain their pristine vigour on coming down again to the plains in the month of July.

Though the Bashkirs experience a long and very severe winter, yet they abandon their flocks and droves to the inclemencies of the season. They have neither granaries nor barns; they only lay up a little hay, which they range in cocks round the trees, reserving it for the intempered cattle. Those that are healthy pick up a little grass or moss from beneath the snow, and are often reduced to the necessity of feeding on the bark of the young elms. No farther attention is paid to the camels, then to wrap them in some wretched coverings of felt which they sew about their body. The cattle towards the end of the winter are become lean, weak, and emaciated. Though the females are never kept apart from the males, they rarely bring forth out of season; because the exhausted state of the flocks and herds during the winter, is unfavourable to generation. Neither the Bashkirs nor the Kalmuks suffer the colts and the calves to suck their dams except during the night, their practice being to milk them in the day-time for their own advantage; kumiss, prepared from mare's milk, being their favourite liquor. (See KUMISS.) They are also fond of a mixture of four milk and mead, called ARJAN. In the spring they drink the sap of the birch, which they collect by means of deep incisions in the trees.

Their arms are the bow, the lance, the helmet, and coat of mail; from the Russians they obtain sabers, muskets, and pistols. A Bashkirian army presents a truly curious spectacle; observing no order in marching, they only form into ranks when they halt. Every one leads a horse in his hand, which carries all his provisions: the load however is not heavy; consisting only of cheese, some corn dried in the kiln, and a hand-mill to grind it to meal. With the meal they form a ball which they swallow, and which serves them for bread. Each warrior, dressed in his long gown, equips himself as he chuses or as he can. One has procured for himself the various kinds of arms, and carries a whole arsenal with him; the other scarcely possesses more than one ill-conditioned weapon. Such troops as these rendered the armies of the ancient Persians at once so numerous and so little formidable.

They are all well mounted, are skilful in drawing the bow, and dexterously manage their horses. A small number of Bashkirs are easily victorious over a numerous squadron of Kirghises; sometimes one of their regiments will traverse a whole horde of Kirghises, put to flight by their very looks all the enemies they meet, and return triumphant without having sustained the slightest loss. The military service which they are bound to perform, and the only point in which they are galled by the Russian yoke, consists in furnishing, in time of war, 3000 cavalry, which form 30 troops of 100 men each. The Bashkirians are the most negligent and slovenly of the Tartars. In commerce they are the least intelligent; but, at the same time, they are the most hospitable, the most lively, and the most brave. Their diversions at any religious festival, or at a marriage, consist in numerous libations of four milk, singing, dancing, wrestling, and horseracing, in which they excel. In their songs they enumerate the achievements of their ancestors, or their own, and sometimes their amorous adventures. Their songs are always accompanied with gestures, which render them very theatrical. Among them old age meets with the greatest respect. In their entertainments, it occupies the place of honour; and the stranger, to whom compliments are paid,

is always set among the old men. The language of these people is a Tartar dialect, very different from that spoken at Kasan. The Bashkirians are, like most of the Tartars, Mahometans; but though they have their mosques, their molaks, and their schools they are much addicted to superstition and sorcery. Their forcers challenge even the devil, and pretend to engage with him in combat; and thus they delude the credulous vulgar, who consult them in their distresses, and particularly when they lose any of their mares. Tooke's View of Russia, vol. i. p. 473. Chantreau's Travels, vol. i. p. 281.

BASHLI, or BASCHLI, in *Geography*, a small town on a brook of the same name, at the distance of 4 German miles from the Caspian sea.

BASHUYSEN. HENRY JAMES VAN, in *Biography*, a learned divine, was born at Hanau, in Germany, in 1679, and educated at Bremen, Leyden, and Franeker. In 1701, he was appointed professor of the oriental languages and ecclesiastical history in the gymnasium of Hanau, afterwards professor of theology; and in 1712, he was elected member of the Royal Society of Berlin. He was afterwards professor of theology, the oriental languages, and history, in the gymnasium at Zerbst, where he died in 1758. About the year 1709, he established in his own house a printing-office, in which he printed many Hebrew and Rabbinical works. Among his writings are "Observ. Sacr. lib. i. de integritate Sac. Script." Frankf. 1708. 8vo; "Comment. R. H. Abarban. in pentateuchum Mosis, &c." Hanov. 1710, fol. "Disput. iii. de Kabbala vera & falsa," Hanov. 1710, 1711, 1712, 1713, 4to; "Systema Antiq. Hebr. minus," Hanov. 1715, 8vo; "Miscellanea Sacra, &c." Witteb. 1719, 4to; "Diff. de Iside, &c." Serv. 1719. 4to; "Clavis Talmudica, &c." Hanau. 1740, 4to. Gen. Biog.

BASIA ULTIMA. See ULTIMA.

BASIATRAHAGI, in *Botany*, a name used by some for the common *polygonum*, or knot-grass.

BASIENTO, in *Geography*, a river of Naples, which rises near Potenza, in the province of Basilicata, traverses this province, and runs into the gulf of Tarento. This is the ancient Metapontus, or Casuentum, on which Octavius Cæsar and Mark Antony had an interview, brought about by the mediation of Octavia.

BASIL, ST., denominated the Great, in *Biography*, was born in Cappadocia, in the year 328 or 329. Having received instructions from his father in polite literature, he pursued his studies at Antioch under Libanius, at Cæsarea in Palestine, at Constantinople, and at Athens; in which latter place he formed an intimate acquaintance with Gregory Nazianzen, and was introduced to Julian, afterwards emperor. In 355, he returned to his native country, and became a professor of rhetoric, and a pleader. His religious zeal, however, soon induced him to visit the monasteries in the deserts of Egypt and Lybia; and here his imagination was so impressed with the austerities of the devout solitaries in these sequestered mansions, that he withdrew to a retired spot in the province of Pontus, and embraced the monastic life. He was soon joined by his brother and several friends, to whom he gave a set of ascetic rules; and he is regarded as the founder of all similar institutions in Pontus and Cappadocia. His monastic life continued, but not without some interruption by other avocations, for twelve years. Having been ordained priest by Eusebius bishop of Cæsarea, he again withdrew to his solitude; but as his fame increased, he was elected to this see on the death of Eusebius in 369, 370, or 371. Here he succeeded Athanasius in the conduct of the Trinitarian controversy. Many attempts were made by the emperor Valens, who was an Arian, partly by friendly solicitations, and partly by angry menaces, to induce him to com-

municate with Eudoxus, the Arian bishop of Constantinople; but altogether without effect. Basil, however, remaining firm and inflexible, was left in the free possession of his conscience and his throne. The emperor himself assisted at the solemn service of the cathedral, and subscribed the donation of a valuable estate for the use of an hospital which Basil had lately founded in the neighbourhood of Cæsarea. The bishop employed himself with much assiduity in endeavouring to reconcile the eastern and western churches, which had differed on account of the two rival bishops of Antioch; and he also attempted to terminate the disputes between the two churches respecting the hypostases: but his endeavours were unavailing. He was likewise engaged in disputes more personally interesting to himself; for the emperor having divided his province of Cappadocia into two parts, Anthimus bishop of Tyana, the metropolitan of the new moiety, attempted to enlarge his limits. Basil resisted this usurpation; and, erecting the little border town of Sasima into a bishopric, with a view of securing his boundaries, he appointed his friend Gregory Nazianzen to this see. Gregory submitted with reluctance to this humiliating exile, and embraced the first opportunity that offered of withdrawing from it to the government of his native church of Nazianzus, of which his father had been bishop above 45 years. After some other theological contentions, Basil closed his life in 378, or 379, or 380, after having been bishop somewhat more than eight years. The talents and accomplishments of this prelate have been highly extolled; and, allowing for some alloy of spiritual pride, not without justice. Few of the fathers occupied a higher rank. His style is pure, elegant, and dignified; so that Erasmus makes no scruple in equalling or even preferring his eloquence to that of Demosthenes, and the most celebrated orators of ancient Greece. His erudition was extensive; his reasoning more close and forcible, and his illustrations of scripture more natural than those of many of the fathers. Many writings have been ascribed to Basil without sufficient reason; and, therefore, many learned moderns, among whom we may reckon Cave, Fabricius, Tillemont, Dupin, and especially Garnier, have taken laudable pains in distinguishing the spurious from the genuine. Of the various editions of his works that have been published, the first in Greek was that of Frobenius at Basil in 1532, under the inspection of Erasmus; and the best modern edition of all his works, consisting of "Homilies, Epistles, Commentaries, and Moral Treatises," is that of the learned Benedictines, D. Garnier and D. Prudent Morand, at Paris, 3 vols. folio, from 1721 to 1730, with a Greek text: this edition contains a faithful and elegant Latin version, and valuable notes. The "Life of St. Basil" was written at large by M. Hermant, in 2 vols. 4to. 1674. Cave, H. L. vol. i. p. 238, &c. Dupin. Bib. t. ii. p. 154, &c. Dupin. Eccl. Hist. vol. i. p. 122, &c. Fabr. Bib. Græc. t. viii. p. 60. 69. Lardner's Works, vol. iv. p. 400. Gibbon's Hist. vol. iv. p. 269. vol. v. p. 19.

BASIL, bishop of Ancyra, was placed in that see, in 339, by the council of Constantinople which deposed Marcellus, and he himself was deposed at the council of Sardica in 347, though by the favour of the emperor he retained his see. In 351, he was present at the council of Sirmium, and had a dispute with Photinus. Epiphanius reckons him among the chief of the Semi-Arians, who held the Son to be of like substance to the Father; Sozomen says he was in esteem for eloquence and learning; and Theodoret observes, that he was in great favour with the emperor Constantine for his piety. His peculiar opinion with regard to the identity of the substance of the Father and the Son was, by his influence, established in the council of Ancyra held A. D. 358; and he maintained it in several disputes with the Eudoxians and Acacians,

Acacians, in the presence of Constantius. However, the Acacians prevailed against him in the council of Constantinople, A. D. 360, and procured his deposition; nevertheless he kept possession of his see, and was acknowledged as bishop by the orthodox prelates. Basil is supposed to have died, either at the end of Jovian's reign, or the beginning of that of Valens. Cave, *Hist. tom. i. p. 210.* Lardner's Works, vol. iv. p. 125.

BASIL, in *Botany.* See OCYMUM.

BASIL, *Field.* See CLINOPODIUM.

BASIL, *American Field.* See MONARDA.

BASIL, *Syrian Field.* See ZIZIPHORA.

BASIL, *Stone, and Wild.* See THYMUS.

BASIL, *Order of St., in Ecclesiastical History,* is the most ancient of all the religious orders. It takes its name from St. Basil, bishop of Cæsarea, in Cappadocia, about the middle of the fourth century; who is supposed to have been the author of the rules observed by this order, though some dispute it. The order of St. Basil was anciently very famous in the East, and still continues in Greece. The habit of the monks is black, and plain, consisting of a long cassock, and a great gown with large sleeves; on their head, they wear a hood, which reaches to the shoulders; they wear no linen; sleep without sheets, on straw; eat no flesh; fast often; and till the ground with their own hands. The historians of this order inform us, that it has produced 1805 bishops, and beatified, or acknowledged as saints, 3010 abbots, 11,805 martyrs, and an infinite number of confessors and virgins. They likewise place among the religious of this order of St. Basil 14 popes, several cardinals, and many patriarchs, archbishops, and bishops. It likewise boasts of several emperors and empresses, kings, and queens, princes and princesses, who have embraced the rule of St. Basil.

This order was introduced in the West in 1057, and was reformed in 1579 by pope Gregory XIII. who united the religious of this order in Italy, Spain, and Sicily, into one congregation; of which the monastery of St. Saviour, at Messina, is the chief, and enjoys pre-eminence over the rest. Each community has its particular rule, besides the rule of St. Basil; which is very general, and prescribes little more than the common duties of a Christian life.

BASILE, *Basle, or Bale, in Geography,* one of the new cantons of Switzerland, which joined the Helvetic confederacy in 1501. It is bounded on the south-west and south by the canton of Soleure, on the east by Lower Argow and the canton of Baden, on the north-east by the territory of Rheinfelden, one of the forest towns, and on the north-west by Alsace, and on the west by the bishopric of Basle. Its extent is about 160 square miles, and its population is estimated at 40,000 persons. The lower parts of this canton are fertile in corn and wine, and also fit for pasture; but the mountains are extremely barren. It has many medicinal springs and baths, and the air is temperate and salubrious. The religion of this canton is the reformed, or Protestant. As to its ancient government, the bishops of Basle once possessed the sovereignty over the city and canton; but when they quitted this town in 1501, and retired, first to Friburg in Brisgau, and afterwards established their residence at Porrentru, they lost the inconsiderable authority and few prerogatives that belonged to them. Upon the introduction of the reformation in 1525, the constitution was in some measure changed, and the power of the aristocracy limited. Before the late revolution, the government was aristocratic, inclining towards a democracy. The supreme legislative power resided in the great and little councils, consisting of about 300 members, and the authority of these two councils was without controul; they enacted laws, declared war and

peace, contracted alliances, and imposed taxes; they elected the several magistrates, appointed their own members, nominated to all employments, and conferred the right of burghership. The general administration of government was committed, by the great council, to the senate or little council; that is, to a part of its own body. This senate, composed of sixty members, together with the four chiefs of the republic, two burgomasters, and two great tribunes, was divided into two bodies, which acted by rotation; the acting division continued in office one year, decided finally in all criminal causes, superintended the police, and exercised several other powers subordinate to the sovereign council. The collective body of citizens assembled only once a year, when the magistrates publicly took an oath to maintain the constitution, and to preserve the liberties and immunities of the people inviolate. The reciprocal oath of obedience to the laws was administered to the citizens in their respective tribes. But, notwithstanding the boundless prerogatives of the great council, the meanest citizen was legally capable of being admitted into that body, and, by the singular method of election, might possibly be chosen; for the vacancies in the two councils were supplied from all ranks of citizens, the members of the university only excepted. These citizens were divided into eighteen tribes, fifteen of which belonged to the larger towns, and three to the smaller; each of the fifteen tribes returned four members to the senate, and each of the eighteen sent twelve to the great council. As these elections were formerly determined by a plurality of voices, the richest person was always almost certain of being chosen; to prevent which, a regulation, called a "ternaire," was established; that is, three candidates were nominated, and from these the successor was appointed by lot. In 1740, an act was passed, by which the "ternaire" was changed into a "fenaire," by which six candidates were put in nomination, and drew lots for the charge; six tickets, containing the names of the respective candidates, and separately placed in silver eggs, were put into one bag, and the same number of tickets, five being blanks, and one marked with the vacant employment, were put into another bag: the reigning burgomaster and the great tribune, appointed to be the drawers of this official lottery, both at the same instant took a ticket from each bag, and the candidate whose name came out with the ticket on which the employment was written, obtained the post.—But it is now needless to pursue the detail. In 1798, the Helvetic confederacy was dissolved by the invading power of France, and, according to the distribution of that year, Basle was constituted one of the eighteen departments into which Switzerland was divided: but according to the constitution of 1801, Basle was made one of the departments, with the addition of the lower part of the Frickthal to Seckingen, with the right of deputing three representatives to the diet.

Basle was the first canton which separated from the old Helvetic confederacy, and adopted the new constitution fabricated in France. Its situation near the frontiers, exposed it to the intrigues of the French agents, and without foreign support, rendered it incapable of resistance. The peasants of the canton were likewise dissatisfied with the monopoly of power and commerce vested in the burghers of the town. Encouraged by the French, and excited by their own turbulent demagogues, they peremptorily required emancipation and independence. The progress of the revolution in this canton was almost instantaneous; the magistrates were incapable of resistance, and obliged to resign their authority; and sixty delegates appointed by the people, were invested with a provisional government, until the new constitution should be consolidated. Coxe's Travels in Switzerland, vol.

vol. i. What other changes await the Swiss cantons, time must develop. See SWISSERLAND.

BASIL, or BASLE, the capital of the canton of the same name, is the largest, and seems formerly to have been one of the most populous towns in Swisserland. Its extent is capable of containing above 100,000 inhabitants, and it is said to have 220 streets, and six market-places or squares; whereas it can now scarcely number more than 14,000. Among the causes which have contributed to its decrease, Mr. Coxie mentions the jealousy of the citizens with regard to the burghership, which they seldom deign to confer upon foreigners; and, on this account, no supply can be obtained to balance that gradual waste of people which takes place in great cities, from an influx of strangers, who are not permitted to carry on commerce, or to follow any trades. The late law that allows the freedom of the town and the right of burghership to be conferred upon strangers, is clogged with so many restrictions, that it by no means answers the purpose for which it was intended.

Basle is beautifully situated on the banks of the Rhine, near the point where the river, which is here broad, deep, and rapid, after flowing for some way from east to west, turns suddenly to the north. It consists of two towns, joined together by a long bridge; the large town lying on the side of Swisserland, and the small town on the opposite bank of the river. Its environs are very beautiful, consisting of a fine level tract of fields and meadows. It was anciently called Basilea, as we learn from Ammianus Marcellinus; and in the middle ages, Basula: and it appears in history, soon after the reign of Charlemagne; having succeeded AUGST, or the Augusta Rauracorum. Basle is very favourably situated for commerce; and of this advantage the inhabitants have availed themselves, by establishing a great variety of manufactures, particularly of ribbands and cottons; and by the extensive trade that is carried on by the principal merchants. The cathedral is an elegant Gothic building, and contains the marble tomb of the famous Erasmus, who chose this city as his favourite place of residence, and published from hence the greatest part of his valuable works. Basle has, besides the cathedral, six parochial churches, and several other public buildings; such as a public granary and an arsenal, a town-house, and a stately palace belonging to the margrave of Baden Durlach, a chamber of curiosities, several hospitals, &c. In the town-house is an exquisite piece of the sufferings of Christ, by Holbein, who was a native of this place; and a statue of Munatius Plancus, the Roman general, who founded Augusta Rauracorum. In the arsenal is shewn the armour in which Charles the Bald lost his life, with the furniture of his horse, and the kettle drums and trumpets of his army. On the stair-case of the council-house is a picture of the last judgment, in which, though painted before the reformation, popes, cardinals, monks, and priests, are represented in the torments of hell. Upon a wall that incloses the burial-ground of the church of the Protestants in the suburbs of St. John, is painted, in oil colours, the "dance of death," erroneously attributed to Holbein, as it was painted before he was born, in which the king of terrors is represented as mixing with all ranks and ages, and complimenting them in German verses on their arrival at the grave. From this ancient painting, it is thought, that Holbein took the first hint towards composing his famous drawings on the "dance of death." Prints were taken from some of these drawings by Holiar, which are now very scarce. The university of Basle, founded by pope Pius II. in 1459, or 1460, was formerly eminent in the literary history of Europe. It was honoured by the celebrated names of Oecolampadius, Amerbach, the three Baulins, Grynæus, Buxtorf, VOL. III.

Wetstein, Iselin, the Bernouillis, and Euler; and it still boasts of several members who are ornaments to their native town by their learning and talents. The public library contains a small collection of books, remarkable for several rare and valuable editions, particularly of those printed in the 15th century. Besides books, this library contains some valuable MSS. In a suite of rooms belonging to it, are a cabinet of petrifications, some ancient medals and gems, a few antiquities found at Augst, a large number of prints, and some fine drawings and paintings, consisting chiefly of originals by Holbein, most of which are in the highest preservation. Basle is famous for the excellence of its police, and the strictness of its sumptuary laws. Although the use of coaches is not prohibited, yet no citizen or inhabitant is allowed to have a servant behind his carriage. No person, it is said, without the city, must wear lace of gold or silver; and all young women are prohibited from wearing silks. By such regulations, a distinguishing simplicity of manners prevails even in the richest families. It was formerly a singularity belonging to this town, that all its clocks were an hour faster than the real time, which, according to some, was introduced during the council of Basle, in order to summon the cardinals and bishops in due season for the dispatch of business: others say, that they were put forward, in order to defeat a conspiracy, by one of the burgomasters, who had notice of the design; by which the conspirators, thinking that they had missed the time and were too late, were induced to retire: others say, that the sun-dial on the cathedral, which regulates the clocks, declines somewhat from the east, and this circumstance, according to Bernouilli, occasions a variation from the true time of about 45 minutes. The inhabitants have long tenaciously maintained this ancient custom, and resisted every change; till in the late new order of things, a revolutionary change has taken place with regard to the clocks as well as the government, and they have been altered to the true time. Basle was formerly the see of a bishop; but though there is one that now bears the title, he lives at Porentru near Alface, and has no jurisdiction in this city.

The famous council of Basle began its sittings in 1431, continued its deliberations, and proceeded in enacting laws and publishing edicts, until the year 1443, notwithstanding the efforts of pope Eugenius, who had been deposed from the papacy of the council in 1439, and his adherents, to put a stop to their proceedings. And though in that year the members of the council retired to their respective places of abode, yet they declared publicly that the council was not dissolved, but would resume its deliberations at Basle, Lyons, or Lausanne, as soon as a proper opportunity occurred. Accordingly, in the year 1449, when Felix V. resigned the papal chair, the fathers of the council of Basle assembled at Lausanne, ratified his voluntary abdication, and, by a solemn decree, ordered the universal church to submit to the jurisdiction of Nicholas as their lawful pontiff. Nicholas set the seal of his approbation and authority to the acts and decrees of the council of Basle. The two grand points that were proposed to the deliberation of the famous council of Basle, were the union of the Greek and Latin churches, and the reformation of the church universal, both in its head and in its members, according to the resolution that had been taken at the council of Constance. In 1435, this council publicly abolished the "annats;" and in 1436, a confession of faith was read, which every pontiff was to subscribe on the day of his election; the number of cardinals was reduced to twenty-four; and the papal impositions called "expectatives," "reservations," and "provisions," were annulled. *Mosh. Eccl. Hist. vol. iii. p. 420, &c. N. lat. 47° 35'. E. long. 7° 29' 30".*
5 B BASIL.

BASIL, or **BASLE**, *Bishopric of*, a principality of Germany, in the circle of the Upper Rhine, may be classed under two general divisions: the first lies to the south of Pierre Pertuis, and forms a part of Switzerland; the second, to the north of the same boundary, includes that district which is properly situated within the German empire. The sovereign, that is, the bishop of Basle, or, as he is called by the Protestants, the prince of Porentru, whose principal residence is Porentru, the capital of his dominions, was formerly chosen by the chapter of eighteen cantons, resident at Arlesheim, and confirmed by the pope. He was a prince of the German empire, and did homage to the emperor for that part of his territory which lies in the circle of the Upper Rhine. He was always considered as an ally of the Swiss, by his union with the Catholic cantons, first formed in 1579, and renewed at different intervals, particularly in 1671 and 1697, and by being included in the treaty which those cantons contracted with France in 1715: but as he was not comprized among the allies of the Swiss, in the league between the thirteen cantons and Louis the XVIth, in 1777, he was not deemed a member of the Helvetic confederacy. The first particular alliance with France was concluded in 1739, between the bishop and Louis the XVth, and was renewed in 1780. The population of that part of the bishopric of Basle that was allied to the cantons amounted to 24,000. The form of government was a limited sovereignty, the bishop being bound, on all important occasions, to consult his chapter; and his prerogative being confined, by the great immunities enjoyed by his subjects in general, and particularly by those of the reformed communion. He nominated to all employments both civil and military, and appointed the bailiffs or governors; criminal justice was administered in his name, and he had the power of pardoning. In civil proceedings, he received an appeal from the inferior courts; but in his German dominions, when the cause exceeded the value of a stipulated sum, it might be carried to the chambers of Wetzlar or Vienna. The subjects of the bishop are partly Protestants and partly Catholics: the Protestants inhabit the greater part of the valley of Munster, and the whole district to the south of Pierre Pertuis, and are about 15,000; the Catholics amount to 35,000. The French and German languages are both spoken in the bishop's dominions. The whole bishopric of Basle is now annexed to France. In 1792, their troops over-ran the country of Porentru on the German part, under the pretence of delivering the natives from slavery, and took possession of the famous pass of Pierre Pertuis. This district was ceded to France by the treaty of Campo Formio, and is formed into the department of Mont Terrible. In 1798, the Helvetic part of the territory was taken possession of, in the name of the republic, by general St. Cyr, under a declaration that France succeeded to the property, dominions, rights, and prerogatives of the bishop. This district was also annexed to the department of Mont Terrible. The bishopric of Basle is a fertile country, and many forges are employed in the manufactures of iron and steel.

BASIL, among *Joiners*, denotes the angle to which the edge of an iron tool is ground. To work on soft wood, they usually make their basil 12 degrees; for hard wood 18: it being observed that the more acute or thin the basil is, the better and smoother it cuts; and the more obtuse, the stronger and fitter it is for service.

BASILAN, or **BASSEILAN**, in *Geography*, one of the Philippine islands; 12 leagues in circumference, very fertile, especially in fruit and rice; 6 leagues S. W. of Mindanao. N. lat. 5° 51'. E. long. 121° 30'.

BASILARE *Os*, in *Anatomy*, a barbarous denomination

given to the *os sphenoides*, on account of its being situated at the bottom or basis of the skull; or because a great part of the brain rests upon it, as on its basis.

BASILARIS Arteria. See **ARTERY**.

BASILE, *St.* in *Geography*, a town of Italy, in the kingdom of Naples, and province of Otranto, 18 miles east of Matera.

BASILE, *St.* is also a town of the kingdom of Naples, in the province of Basilicata; 11 miles N. E. of Turin.

BASILEUS, βασιλεως, a title assumed by the emperors of Constantinople, exclusive of all other princes; to whom they give the title *rex, king*. The same quality was afterwards given by them to the kings of Bulgaria, and to Charlemagne; from the successors of which last they endeavoured to wrest it back again.

The title *basileus* has been since assumed by other kings; particularly the kings of England; "*Ego Edgar totius Anglie basileus confirmavi*."

Hence also the queen of England was intitled *basilea*, and *basilissa*.

BASILEUS, in *Ornithology*, a name by which many of the old authors called the *Regulus Cristatus* of Aldrovand, the *MOTACILLA REGULUS* of the Linnæan system, or the golden-crested wren.

BASIL, in *Geography*, a river of European Turkey, which runs into the gulf of Colokitia, 4 miles N. N. E. of Colokitia.

BASIL, *St.* a town of European Turkey, in the Morea; 8 miles S. of Corinth.

BASILIA, a town of Poland, in the palatinate of Volhynia; 32 miles W. S. W. of Constantinow.

BASILIA, or **BASILICO**, a fortified town north of Corinth, situate upon the coast of the gulf of Lepanto.

BASILIANI. See **BOGOMILI**.

BASILIC, **BASILICA**, is used in *Ecclesiastical Writers*, for a church. In which sense this name frequently occurs in St. Ambrose, St. Austin, St. Jerom, Sidonius Apollinaris, and other writers of the fourth and fifth centuries.

M. Perault says, that basilics differed from temples, in that the columns of temples were without side, and those of basilics within.

Some will have the ancient churches to have been called basilicæ, because generally built in the fashion of the Roman halls called by that name; others, because divers churches were formed of those halls. Some have supposed that, on the conversion of Constantine, many of the ancient basilicæ were given to the church, and turned to another use, viz. for Christian assemblies to meet in; and they refer to that passage in Ausonius, where, speaking to the emperor Gratian, he tells him, the basilicæ, which heretofore were wont to be filled with men of business, were now thronged with votaries praying for his safety; by which it is apprehended he must mean, that the Roman halls or courts were turned into Christian churches: and hence it has been conceived, that the name basilicæ came to be a general name for churches in after-ages. See **BASILICA**.

BASILIC is chiefly applied, in modern times, to churches of royal foundation; as those of St. John de Lateran, and St. Peter of the Vatican, at Rome, founded by the emperor Constantine.

BASILIC appears also to have been given, in later ages, to churches before consecration.

BASILICS were also little chapels built by the ancient Franks over the tombs of their great men; so called, as resembling the figure of the sacred basilicæ or churches.

Persons of inferior condition had only tumbæ, or porticuli, erected over them. By an article in the Salic law, he that

that robbed a tumba or porticulus, was to be fined fifteen solidi; but he that robbed a basilica, thirty solidi.

BASILICA, or BASILICUS, in *Anatomy*, the name of a vein, arising from the axillary branch, and running the whole length of the arm. The basilica is one of the veins opened in bleeding in the arm. See VEIN.

BASILICA, in *Architecture*. This word, which has successively received very different acceptations, is derived from βασιλευς, king, and οikos, house: it means, therefore, etymologically, royal house. Perhaps the halls of justice acquired this name in early antiquity, when the judging of the people might be regarded as the peculiar regal prerogative; and it was natural that they should retain this appellation, when justice was no longer administered by kings. Among the public edifices composed of a single building, the basilica appears to have been one of the largest. It was, among the Romans, an ample hall adjoining to the Forum, in which the magistrates judged under cover; which distinguished it from the fora, where they held their sittings in the open air. Here the tribunes and centumvirs administered justice, and the jurisconsults and legists in the pay of the republic, advised those who came to consult them. Young orators declaimed in separate apartments, and the porticos were occupied by merchants and traders. Thus these edifices were at the same time applied to the purposes of commerce and judicature.

It is to be lamented that the antique basilicas have so entirely perished, that the construction and disposition of them are involved in great doubt and obscurity. Vitruvius, the only ancient architect whose writings have descended to us, gives the following description of the Roman basilica.

“The basilica should be adjoined to the forum on the warmest side, that the merchants may confer together without being incommoded by the weather. The breadth is not made less than the third, nor more than the half of the length, unless the nature of the place opposes the proportion, and obliges the symmetry to be different. But if the basilica has too much length, chalcidicæ are made at the ends, as they are in the basilica of Julia Aquiliana. The columns of the basilica are made as high as the portico is broad. The portico is the third part of the space in the middle; the upper columns are a fourth part less than the lower. The pluteum, which is between the upper columns, should also be made a fourth part less than the same columns, that those who walk in the floor above may not be seen by the merchants below. The epistilium, zophorus, and coronæ, are proportioned to the columns, in the manner explained in the third book.”

The basilica, however, which Vitruvius erected at the colony of Julia of Fesum, did not conform to the foregoing precepts. It is thus described: “the middle testudo (aisle or nave) is 120 feet long, and 60 feet broad; the surrounding portico between the walls and columns is 20 feet broad. The columns, continued the whole height of the building, are 50 feet, including the capitals, and 5 feet in diameter; having behind them pilasters 20 feet high, which sustain the beams that bear the floor of the upper porticos. Above these pilasters are others 18 feet high, which support the ceiling of the upper porticos, which is laid lower than the roof of the testudo, the space between being left open in the intercolumniations for light. The columns in the breadth of the testudo are four, including those of the angles; and in the length, of the side next the forum, including the same angles, eight. On the other side there are but six, the two in the middle being omitted, that they may not obstruct the view of the pronaus of the temple of Augustus, which is situated in the middle of the side wall of the basilica.

The tribunal in this building is in the figure of a hemicycle, extending in front 46 feet, and recessing in the centre of the curvature 15 feet; so that those who attend the magistrate obstruct not the merchants in the basilica.”

From the preceding descriptions it would appear, that the ancient basilica consisted of a great nave in the middle, surrounded with only one range of porticos; and it is thus that it has been represented in the designs of all who have restored it from the words of Vitruvius. However, the fragments of the plan of Rome taken under Septimius Severus, which still exist, shew a part of the basilica Æmiliana; and in this authentic record we find two rows of columns on each side, which, supposing an exterior wall, would give two ranges of porticos. But this valuable relic gives reason to doubt, whether the basilicas were surrounded with walls, or whether their porticos, open on every side, communicated with the public places. The description of Vitruvius explains nothing in this particular; but it may perhaps be inferred from what he recommends relative to the warmth of the exposure, that they were not inclosed.

Supposing the entrance of the basilica to be at one end, the other was terminated by a hemicycle, in which was placed the tribunal; this circular end answers to the apsidium of the Christian basilica. The chalcidicæ mentioned by Vitruvius have given rise to various conjectures, which it would be useless to detail, as we have no data from which any other inference can be drawn, than that they were some kind of apartments, separated by a partition, at the ends of basilicas.

Before the excavations made at Otricoli, and the discoveries which were the result, we had only conjectures on the form and nature of the ancient basilica; uncertain vestiges were all that remained of those of Rome, and the situation of the famous basilicas, Æmilia and Fulvia, was sought in vain at Præneste. The monument of Otricoli, therefore, ought to be very precious if we find in it a true basilica, of which the reader will be enabled to judge from the following description.

To discern the essential character of a basilica, it will be useful previously to consider the difference between it and a temple. The original form of a temple is an oblong cella or body, surrounded with porticos; and even where the lateral porticos were suppressed, they were never deprived of a pronaus or portico in front. In short, in the basilica the porticos were internal and external in the temple. Now the edifice of Otricoli has no exterior colonade, neither pronaus nor peristyle. It is a square building, surrounded with a simple wall. In the middle the entrance is by a rustic opening, without any vestige of decoration. The interior consists of a great hall, divided by porticos into three naves or aisles. The portico immediately opposite the entrance is composed of three arches; eight Corinthian columns form the remaining three porticos; the further end of the building is occupied by a hemicycle or tribunal, on each side of which is a small apartment. The tribunal is ascended by several steps; and round the interior of the edifice is continued a pedestal, on which were statues which have been transported to the Museum Vaticanum. The ceiling was probably of wood, as there are no remains of a vault. No vestiges lead even to suspect that in the middle there might be a base for a statue, or any thing that indicates a temple.

This monument is certainly deficient in many of the characteristics of a basilica; its plan is an exact square instead of an oblong, and the upper galleries are wanting. However, considering to what variations these edifices were subject, according to the riches, the size of towns, and the diversities of situation; and how much Vitruvius, the author

of the precepts which should fix our ideas on this subject, has departed from his own rules in the construction of his basilica, it will perhaps be impossible not to recognize, in the edifice of Otricoli, an example of the ancient basilica.

But we cannot quit this division of the subject without mentioning a monument, interesting at any rate from the singularity of its architecture, and still more so if it preserve to us the form of the Grecian basilica. This edifice, one of the antiquities of Paestum, is in length the double of its breadth; it is formed by ranges of Doric columns, to the number of nine in each front and eighteen on each wing, including the angles. On a line with the central column of each front a range of columns is continued through, dividing the building into two parts; at the foot of these columns the pavement is elevated and adorned with mosaic. These interior columns supported the roof, which was probably a terrace. The uneven number of columns in the fronts, and the narrowness of their intercolumniations compared with those of the wings, prove sufficiently that the principal entrances must have been at the sides; and this circumstance, together with the absence of any exterior wall to inclose a cella, shews that this edifice could not have been a temple. But to the purposes of a basilica it seems very well adapted; open on every side, it admitted an easy access, while the elevation or bank in the middle, would afford a tribunal suited to the simplicity of the age.

The Ecclesiastical Basilica. It is not probable that the ancient basilicas were ever converted into Christian churches; in that case, we should still be in possession of some of these monuments of antiquity. The most ancient basilicas of the Christians, those which date from the first centuries of the public exercise of our religion, were built expressly for their use; and the details of their architecture, announce but too clearly the time of their construction. But these new temples resembled so much the antique basilicas, that they retained their name: and indeed if we examine the buildings of antiquity, we shall find no other so well calculated for the purposes of our religion. These edifices, at once simple in plan and magnificent in decoration, were of a form and disposition the most advantageous that can be imagined for large halls, and their construction combined solidity with economy. Their solidity is proved by the duration of fourteen centuries of some of these buildings; and their economy consists in the lightness of the points of support, and in that of the covering which was only of carpentry. In most of the basilicas, the walls and the points of support only occupy one tenth of the total space; which, in buildings vaulted and supported with arcades, like many modern churches, take up at least twice that superficies, and require besides materials and modes of construction which quadruple the expence.

It is to Constantine, that the first Christian churches known by the name of basilicas are to be referred. This prince signalized his zeal by the erection of monuments which announced the triumph of the religion which he had embraced. He gave his own palace on the Cælian mount to construct on its site a church which is recognized for the most ancient Christian basilica. A modern building has so much masked and disfigured the ancient, that only the situation and plan of this monument can be discovered.

Soon after, he erected the basilica of St. Peter of the Vatican. This magnificent edifice was constructed about the year 324 upon the site of the circus of Nero and the temples of Apollo and Mars, which were destroyed for that purpose. It was divided internally into five aisles from east to west, which terminated at the end in another aisle from north to south, in the centre of which was a large niche or

tribunal, giving the whole the form of a cross. The larger aisle was inclosed by forty-eight columns of precious marble; and the lateral aisles had likewise forty-eight columns of smaller dimensions; two columns were placed in each wing of the terminating aisle. The whole was covered with a flat ceiling, composed of immense beams which were cased with gilt metal and Corinthian brass taken from the temples of Romulus and Jupiter Capitolinus. A hundred smaller columns ornamented the shrines and chapels. The walls were covered with paintings of religious subjects, and the tribunal was enriched with elaborate mosaics. An incredible number of lamps illuminated this temple; in the greater solemnities 2400 were reckoned, of which one enormous candelabrum contained 1360. The tombs of pontiffs, kings, cardinals, and princes, were reared against the walls or insulated in the ample porticos.

This superb temple was respected by Alaric and Totila, and remained uninjured in the various fortunes of Rome during the lapse of twelve centuries; but crumbling with age, it was at last pulled down by Julius II. and upon its site has arisen the famous basilica, the pride of modern Rome.

The third great basilica built by Constantine, that of St. Paul on the road to Ostia, still exists. The interior of this building resembles precisely that of St. Peter which has just been described. Of the forty columns inclosing the great aisle, twenty-four are supposed to have been taken from the mausoleum of Adrian; they are Corinthian, about three feet diameter, fluted their whole length, and cabled to one third: the columns are of blue and white marble, and antiquity presents nothing in this kind more precious for the materials and the workmanship. But these beautiful remains seem only to be placed there to the disgrace of the rest of the construction, which is of the age of Constantine and Theodosius, and which most strikingly exemplifies the rapid decline of the arts.

The churches we have hitherto described bear a very complete resemblance to the antique basilica in plan and proportion. The only remarkable difference is, that the superior galleries are suppressed, in the place of which a wall is raised upon the columns of the great aisle, which is pierced with windows, and supports the roof.

The church of St. Agnese out of the walls, though not one of the seven churches of Rome which retain the title, is however a perfect imitation of the antique basilica. This resemblance is so complete, that without the testimony of writers who inform us that it was built by Constantine at the request of Constantia his sister or daughter, and without the details of its architecture which forbid us to date it higher, it might be taken rather for an ancient tribunal of justice than a modern church. It forms an oblong internally, three sides of which are surrounded with columns forming the porticos; the fourth side opposite the entrance is recessed in a semicircle; this is the tribunal. The first order of columns carries a second, forming an upper gallery, above which begins the ceiling of the edifice. The shortening of the columns, recommended by Vitruvius, is observed in the upper order.

We have hitherto observed in the Christian basilicas but small variations from the antique construction: they were still simple quadrilateral halls divided into three or five aisles, the numerous columns of which supported the flat ceiling; but the cross form, the emblem of Christianity, which began to be adopted in these buildings, operated the most essential changes in their shape. The intersection of the crossing aisles produced a centre, which it was natural to enlarge and make principal in the composition; and the invention of

domes supported on pendentives enabled the architects to give size and dignity to the centre, without interrupting the vista of the aisles. The church of St. Sophia at Constantinople was the first example of this form.

The seat of the Roman empire being transferred to Constantinople, it is natural to suppose that the disposition of the ancient St. Peter's of Rome, esteemed at that time the most magnificent church in the world, was imitated in that which Constantine erected for his new capital under the name of St. Sophia. This last did not exist long: Constantius, the son of Constantine, raised a new one which experienced many disasters. Destroyed in part, and rebuilt under the reign of Arcadius, it was burnt under Honorius, and re-established by Theodosius the younger; but a furious sedition having arisen under Justinian, it was reduced to ashes. This emperor having appeased the tumult, and wishing to immortalize his name by the edifice he was about to erect, assembled from various parts the most famous architects. Anthemius of Tralles and Isidore of Miletus were chosen; and as they had the boldness to attempt a novel construction, they experienced many difficulties and disasters; but at last they had the glory of finishing their design.

The plan of this basilica is a square of about 250 feet. The interior forms a Greek cross, that is, a cross with equal arms; the aisles are terminated at two ends by semicircles, and at the other two by square recesses, in which are placed two ranges of tribunals. The aisles are vaulted, and the centre, where they intersect, forms a large square, upon which is raised the dome, of about 110 feet diameter. The dome, therefore, is supported upon the four arches of the naves and the pendentives or foambrels which connect the square plan of the centre with the circle or the dome.

The general effect of the interior is grand; but whatever praises the bold invention of this immense dome may merit, it must be confessed that there are times in which princes, however great and liberal, can only produce imperfect monuments, of which this edifice is a striking example. All the details of its architecture are defective and barbarous.

However, from the communication established between Greece and Italy, at the revival of letters, this basilica, the last as well as the most magnificent of the lower empire, was that which influenced most the form and architecture of the new temples. The Venetians, in the tenth century, copied with success the best parts of the disposition of St. Sophia in the church of St. Mark. This is the first in Italy which was constructed with a dome supported on pendentives; and it is also this which first gave the idea, which has been imitated in St. Peter's of the Vatican, of accompanying the great dome of a church with smaller and lower domes to give it a pyramidal effect.

From this time to the erection of the basilica of St. Peter's we find the churches approach more or less, to the form of the ancient basilica or the new construction. The church of Santa Maria del Fiore of Florence, from the magnitude of its dome and the skill which Brunelleschi displayed in its construction, acquired a celebrity which made the system of domes prevail; and this system was finally established in the noble basilica of the Vatican, which has become the type and example of later ones. The form of the antique basilica was entirely lost, and the name, which has been retained, is the only remain of their ancient resemblance.

In the pontificate of Julius II the beginning of the 16th century, the basilica of St. Peter's was begun from the designs of Bramante. This great man formed the idea of suspending in the centre of the building a circular temple as large as the pantheon, or, as he expressed it, to raise the pantheon on the temple of peace; and, in fact, we find great

resemblance in size and disposition between these two edifices and the project of Bramante. He was succeeded in his office by San Gallo, who almost entirely lost sight of the original plan; but Michael Angelo, to whom at his death the undertaking was committed, concentrated the discordant parts, and contracted the whole into the form of the Greek cross. Michael Angelo died in 1564, while he was engaged in erecting the dome; but he left plans and models which were strictly adhered to by his successors Vignola, J. de la Porte, and Fontana, who terminated the dome. The building was carried on under many succeeding pontiffs; and at last, by lengthening the longitudinal naves, it acquired the form of the Latin cross; in that particular, approaching to the original design of Bramante.

The general form of this edifice externally is an oblong, with circular projections in three of the sides; the plan of the interior consists of a Latin cross, the intersection of the arms of which is enlarged and formed into an octagon; the head of the long aisles and the ends of the cross aisles are terminated in hemicycles, and the great naves are accompanied with lateral aisles and with several inclosed chapels. The octagon centre supports a circular wall enriched with pilasters and pierced with windows, above which rises the magnificent dome.

Thus we have traced the progress of the basilica from the quadrilateral hall of the ancients with its single roof and flat ceiling supported on ranges of columns, to the cross-shaped plan, central dome, and vaulted aisles supported on masonry piers of the modern cathedral. It only remains to treat of the

Modern Basilica. We give this name with Palladio to the civil edifices which are found in many Italian cities, and the destination of which is entirely similar to the antique basilica.

In imitation of the ancients, says this celebrated architect, the cities of Italy construct public halls which may rightly be called basilicas as they form part of the habitation of the supreme magistrate, and in them the judges administer justice. The basilicas of our time (he continues) differ in this from the ancient; that those were level with the ground, while ours are raised upon arches in which are shops for various arts and the merchandize of the city. There the prisons are also placed, and other buildings belonging to public business. Another difference is that the modern basilicas have the porticos on the outside, while in the ancient they were only in the interior. Of these halls there is a very noble one at Padua; and another at Brescia, remarkable for its size and ornaments.

But the most celebrated is that of Vicenza; the exterior part of which was built by Palladio, and the whole so much altered that it may pass for his work. The body of the building is of much greater antiquity, though the date of it is unknown.

Time and various accidents had reduced this edifice to such a state of decay, that it was necessary to think seriously of preventing its total ruin: for this purpose the most eminent architects were consulted, and the design of Palladio was approved. He removed the ancient loggias, and substituted new porticos of a very beautiful invention. These form two galleries in height, the lower order of which is ornamented with Doric engaged columns, at very wide intervals, to answer to the internal pillars of the old building; the space between each column is occupied by an arch resting on two small columns of the same order, and a pilaster at each side against the large columns, which leaves a space between it and the small columns of two diameters. The upper portico of Ionic columns is disposed in the same manner, and a balustrade is placed in the archways. The entablature

entablature of the large orders is profiled over each column.

This edifice is about 150 feet long and 60 feet broad; the hall is raised above the ground 26 feet; it is formed by vaults supported on pillars, and the whole is covered with a wooden dome. See *Plate II.* of *Architecture*, the Roman basilica, from the description of Vitruvius. *Plate III.* the basilica at Pæstum. *Plate IV.* the plan of the old basilica of St. Peter, founded by Constantine. *Plate V.* plan of the modern St. Peter's of the Vatican. Vitruvius. *Arch. de A. Palladio.* *Costagati Pianta del Vaticano.* *Encyc. Meth.*

BASILICS, **BASILICA**, a collection of the Roman laws, translated into Greek by order of the emperors Basil and Leo, and which were of force in the eastern empire till its dissolution.

The basilics comprehend the institutes, digests, code, and novels, and some edicts of Justinian and other emperors. The collection consisted of sixty books, for which reason it was called *εξηκονταβιβλος*. It is supposed to be chiefly the work of the emperor Leo the Philosopher, who denominated it from his father Basilus Macedo, who first began it in 867, and carried the work to forty books. It was published by Leo, with the addition of twenty books more, in 880; and thirty years after, corrected and improved by his son Constantine Porphyrogenitus. Six books of the basilica were translated into Latin in 1557, fol. by Gentianus Hervetus. Of these sixty books, there are now remaining only forty-one; an edition of which, with a Latin version, was published by Charles Annibal Fabrotius, at Paris, in 1647, in 7 tomes folio: the other nineteen are in some measure supplied by Fabrotius, from the "Synopsis Basilicorum," &c. Four other books have been since discovered, and are inserted in Girard Meerman's "Novus Thesaurus Juris Civ. et Canon." tom. v. Of the whole work, the sixty books, Jo. Leunclavius has printed at Basil, in 1575, an eclogé or synopsis. On the subject of the basilics, Fabricius (Bib. Græc. t. xii. p. 426—514.) Heineccius (Hist. Juris Romani, p. 396—399.), and Gianonne (Istoria Civile di Napoli, tom. i. p. 450—458.) as historical civilians, may be usefully consulted.

BASILICATA, in *Geography*, a province of the kingdom of Naples, bounded on the north by the Capitanata, and the Terra di Bari, on the east by the gulf of Tarento, on the south by Principato Citra and Calabria Citra, and on the west by Principato Ultra. Its extent is about 1,605,047 moggies, 5 moggies making 4 English acres; and the number of its inhabitants about 325,632. Its rivers are Bradano, Basiento, Salandrella, Acri, and Sina; its lakes are Legonagro and Olmo; its mountains are for the most part branches of the Apennines; and its principal places are Acerenza, Melfi, Monte Peloso, Tricarico, Potenza, Anglona, Venola, and Muro; its ruined cities are Metapontum and Heraclea. This province produces corn, wine, oil, saffron, cotton, honey, and wax.

BASILICI, *Βασίλικοι*, in the *Greek Empire*, was a denomination given to the prince's mandatories, or those who carried his orders and commands.

BASILICON, or **BASILICUM**, in *Pharmacy*, is the pompon denomination formerly given to an officinal unguent or plaster, much resembling and superseded by the *UNGUENTUM Resinæ Flavæ*.

BASILICUS, or **BASILICA**, in *Astronomy*, is the name of a fixed star of the first magnitude in the constellation Leo; called also *regulus*, and *cor leonis*.

BASILICUS Sinus, in *Ancient Geography*, the gulf of Melisso, a gulf of Asia Minor, in Caria, which it separates from Ionia.

BASILIDÆ, a people of Scythia, according to Pliny. Herodotus says, that their habitation was below the cata-racts of Borysthenes.

BASILIDES, in *Biography*, an heresiarch of Alexandria in Egypt, who flourished in the former part of the second century. Basnage refers him to the year 121, Mill to 123, and Cave to the year 112. Grabe says, that he began to spread his notions in the time of Trajan, but chiefly under Adrian; and that he probably did not die before the beginning of the reign of Antoninus Pius: and this opinion is confirmed by Clement of Alexandria, who informs us, that he or his followers boasted of his having been taught by Glaucias, a disciple of St. Peter. Basilides has generally obtained the first place among the Egyptian Gnostics. He was the author of several works, of which the principal was his "Twenty-four Books of Commentaries," supposed by Beausobre, Fabricius, and Jones, to be the "Gospel of Basilides," mentioned by Origen, and after him by Ambrose and Jerome. As none of his works are extant, we derive our knowledge of them from those who have detailed and exposed his errors; among whom are Irenæus, Tertullian, Clemens Alexandrinus, Origen, Epiphanius, &c. Basilides acknowledged the existence of one supreme God, self-existent, and perfect in wisdom and goodness, who produced from his own substance seven beings, or æons, of a most-excellent nature. From two of these, called Dynamis and Sophia, i. e. power and wisdom, proceeded angels of the highest order, who formed a heaven for their habitation; and these angels again produced other inferior angelic beings; these were succeeded by other generations of angels, and new heavens were also created, until the number of angelic orders, and of their respective heavens, amounted, as Irenæus has suggested, and others have believed, to 365, the number of days in the Egyptian year. Beausobre disputes this account; and it is suggested, that Basilides might possibly say, there were 365 angels, who presided each over one day of the year; which is a notion that seems to have been entertained by some persons in the East. Basilides ascribed the formation of this lower world to angels; conceiving it to be unworthy of the Supreme Being to give form and beauty to matter, and to be the author of the many evils that are in this world. These angels, perceiving matter, which was eternal, agitated in a tumultuous manner, determined to reduce it to order; and having in their minds an idea of the world of spirits to which they belonged, and which served for them as a model, proposed to form a material world that should resemble it, and to create a race of beings to inhabit it. This design was executed and approved by the Supreme Being; who added a reasonable soul to the animal life with which alone the inhabitants of this new world were at first endowed, and who gave to the angels the empire over them. These angelic beings became gradually depraved by the influence of malignant matter, and endeavoured to efface from the minds of men the knowledge of the Supreme Being; and to arrogate to themselves the worship that was his due. The most arrogant and turbulent of these fallen angels presided over the Jewish nation. At length the Supreme Deity, observing and compassionating the ruined and wretched state of the world, sent from heaven his first-begotten Nus, or Christ, the chief of the æons, to restore the knowledge of the Supreme God, and to destroy the empire of those angels that presided over the world, and particularly that of the arrogant leader of the Jewish nation. The god of the Jews, alarmed at this, sent forth his ministers to seize the man Jesus, and put him to death. They executed his commands; but their cruelty could not extend to Christ, the heavenly being, against whom their efforts were vain. According to Irenæus's

Irenæus's account, Jesus appeared as man, but was not so in reality, and wrought many miracles: however, he was not crucified; the Jews having, through mistake, crucified Simon the Cyrenian in his stead. Many of the ancients have, upon the authority of Irenæus, accused Basilides of denying the reality of Christ's body, and of maintaining that Simon was crucified in his stead. But this accusation, as far as it refers to Basilides himself, is groundless; for he seems to have considered the divine Saviour, as compounded of the man Jesus, and Christ the Son of God. To this purpose Beausobre says, that though Basilides did not believe the incarnation, or hypostatic union of the Son of God with flesh, yet he never denied that Jesus was a real person, in whom the Understanding, or Son of God, displayed his power, whom he filled with his gifts and illuminations, and invested with extraordinary influence. With regard to the ridiculous story of Simon transformed into Jesus, and crucified in his stead, he represents it as a fable which Irenæus derived from some unknown source. As Basilides believed the death of Jesus, who was a real and most excellent man, in whom the first-begotten of the Father chose to dwell, though not of the Son of God, he probably believed his resurrection; that is, that his soul ascended to heaven, and the body was left to lie in the grave, or was dissipated into the air, and among the elements of which it was composed. As the ancient Catholic writers do not particularly say that Basilides denied the resurrection of Jesus, though they assure us he and his followers denied the resurrection of the body; it is not unlikely that he admitted the resurrection or the advancement and glorification of the soul of Jesus. Basilides believed the fact of the baptism of Jesus: and his followers, as Clement informs us, celebrated the day of his baptism as a festival, which was the 15th day of the Egyptian month Tubi, corresponding to the 9th or 10th of our January, in the 15th year of Tiberius; and they spent the whole preceding night in reading, and probably in prayers. Some persons have supposed that Basilides denied the necessity or reasonableness of our suffering martyrdom for Jesus; and yet it appears from the testimony of Clement, that he esteemed martyrdom an honourable suffering, though it is the punishment of sins committed either in this life, or in a pre-existent state. Basilides taught that the soul only would be saved; but that the body is in its nature corruptible, and incapable of immortality. As for the spirits of the disobedient, it is said to have been his opinion, or that of his followers, that they would pass successively into other bodies. Basilides has been falsely accused of believing that actions are indifferent in their own nature, and of allowing and encouraging the practice of wickedness. On the contrary he is represented by those whose testimonies are most credible, as strongly recommending the practice of virtue and piety, and condemning not only the actual commission of iniquity, but even every inward propensity of the mind to a vicious conduct. However, some of his practical opinions gave offence to the orthodox Christians; for he allowed men to conceal their religion, and even to deny Christ, when their lives were in danger, and to partake of the feasts of the Gentiles that were instituted in consequence of the sacrifices offered to idols: not to add, that the irregular lives of some of his disciples seemed to justify the unfavourable opinion that was entertained concerning their master. The Basilidians have been also accused of magical practices: but Tertullian says nothing of this kind; and the passage of Irenæus upon which this charge is founded, is supposed to have been corrupted. Besides, the ancient fathers perpetually confound alchemy and astrology with magic; and hence Lardner is induced to be very doubtful about the truth of

this accusation. Irenæus says, that the Basilidians called the prince of the heavens Abraxas, that name having in it the number 365; and the gems, or figures, bearing this name, are supposed to have originated from Basilides. However, many of these Egyptian talismans appear to have an earlier date; and the magic of this sect was probably no more than the practice of certain superstitions, rather of a foolish than of a malignant nature. See ABRAXAS.

Basilides had many followers, and his sect survived to the fifth century. Beausobre, and after him Lardner, have given a learned and candid examination of its doctrine in all its particulars. See Beausob. Hist. du Manichéisme, t. ii. Lardner's Works, vol. ix. p. 272—307. Mosheim, Eccl. Hist. vol. i. p. 223, &c.

BASILIDIANS, the followers of Basilides, of whom an account has been given in the preceding article.

BASILINEA, in *Entomology*, a species of PHALÆNA that inhabits Austria. The wings are greyish brown undulated, with a little black line at the base; crest of the thorax bifid. Fabricius.

BASILINOPOLIS, or BASINOPOLIS, in *Ancient Geography*, an episcopal town of Asia Minor, in Bithynia.

BASILIPOTAMO, in *Geography*, the ancient Eurotas, a river of the Morea in European Turkey, which falls into the gulf Calochina.

BASILIPPUM, in *Ancient Geography*, a town of Bætica in Spain, about 20 miles from Hispalis or Seville; now Cantillana, a citadel of Andalusia, on the Guadalquivir.

BASILIS, a town of Peloponnesus, in Arcadia, founded, according to Pausanias, by Cypselus, and situated near the Alpheus. In his time it was in ruins, among which was a temple of the Eleusinian Ceres.

BASILISCUS, in *Ornithology*, one of the synonymous names of the golden-crowned wren, among old writers. This name is a diminutive of the word *basilus*, king; and was given it on account of its golden crown.

BASILISCUS, in *Zoology*, a species of LACERTA, which, according to Linnæus, has the tail long and round; dorsal fin radiated; and back of the head crested. Thus is the basilisk of modern naturalists, and seems to unite the two genera of Lacerta and Draco. The remarks of Dr. Shaw (in the Gen. Zool.) on this extraordinary creature are highly interesting, and ought not to escape attention. It is, according to this writer, particularly distinguished by a long and broad wing-like process or expansion continued along the whole length of the back, and to a very considerable distance on the upper part of the tail, and furnished at certain distances with internal radii analogous to those in the fins of fishes, and still more so those in the wings of the dracovolans, or flying lizard. This process is of different elevation in different parts, so as to appear strongly sinuated and indented, and is capable of being either dilated or contracted at the pleasure of the animal. The occiput, or hind part of the head, is elevated into a very conspicuous pointed hood, or hollow crest.

Notwithstanding its formidable appearance, adds this author, the basilisk is a perfectly harmless animal; and like many others of the lizard tribe, resides principally among trees, where it feeds on insects, &c. It has long ago been admirably figured in the work of Seba; and as it is an extremely rare species, has sometimes been considered, from the strangeness of its form, as a fictitious representation. There is, however, in the British Museum, a very fine specimen, well preserved in spirits, and which fully confirms the excellency of Seba's figure; from which, in all probability, Linnæus himself (who never saw the animal) took his specific description. The colour of the basilisk is a pale cinereous.

nerous brown, with some darker variegations towards the upper part of the body. Its length is about a foot and a half. The young or small specimens have but a slight appearance either of the dorsal or caudal process, or of the pointed occipital crest. The basilisk is principally found in South America, and sometimes considerably exceeds the length before mentioned, measuring three feet, or even more, from the nose to the extremity of the tail. It is said to be an animal of great agility, and is capable of swimming occasionally with perfect ease, as well as of springing from tree to tree by the help of its dorsal crest, which it expands in order to support its flight.

Among the French naturalists, the Iguane is a distinct genus of the oviparous quadrupeds, in which the Linnæan *lacerta basiliscus* is included under the name of basilisk.

The basilisk of the ancients existed only in the glowing fancy of their poets: they feigned it to be the most malignant of all poisonous serpents; as a creature whose breath empoisoned the very air, and whose baneful glance would alone prove fatal to all other animals. A creature gifted with such extraordinary powers could have no common origin, and therefore it was asserted to be the produce of the egg of a cock brooded upon by a serpent. Galen says its colour is yellowish, and that it has three little elevations on its head, speckled with whitish spots, that have somewhat the appearance of a crown. Ælian, Matthiolus, Pliny, Lucan, and others of the most distinguished ancients, relate many marvellous properties of this creature; but notwithstanding their authority, the basilisk, as they represent it, is most unquestionably fabulous. It is needless to add to this article any of the fables of Jerome Lobo, although Dr. Johnson has received some of them with an unwarrantable degree of credulity. The learned Prosper Alpinus informs us, on the authority of some relations, which he seems to have credited, that near the lakes contiguous to the sources of the Nile, there is a number of basilisks, about a palm in length, and the thickness of a middle finger; that they have two large scales which they use as wings, and crests and combs upon their heads, from which they are called basilisci or reguli, that is, crowned, crested, or kingly serpents. And he says, that no person can approach these lakes without being destroyed by these crested snakes. Our traveller, Mr. Bruce, observes, that having examined the lake Gooderoo, those of Court Olha and Tzaur, the only lakes near the sources of the Nile, he never saw one serpent there, crowned or uncrowned; and that he never heard of any: and, therefore, he believes this account as fabulous as that of the Acontia and other animals mentioned by Prosper Alpinus, lib. iv. cap. 4. The basilisk is a species of serpent frequently mentioned in scripture, though never described farther than that it cannot be charmed so as to do no hurt, nor trained so as to delight in music; which all travellers who have been in Egypt allow is very possible, and frequently seen. (Jerem. viii. 17. Psalm ix. 13.) However, it is the Greek text that calls this serpent basilisk; the Hebrew generally calls it tsepha, which is a species of serpents real and known. Our English translation very improperly renders it cockatrice, a fabulous animal that never did exist. The basilisk of scripture seems to have been a snake, not a viper; as its eggs are mentioned (Isaiah ix. 5.): whereas it is known to be the characteristic of the viper to bring forth living young. Bruce's Travels in Abyssinia, vol. v. p. 201.

BASILISK is also mystically used by the alchemists, to denote the sublimated mercury of the philosophers.

BASILISK, or BASILISC, in *Artillery*, also denotes a great piece of ordnance; thus denominated from its resemblance

to the supposed serpent of that name. The basilisk throws an iron ball of two hundred pounds weight. It was much talked of in the time of Solyman, emperor of the Turks, in the wars in Hungary; but seems now out of use. Maffeus speaks of basilisks made of brass, which were drawn each by a hundred yoke of oxen. Modern writers also give the name basilisk to a much smaller and sizeable piece of ordnance, which the Dutch make fifteen feet long, and the French only ten. It carries forty-eight pounds.

BASILIUM FLUMEN, in *Ancient Geography*, a river of Asia, which, according to Strabo, flowed between the Euphrates and Tigris; but Ammianus Marcellinus says, that it was a branch of the Euphrates, directed towards Ctesiphon, and designed for conveying water into the interior part of Babylonia. The emperors Trajan and Severus opened this canal after it had been filled up, and formed by it a communication between the Tigris and Euphrates.

BASILIUS, in *Biography*, a physician and monk of Bulgaria, in the 12th century, was the founder of the sect called Bogomili. After teaching his doctrine many years in secrecy, he was seduced to Constantinople by the emperor Alexius Comnenus, who, under pretence of learning his doctrines at a private audience, placed a secretary behind a curtain, who penned down what Basilus delivered. The emperor afterwards convoked a council, which, on the refusal of Basilus to retract, committed him to the flames in 1118. See BOGOMILI.

BASILUZZO, in *Geography*, one of the Lipari islands in the Mediterranean, about two miles in circumference, and raised some poles above the surface of the sea. On the south side is a narrow bay; and on the summit is a plain of no great extent, and the only part capable of cultivation, though it produces only a little corn and pulse. This scanty vegetation is nourished by a thin crust of decomposed lava, under which is soon discovered the solid lava, which, in many situations, is granituous, the quartz, felspar, and mica, being very apparent in it. Two little cottages, which belong to the proprietors of this ungrateful soil, are the only buildings, near which are some ancient ruins. Rabbits are the only animals found in this island; and as they were very mischievous to the corn, the inhabitants introduced cats, which followed them into their subterranean holes. This island, as well as those that are in its vicinity, have been produced by volcanic fires. Spallanzani's Travels in the Two Sicilies, vol. ii, p. 142, &c.

BASIN OF MINAS, a body of water of considerable extent and irregular form, situate in Nova Scotia, at the east end of the bay of Fundy, and connecting with its north-east branch by a short and narrow strait. The country on its banks is generally a rich soil, and is watered by many small rivers. The spring-tides rise here 40 feet.

BASINET, BACINET, or BASNET, in *Ancient Armour*, a species of light helmet, much used, both here and abroad in the thirteenth and fourteenth centuries. Its name was undoubtedly taken from its form, and means a little basin. The helmet of Don Quixote gives the reader an exact idea of it. In the manuscript illuminations of the times it frequently occurs; but as it materially differed from the state helmet, it is rarely, if ever, found upon sepulchral monuments. Fauchet (*Œuvres*, f. 524. edit. 1610.) cites Froissart (vol. iii. c. cxix.), to prove that it had a vizor like the helmet; and observes, that the French warriors of that æra thought the best lances came from Bourdeaux, and the best helmets and basinets from Paris, where, in his time, a "Rue de la Heaumerie" existed. The basinet is particularly mentioned in the statutes of Robert king of Scotland; and its frequent use in England may be judged of from an inquisition,

22 Edw. III., whence Lawrence de Hastings, earl of Pembroke, appears to have held the manor of Aston Cantlow, in capite, by the singular tenure of finding, in every war with Wales, for forty days, a foot-soldier, armed with a bow without a string, and a basinet (cum uno basinetto sine cappa). See COWEL.

BASINGSTOKE, or **BASINGE**, **JOHN**, in *Biography*, a man of distinguished learning in the thirteenth century, was born at Basingstoke in Hampshire, and educated partly in the university of Oxford, and partly in that of Paris. From Paris he travelled to Athens; and on his return to England, brought with him a great number of Greek MSS., and introduced the use of the Greek numeral figures into this kingdom. He was eminently instrumental in promoting the study of the Greek language; and with this view he translated from the Greek, into Latin, a grammar, which he intitled "The Donatus of the Greeks." His other works were "A Latin translation of the Harmony of the Gospels;" a volume of Sermons; and "A Latin Commentary upon Lombard's Sentences." He was preferred first to the archdeaconry of London, and afterwards to that of Leicester; and died in 1252. Gen. Dict.

BASINGSTOKE, in *Geography*, a large populous town of Hampshire, in England, 16 miles N.E. of Winchester, and 46 W. from London, whence it is a great thoroughfare to the western counties. It appears that this place was of inferior consideration to Basing, in its neighbourhood, previous to the conquest; the latter place being the head of the barony of Ports. In 1233, Peter de Rupibus, bishop of Winchester, was possessed of the advowson of both the churches, and gave the presentations to the priory of Selborne in Hampshire. These afterwards were given, among other estates, by bishop Wainfleet to Magdalen college, Oxford, in which the patronage is now vested. In the church lies buried the mother of Walter de Merton, bishop of Rochester, founder of Merton college. Basingstoke gave birth to John de Basingstoke, a learned Grecian scholar, in 1252, and the intimate friend of Matthew Paris, and bishop Grossthead. Henry III., at the desire of bishop Merton, founded an hospital at this place for aged priests from his college at Oxford: of this collegiate chapel, which was endowed in 1261, there are now no remains. A beautiful ruin overlooks the town on the north side, called Holy Ghost chapel. This was founded by sir William, afterwards lord, Sandes, who, with bishop Fox, obtained a licence from Henry VIII. to found a brotherhood, to continue in perpetual succession, for the maintenance of a priest to perform divine service, and for the instruction of youth in literature. The town is a corporation, governed by a mayor, high-steward, recorder, &c. Its trade consists in the manufacture of druggets and shalloons; and the market, held on Wednesday, is very considerable for corn; the trade of the town also is much benefited by a navigable canal. Basing-house, in this neighbourhood, is rendered famous by the bold stand its possessor, Powlet marquis of Winchester, made against the parliament forces, during the civil wars in the reign of Charles I. Population; houses 512, inhabited by 2589 persons.

BASINGSTOKE Canal. This was the first channel of communications with the Thames, by means of canal navigation; and in 1777, an act was obtained for uniting the waters of the river Loddon at a place called Newman springs, near the village of Basing, to the river Wey, near Weybridge in Surrey, where it falls into the Thames. One important object of this canal is the carriage of ship-timber from the woods in Hampshire, to the public and private dockyards on the Thames. The length of the course of

Basingstoke canal is nearly 44 miles. Warner's History of Hampshire, 4to. See CANAL.

BASIOGLOSSUS **MUSCLE**, in *Anatomy*, the front part of the **HYOGLOSSUS**; which see.

BASJOURA, in *Geography*. See **BAGIURA**.

BASIRE, or **BASIER**, **ISAAC**, in *Biography*, a learned and active divine in the seventeenth century, was born in 1607, according to Wood (Athen. Oxon.), in the Isle of Jersey, but according to others in France, and after an education in some school or university, not ascertained, he became master of the free-school at Guernsey. At length he obtained some preferments in England, the last of which was the archdeaconry of Northumberland, with the annexed rectory of Howick; and in 1640, he received the degree of doctor in divinity at Cambridge by mandate. In the beginning of the civil wars, he was plundered and compelled to fly; upon which he repaired to king Charles at Oxford; and in 1641, a licence was granted to him, under the public seal of the university, to preach the word of God throughout England. Upon the surrender of Oxford to the British parliament, he determined to leave the kingdom, and to propagate the doctrine of the English church among the Greeks, Arabians, &c. Accordingly, he first went to Zante, an island near the Morca; and there imparted to the Greek inhabitants the doctrine of the established church, in a vulgar Greek translation of our church catechism. From hence he was compelled by the Latins to retreat to the Morca, where, at the desire of the metropolitan of Achaia, he preached twice in Greek, at a meeting of some of the bishops and clergy. He afterwards embarked for Syria, and during his abode at Aleppo, furnished the patriarch of Antioch with an Arabic translation of our church catechism. From Aleppo he travelled, in 1652, to Jerusalem, and through the whole of Palestine. At Jerusalem he was honoured by the Greek patriarch with his bull, or patriarchal seal, and he received many tokens of respect from the Latins. At his departure from Jerusalem, the pope's vicar gave him his diploma in parchment, under his own hand and seal, in which he was styled "a priest of the church of England, and doctor of divinity." On his return to Aleppo, he passed over the Euphrates into Mesopotamia, intending to convey the church catechism in Turkish to some of their bishops, who were mostly Armenians. In 1653, after wintering at Aleppo, he travelled by land to Constantinople, where the French Protestants desired him to be their minister, promising to secure to him a competent stipend. Before he quitted the Eastern parts, it was his intention to have passed into Egypt, to visit the Coptic churches, to confer with the patriarch of Alexandria, and to impart to them a competent knowledge of the doctrines and forms of the church of England. But it is not known whether he accomplished this design. In Transylvania, whither he next removed, he was honoured by Ragotzi II., prince of that country, with the divinity-chair in his new-founded university of Alba Julia or Weissenburg, and endowed with a very ample salary. During his travels, he collated the several confessions of faith of the different sorts of Christians, Greeks, Armenians, Jacobites, Maronites, &c. which he kept by him in their own languages; and it was his constant endeavour, as long as he remained in the East, to persuade the several sects of Christians to introduce a canonical reformation of some errors, and to unite with the church of England. But it is said, that his good intentions for this purpose were defeated by the artifices of the court of France. Upon the restoration of king Charles II., Dr. Basire was recalled by his majesty to England, and restored to his preferments and dignities. Having quietly enjoyed his ample revenues for several years after the restoration,

he died in 1676, in the 69th year of his age, and was buried in the yard belonging to the cathedral of Durham. He appears to have been learned, active, and industrious, zealously attached to the church of England, and eminently distinguished by his loyalty. His publications were not very numerous: the principal of them were his "Deo et Ecclesiæ Sacrum," or sacrifice arranged and condemned by St. Paul, Oxford, 1646, 4to, and London, 1668, 8vo; "The History of the English and Scotch Presbytery," Lond. 1659, 1660, 8vo; "The dead man's real speech," a funeral sermon for Dr. Cosin, bishop of Durham, to which is annexed his life; Lond. 1673, 8vo; and his "Diatriba de antiqua Ecclesiæ Britannicæ Libertate," printed at Bruges by a royal exile in 1656, 8vo, and translated into English under the title of "The ancient Liberty of the Britannic Church, &c." Annexed to it is "A Letter, written by Dr. Bafire to the Hon. sir Richard Brown, resident at Paris for his majesty of Great Britain; relating his travels and endeavours to propagate the knowledge of the doctrine and discipline established in the Britannic church, among the Greeks, Arabians, &c.; dated from Pera, near Constantinople, 20th July 1653." Of this letter sir R. Brown observes, "that he could never read it but as a kind of nine-and-twentieth of the Acts." This book was printed at London in 1661, small 8vo. Biog. Brit.

BASIS, in the *Ancient Music and Poetry*, denotes the equability of sounds proceeding in the same tenor. In which sense, basis stands contradistinguished from *arsis*, or elevation, as well as from *thesis*, or depression.

Basis, in *Architecture and Chemistry*. See **BASE**.

BASIS, in *Oratory*, denotes the fourth member of a complete exordium, being that which succeeds the *apodosis*, and prepares the way for the proposition.

BASKERVILLE, SIR SIMON, in *Biography*, son of Thomas Baskerville, an apothecary at Exeter, was, at the age of eighteen years, sent to Exeter college, Oxford, where he soon distinguished himself by his superior ability and industry, which procured him a fellowship in the college before he had taken his degree of bachelor in arts. In 1606, he was chosen senior professor in the university. He now applied himself solely to the study of anatomy and physic; and in 1611, was admitted to the degree of bachelor, and doctor in medicine, at the same time. Having acquired considerable reputation for his skill in his profession, he removed to London, and was chosen fellow, and some years after president of the college of physicians there. He had also the honour of being appointed physician to king James, and afterwards to king Charles the first, by whom he was knighted. As his practice extended with his fame, he acquired so much wealth as to be called the rich Sir Simon; which will not be wondered at, if it be true, as was reported of him, that he had 100 patients on his list at a time. He died July 5th 1641, aged sixty-eight years, and was buried in the cathedral of St. Paul's. It does not appear that he left any manuscripts for publication, or any offspring to inherit the wealth he had accumulated. Wood's *Athenæ Oxon.* Biograph. Dict.

BASKERVILLE, JOHN, an ingenious artist, entitled to commemoration on account of his improvements in printing and type-founding, was born at Woverley, in Worcester-shire, in the year 1706, and inherited a small estate. Having acquired in early life a skill and taste for fine writing and cutting in stone, he removed to Birmingham at the age of twenty, where he settled as a writing-master; but he soon directed his attention to the art of japanning, which he followed with singular ingenuity and success as long as he lived. In 1750 he turned his thoughts to letter-founding, which he pursued with great labour and expence. An edition

of Virgil in royal 4to., in 1756, was his first great performance; which has since fetched thrice its original price. He afterwards printed many of the Latin classics, and several English ones, in 4to. and smaller sizes. The paper and ink, as well as the type, were prepared by himself; and the beauty of his workmanship was unrivalled. The type was distinguished by a peculiar fineness and sharpness, which gave the printing a strong resemblance to fine print-hand writing; and the paper had a remarkable gloss, which set off the type, but not without offending the eye. It is observed, however, that Baskerville's editions are not remarkable for their correctness. Deriving little encouragement from booksellers, he set up a type-foundry for sale, which business was for some time carried on by his widow, after his death in 1775. After many ineffectual attempts for the disposal of his types and matrices, they were suffered, not much to the credit of this country, to be removed to Paris, where they were purchased by a literary society for 3700*l.* and employed in a splendid edition of Voltaire's works. Mr. Baskerville was distinguished by the elegance of his taste in his house, and every thing that belonged to him. The pannels of his carriage were elegant pictures, and he was drawn by a beautiful pair of cream-coloured horses. He seems to have been inclined to ostentation and singularity: however, he was polite and hospitable to strangers, and ambitious of cultivating acquaintance with ingenious men. He was not connected with any religious sect, and was buried under a mausoleum in his own grounds. Biog. Brit. Gen. Biog.

BASKET, a kind of vessel made of osier, wicker, rushes, or the like, of different figures and sizes, according to the purpose which it is intended to serve.

Baskets have their uses not only in the æconomical, but military affairs; at sieges, they make use of a small basket filled with earth and ranged on the top of the parapet.

They are about a foot and half high, as much in diameter at top, and eight or ten inches at bottom; so that being set together, they leave a sort of embrasures at the bottom, through which the soldiers fire, without exposing themselves.

BASKET also imports a kind of measure or quantity of certain commodities.

BASKET, *corbeille*, in *Architecture*, a kind of vase, or figured piece of sculpture, in form of a basket, filled with flowers or fruits, serving to terminate some decoration.

BASKET-fish, in *Natural History*, a name given by the English in North America, to a very remarkable fish, sometimes caught in the seas thereabout, though not frequently any where.

Mr. Hooke, to whom it was referred by the Royal Society to name it, has called it *Piscis echinostellaris viscidiformis*, the body of it resembling an egg-fish, or *echinus marinus*, and the arms a star fish, and finally, the dividing of the branches being more like that of the branches of mistletoe than any other natural production we are acquainted with.

This fish spreads itself from a pentagonal mouth-piece, or root, in the centre of which the mouth is placed, into five main limbs or branches; and each of these, at its first issuing out of the body, is divided into two: this makes ten. Each of these ten again divides into two, which makes twenty, and so on, each dividing to the fourteenth time; at which place they make more than fourscore thousand limbs. These are too small to be traced farther by the eye, or preserved in carriage: but it is very probable that even these were again divided, perhaps several times.

The branches between the joints are not all equally of a length, though, for the most part, they are pretty nearly so. The arms or branches are never very strong; but when they

are

are dry, they are much more brittle than before; the least force imaginable destroying them.

The shoals of Nantucket, an island on the coast of New England, at times furnish the fishermen with this creature; but it is remarkable, that they are never seen there unless when taken by hooks in fishing for other fish. They clasp the hook-bait fast, and encircle it with all their arms, coming up, when drawn by it, in form of a wicker basket; whence the name: but when they have been some time out of the water, they become flat.

The use of the numerous arms of this fish is plainly to catch its prey. It probably extends them to their full length while under the water, and then clasps hold of any thing fit for food that chanches to swim over them. The fishermen have sometimes found the arms containing small mackerel, or pieces of larger. Phil. Transf. N^o 57 and 74. It is evident from the description, that this fish is of the *stella arborefcens*, or branched star-fish kind; but whether the same with the commonly known kind, called the *caput medusæ*, is not evident from this description. The body of this fish, by what is related of its protuberance, and resemblance to the *echini marini*, may probably be the *asteropodium* in its fossil state. See ASTERIAS, and ASTEROPodium.

BASKET salt. This is brine salt, made from the water of our salt springs in Cheshire, and elsewhere, differing from the common brine salt in the fineness of the grain, and in its whiteness and purity.

In the preparing of this kind of salt, some use resin, and other additions, to break the grain and make it small; others effect this by keeping up a very brisk fire under it, and stirring it all the while: but the most approved method is only to take out of this kind the third draught of every pan that is working for the common brine salt, and to do this before the granules or crystals are perfectly formed. By this means the salt is very fine; and when it has been hard pressed down into small wicker baskets, it is dried at the stove in them, and fo kept for sale.

BASKING-SHARK, in *Ichthyology*, the English name of *SQUALUS MAXIMUS*.

BASKINRIDGE, in *Geography*, a town of America, in Somerset county, New Jersey, on the W. side of a N.W. branch of Passaic river, nearly 6 miles N. E. from Pluckemin, and 7 S. S. W. from Morristown.

BASNAGE, BENJAMIN, in *Biography*, son of a French minister, first settled at Norwich, in England, and afterwards at Charenton, in Normandy, was born in 1580; and devoting himself to his father's profession, succeeded him at Charenton, where he spent the remainder of his life. In 1623 he assisted at the synod of Charenton, as deputy from the province of Normandy; and he was chosen, on account of his distinguished talents and prudence, moderator of the national synod of Alençon, in 1637. He was afterwards associated to the moderator of the synod of Charenton in 1644, and being deputed by this synod to the queen-mother, received from her tokens of esteem. He was also deputed by the protestant churches in France, to king James VI. of Scotland; and being allowed to visit that country, he was eminently useful in serving the interests of his constituents. Basnage had several disputes with the Catholics, and wrote "A Treatise on the Church" which was much esteemed. He also left an imperfect "Work against the indiscreet worshippers of the blessed Virgin." He died in 1652, in the fifty-first year of his ministry, and left two sons of distinguished merit. Gen. Dict.

BASNAGE, ANTONY, eldest son of the former, was born in 1610, and became minister of Bayeux. He distinguished himself by his firmness and resolution during the persecution of the protestants; and after having been imprisoned at

Havre-de-Grace, at the age of 75 years, he was released by the revocation of the edict of Nantes, and fled to Holland. He died at Zutphen in 1691. Gen. Dict.

BASNAGE, HENRY, younger son of Benjamin, was born at Sainte Mere Eglise, in Lower Normandy, in 1615. Educated to the profession of the law, he became one of the most learned and eloquent advocates of the parliament of Normandy, into which he was admitted in 1636; so that he was employed in every cause of importance. In 1677 he was appointed commissioner for the affairs of religion, and discharged the office with great honour. He was highly esteemed as an author, as well as an advocate; and in 1678 he published the "Coustume de Normandie," with ample commentaries, of which a second edition, in 2 vols. folio, was published in 1694. At the same time was published a third edition of his "Traité des Hypothèques," a Treatise on Mortgages. He died at Rouen in 1695. Gen. Dict.

BASNAGE, SAMUEL, DE FLOTTEMANVILLE, son of Antony, was first co-pastor with his father at Bayeux, and afterwards at Zutphen. He was eminent for his learning; and published in Latin a continuation of Casaubon's Critical Examination of Baronius's Annals, entitled "De Rebus Sacris et Ecclesiasticis Exercitationes Historico-criticae," Ultraject. 4to. 1622; and also "Annales Politico-Ecclesiasticae," 3 vols. folio, 1706. He died in 1721. Gen. Dict. Nouv. Dict. Hist.

BASNAGE DE BEAUVAL, JAMES, eldest son of Henry, the most illustrious of the name, and sifter, says Voltaire, for being minister of state than of a parish, was born at Rouen in 1653. Having acquired a competent knowledge of Greek and Latin, and several modern languages, he went, at the age of seventeen, to Geneva, where he studied philosophy and divinity. Upon his return to Rouen, he commenced the exercise of his profession as pastor of the church in 1676, and in consequence of the revocation of the edict of Nantes, retired to Holland, and settled as minister at Rotterdam. Such was the reputation he acquired for political sagacity, that when the Abbé du Bois came to the Hague, in 1706, under the character of ambassador plenipotentiary, to negotiate a defensive alliance between France, England, and the States-General, he was ordered by the duke of Orleans, regent of France, to consult Mr. Basnage, and to be directed by his advice; and as a reward for his assistance on this occasion, he obtained a restitution of his estate in France. His works are very numerous and valuable; the principal are as follow, viz. "A History of the Church," in French, 2 vols. Rotterdam, 1699; "The History of the Reformed Churches," part of the above work, printed separately in 2 vols. 4to. 1725; "The History of the Jews, from Jesus Christ to the present time, being a continuation of the history of Josephus," written in French; of this work, distinguished by erudition and critical skill, the best edition is the second of the Hague, in 15 vols. 12mo. 1716; "The Republic of the Hebrews," 3 vols. 8vo. Amst. 1705; "Jewish Antiquities," 2 vols. 8vo. 1713; "Dissertation on Duels and Chivalry," 8vo. 1720; "Annals of the United Provinces, since the Peace of Munster," 2 vols. fol. Hague, 1719 and 1726; "A Treatise on Conscience," 2 vols. 8vo.; "Sermons;" "On the Holy Communion;" "Thesaurus Monumentorum Ecclesiasticorum et Historicorum, &c." fol. 4 vols. Amst. 1725, being a new edition of the "Lectiones Antiquæ" of Henry Canisius, enriched with learned prefaces and remarks. The matter of Basnage is good, but his style, though sufficiently perspicuous, is stiff and inelegant. In the latter part of his life he removed to the Hague, and died there in 1723. He was polite and affable, benevolent and friendly, and more mild in his disposition than most con-

troverfialifts. Many of his writings are eſteemed equally by catholics and proteſtants. Gen. Diſt. Nouv. Diſt. Hiſtor.

BASNAGE DE BEAUVAL, HENRY, younger brother of the preceding, was born at Rouen in 1659, and became a counſellor in the parliament of Normandy. Attached to his religious profeſſion he quitted his proſpects at the bar, and took refuge in Holland, where he publiſhed, in 1684, a ſmall but valuable tract “On Religious Toleration.” He alſo wrote a ſequel to the “Nouvelles de la Republique des Lettres” of Bayle, under the title of “L’Hiſtoire des Ouvrages des Savans,” commencing in 1687, concluded in 1709, and comprehending 24 vols. 12mo. This work is reckoned judicious and impartial, but the writer’s own reflections are ſometimes ſo intermixed with thoſe of the authors whoſe works he reviews, that they cannot be eaſily diſtinguiſhed. His new edition of “Furetiere’s Dictionary,” 3 vols. fol. was printed in 1701. He died at the Hague in 1710. Gen. Diſt. Nouv. Diſt. Hiſtor.

BASON, PELVIS. in *Anatomy*. See PELVIS.

BASON, or *diſh*, among *Glaſs Grinders*. Theſe artificers uſe various kinds of baſons, of copper, iron, &c. and of various forms, ſome deeper, others ſhallower, according to the foci of the glaſſes that are to be ground. In theſe baſons convex glaſſes are formed, as concave ones are formed on ſpheres or bowls.

Glaſſes are worked in baſons two ways. In the firſt, the baſon is fitted to the arbor, or tree of a lath, and the glaſs (fixed with cement to a handle of wood) preſented and held faſt in the right hand within the baſon, while the proper motion is given by the foot of the baſon. In the other the baſon is fixed to a ſtand or block, and the glaſs with its wooden handle moved. The moveable baſons are very ſmall, ſeldom exceeding five or ſix inches in diameter; the others are larger, ſometimes above ten feet in diameter. After the glaſs has been ground in the baſon, it is brought ſmoother with greaſe and emery: and poliſhed firſt with tripoly, and finiſhed with paper cemented to the bottom of the baſon. See GRINDING.

BASON, among *Hatters*, is a large round ſhell, or caſe, ordinarily of iron, placed over a furnace; wherein the matter of the hat is moulded into form.

The hatters have alſo baſons for the brims of hats, uſually of lead, having an aperture in the middle, of a diameter ſufficient for the largeſt block to go through.

BASON, in *Hydraulics*, is alſo uſed on various occaſions for a ſmall reſervatory of water: as the baſon of a jet-d’eau, or fountain; the baſon of a port, of a bath, &c. which laſt Vitruvius calls labrum. Baſons are made either with clay, cement, or lead; but they are moſt uſually made with clay. In the making of them this way, the diameter muſt be made four feet longer on each ſide than the baſon is to be. This will be taken up by the walls of clay. For the ſame reaſon, it muſt be dug two feet deeper than the intended depth of the water; becauſe it is to be laid over eighteen inches thick with clay, and ſix inches with gravel and paving. The wall is to be made with ſhards, rubbiſh, or ſlints, with the natural earth for mortar: and the clay muſt be well worked, and trod firmly down with the naked feet.

The way of making them with cement is, to allow one foot nine inches every way for the work; then cut the banks perpendicularly, and raiſe a wall of masonry a foot thick, made of pebble ſtones, or the like, laid in mortar of lime and ſand: the bottom is then to be covered to the ſame thickneſs; and then the ſolid lining of the cement is to be backed up againſt the walls, and over the bottom. This is to be made of ſmall ſlints in beds of mortar made of lime and cement. When this ſolid is eight inches thick, it muſt be plaſtered over the whole ſurface with cement well ſifted, before it be mixed

with the lime; and with this it is to be wrought over ſmooth with a trowel. The proportion of this cement ſhould be two-thirds of the cement, or powdered tile, to one-third of lime; and this cement has the property of hardening ſo under water, that it will become like ſtone or marble, and it will not be ſubject to decay for a long time.

After the finiſhing, the baſon ſhould, for four or five days, be anointed over very often with oil, or bullock’s blood, to keep it from ſtawing or cracking in the drying; and after this, the water ſhould be let in as ſoon as may be.

The leaded baſons are made with walls a foot thick, and a bottom of half a foot. Theſe muſt be of rubble ſtones, cemented with plaſter; for the lime will injure and eat the lead. The ſheets of lead are to be ſpread over theſe walls and bottom, and ſeamed with ſolder. Theſe baſons, however, are but little in uſe now, from the expence of making them, and the danger of the lead being ſtolen.

The waſte pipes of fountains ought always to be made large enough for fear of choaking. When the waſte water is to be carried off into common ſewers, it may be carried away in drains, or earthen pipes; but when it is to ſerve for baſons that lie below it, it is to be conveyed in leaden ones. Miller.

There are divers ſorts of baſons; as

BASON *figured*, that whoſe plan or circumference makes ſeveral turns and returns, either ſtraight, circular, or the like. Such are moſt of the baſons of fountains at Rome.

BASON *with a baluſtrade*, that whoſe cavity is ſurrounded with a baluſtrade of ſtone, marble, braſs, or the like.

BASON *with a trench*, or *baſſin à rigole*, that whoſe border being of marble, or other ſtone, has a trench cut in it, from whence, at certain diſtances, ſprings out a thread of water, which lines the trench, and forms a kind of nape or gargle around the baluſtrade. Such is that of the fountain of the rock of the Belvidere at Rome.

BASON *en coquille*, that ſhaped like a ſhell.

BASON is likewise uſed for a DOCK.

BASON *of the ſea*. See SEA.

BASON, *ſale by the*, in *Commerce*, at Amſterdam, is uſed for the public ſales made under the direction of the ven du meeſter; thus called, by reaſon that, before adjudging the lot or commodity to the laſt bidder, they uſually ſtrike a braſs baſon to give notice of it.

BASON *barbour*, in *Geography*, lies on the eaſt ſide of Lake Champlain, in the townſhip of Ferrisburg, and ſtate of Vermont, $4\frac{1}{2}$ miles ſouth-weſterly from the mouth of Otter creek.

BASONS *of a balance*, in *Mechanics*, two pieces of braſs, or other matter, ſtretched to the extremities of the ſtrings; the one to hold the weight, the other the thing to be weighed.

BASOVA, in *Geography*, a town of Siberia, on the river Lena, 20 miles ſouth of Orienga.

BASOUDA, a large town of Hindooſtan, belonging to the diſtrict of Bhilſah, in the route from Agra to Oujein.

BASQUES, LES, a country of France, before the revolution, ſituate between the ſea, Spain, the river Adour, and Bearn towards the Pyrenean mountains, and comprehending Labour, Lower Navarre, and the diſtrict of Soule.

BASQUE ROAD lies on the coaſt of France, ſouth eaſt from the iſland of Rhé, north-eaſt from the iſland of Oleron, north from the iſland d’Aix, and ſouth from the weſt point of the entrance into Rochelle, and directly weſt without the bay of Chatelaillon.

BASQUEVILLE, a town of France, in the department of the Lower Seine, and chief place of a canton in the diſtrict of Dieppe, 3 leagues S.S.W. of Dieppe, and $7\frac{1}{2}$ N.N.W. of Rouen.

BASRAH.

BASRAH. See **BASSORA.**

BASROUCHE, a town of Persia, in the province of Taberistan, 27 miles west of Farabat.

BASS, among *Gardeners*, a soft kind of sedge or rush, used in binding plants, &c.

BASS, in *Geography*, an island, or insulated rock, on the coast of Scotland, near the mouth of the frith of Forth, at a small distance from the town of North Berwick in East Lothian. On the south side it has a conical form, and towards the north it tremendously overhangs the sea. The castle, or ancient state prison, is on the edge of the precipice. It is accessible only on the south-west side, and here only by one person at a time, with the assistance of a rope or ladder. On the top of it is a spring; and a cavern passes through the rock from north-west to south-east. This island is about a mile in circuit, and in summer abounds with birds and their eggs, &c. The soland geese arrive here in March, and retire in October or November. It contains a small warren for rabbits, and affords pasture for a few sheep. At the revolution it was supported by a party of the adherents of king James, and it was the last place in the three kingdoms that submitted to the new government; upon which its fortifications were neglected. This island is the south entrance into the frith of Forth; and the island of May, seven miles from it, at N. N. E. easterly is the north entrance. N. lat. $56^{\circ} 3'$. W. long. $2^{\circ} 35'$.

BASS Harbour, a harbour of Mount Desert island, in the district of Maine, North America, seven miles from Soil Cove.

Bass Strait, so called from its discoverer Mr. Bass, a surgeon, is more than 30 leagues wide, containing a chain of small islands that run north and south, and separates Van Diemen's land, hitherto considered as its southern extremity, from New Holland. Mr. Bass, accompanied by Mr. Flinders, a naval gentleman, entered this strait between the latitudes of 39° and 40° south, and actually circumnavigated Van Diemen's land. This discovery serves to expedite the passage from the cape of Good Hope to port Jackson: for, although a line drawn from the cape to 44° of south latitude, and to the longitude of the south cape of Van Diemen's land, would not sensibly differ from one drawn to the latitude of 40° , to the same longitude; yet a ship will be four degrees nearer to port Jackson in the latter situation, than in the former. But besides a saving of four degrees of latitude along the coast, the passage through this strait would avoid the north-east winds, which have retarded and endangered ships on opening the sea round the south cape and cape Pillar. This strait likewise presents another advantage. From the prevalence of the north-east and easterly winds off the south cape, many suppose that a passage may be made from thence to the westward, either to the cape of Good Hope or to India; but the fear of the great unknown bight between the south cape and the south-west cape of Lewen's land, lying in about 35° south and 113° east, has hitherto prevented the trial from being made. The strait evades a part of this danger, by presenting a certain place of retreat, should the ship be opposed by a gale at the first essay; and should the wind come at south-east, she need not fear making a good stretch to the W. N. W., which course, if made good, is within a few leagues of going clear of all. There is besides King George the Third's sound, discovered by Capt. Vancouver, situate in S. lat. $35^{\circ} 3'$, and E. long. $118^{\circ} 12'$; and it is hoped, that a few years will disclose many others upon the coast, as well as confirm or disprove the conjecture that a still larger than Bass strait dismembers New Holland. Collins's account of New South Wales, p. 192, 193.

BASS, in *Music*. See **BASE**.

BASSAD, or **BESD**, an Arabian name for the purple *fucus* of the Greeks, used by the women to paint their cheeks, and by the dyers of cloths. It has been so far misunderstood by late authors as to be interpreted by the word coral; but the error of this is evident, since coral has none of these properties. See **MARGIAN**.

BASSAÏM, in *Geography*. See **BASSEEN**.

BASSAMUER ROCK lies on the coast of France, in the English channel, and is a shoal that bears about a league N. by W. from La Clarte church, near the point so called, to the south from the seven islands.

BASSAN, **GIACOMO**, in *Biography*, a celebrated painter, whose real name was Giacomo de Ponte, was called Bassan from the town of Bassano on the river Brenta, where his father lived and followed the same profession. He was born in 1510, and became a disciple of Bonifacio; and after having improved himself in his art by studying and copying the works of Titian and Parmeggiano at Venice, he returned to his native town. Here he formed a style different from that of his masters, and guided by his own genius, he assumed a manner of colouring and designing peculiar to himself, and copied all his objects from nature. His subjects were generally taken from such parts of scripture as afford the rural scenery of animals and landscape connected with some story; such as the journeyings of the patriarchs, the Israelites in the desert, the flight of Joseph and Mary into Egypt, &c. In all these subjects his figures were well designed; most of them were formed from his wife, children, and servants, and the animals in his court-yard; and they had of course a pleasing resemblance of nature. Although his compositions cannot boast of any great degree of elegance or dignity, they are distinguished by force and truth; his colouring was admirably lively and natural; and his chiaroscuro and perspective were correctly displayed. His touch was free and spirited; and in his landscapes his distances were always true. Although he had many excellencies, his drawing was incorrect, and his draperies were destitute of variety. His works are easily discriminated from those of other painters, by the similitude of characters and countenances in the figures and animals; by his taste in the buildings, utensils, and draperies; and by a violet or purple tint that predominates in every one of his pictures. Bassan painted much, and with ease; so that his pictures were sent by wholesale to merchants, who dispersed them over Europe. His real pictures, however, are not common; as many of those that are called originals are copies by his sons, who were inferior to himself, or by some painter of meaner abilities. Bassano practised also in portraiture, and painted several excellent likenesses of the doges of Venice, of Ariosto, Tasso, and other persons of eminence. His house at Bassano, to which he was attached, and which the solicitations of the emperor Randolph could not induce him to leave, was the place of resort to many persons of distinction, and the receptacle of the arts, particularly of music, of which he was a master. In his private conduct Bassan was regular; and his charity was so profuse, that his wife was under a necessity of restraining his liberality. He lived to the age of 82, and died in 1592. Several of his capital pieces are in the churches of Bassano, Venice, Vicenza, and other towns of Italy. Some of his smaller works may be found in most of the principal collections of Europe; but those that are really originals fetch a high price. Many of them have been engraved.

Giacomo Bassan had four sons, who were painters. *Franco*, the eldest, was the most eminent. He was born in 1550. He painted in the style and manner of his father, and

and greatly excelled his brothers in designing, drawing, and colouring. He was employed in the church of St. Mark at Venice, in conjunction with Tintoretto and Paolo Veronese. By incessant application he increased the natural melancholy of his disposition, and put an end to his life in 1594, by throwing himself out of a window. *Leandro* was born in 1558, settled at Venice, painted in the style of his father and brother, but with inferior merit, and particularly excelled in portraits. The portrait of the doge Grimani procured for him the honour of knighthood. His life was irregular, and he distressed himself by a constant suspicion of the intention of his companions to poison him. He died in 1623. The other two brothers, viz. *Giovanni Battista* and *Girolamo*, the former born in 1553 and dying in 1613, and the latter born in 1560 and dying in 1622, chiefly employed themselves in copying the works of their father and eldest brother. Pilkington.

BASSANI, GIAMBATISTA, in *Musical Biography*, was chiefly known in England, at the beginning of the last century by his *Motets*, which were more graceful and pleasing than those of any of his countrymen, except Carissimi and Stradella. But he has many titles to an honourable place in musical history. He was not only author of thirty-one different works in favour all over Europe during the limited longevity of musical productions, but the first composer for the violin in Italy, who seems to have written for it with the spirit and intelligence of a real master of the instrument. He was a native of Bologna, maestro di capella of the cathedral. *Academico Filarmonico* of that city, and violin-master to Corelli. Bassani, who flourished from about the year 1675 to 1703 (the date of his last work), was a man of extensive knowledge and abilities in his art; having been not only a successful composer for the church, the theatre, and the chamber, but an excellent performer on the violin, as we are assured by Padre Martini his townsman, who was old enough to have formed his opinion from those who had often heard him perform. And indeed, his sonatas for the violin, and accompaniments for that instrument to his masses, motets, psalms, and cantatas, manifest a knowledge of the finger-board and bow, which appears in the works of no other composer, anterior to Corelli, which we have been able to find; and the lovers of the pure harmony and simple melody of that admirable master would still receive great pleasure from the performance of Bassani's sonatas for two violins and a base; in which they would hear, not only the general musical language of the time, but the mild accents and grateful tones of Corelli's own mellifluous voice.

BASSANIA, in *Ancient Geography*, a town of Macedonia, on the frontiers of Illyria, situate, according to Livy, about 5 miles from Lissus, and belonging to the Cavians.

BASSANO, in *Geography*, a town of Italy, belonging to the state of Venice, in the Trevisano, on the Brenta, 12 miles north of Vicenza.

BASSANO, a town of Italy, in the state of the church, near which Dolabella defeated the Etruri and Boii, 3 miles west of Orta.

BASSANTIN, JAMES, in *Biography*, a Scots astronomer, in the sixteenth century, was the son of the laird of Bassantin, in the Mers, and born in the reign of king James IV. The rudiments of knowledge, and particularly of that skill in various branches of the mathematics for which he was afterwards so distinguished, he acquired in the university of Glasgow. For further improvement he travelled through various parts of the continent, and at length settled at Paris, where he taught the mathematics with applause in the university of that city. During his abode in this city, he imbibed that zeal for the delusions of judicial astrology,

which was then so prevalent, and which few astronomers had judgment or resolution sufficient to discountenance. After having acquired great reputation and some fortune in France, he returned to his own country in 1562. At York, in his journey through England, he had an interview with sir Robert Melvil, brother of sir James Melvil, who, in his "Memoirs," relates the conversation that passed between them. It appears that Bassantin communicated to Melvil certain predictions relating to his mistress, Mary queen of Scots, who was then treating with Elizabeth after having taken refuge in her dominions. Of these predictions some were true, and others were false; but such was the political sagacity of Bassantin, that we may ascribe them to this source rather than to his skill in the occult sciences, for which however he seems to have been ambitious of being thought distinguished. Of his mode of life during the remaining period of it, we have no account; but he appears to have been a zealous protestant, and partisan of the earl of Murray. He died in 1568. To a slight acquaintance with polite literature, Bassantin added a considerable degree of mathematical and astronomical knowledge, considering the dark period in which he lived. His principal work in astronomy was written in French, and translated into Latin by Tornæus, and published at Geneva in 1599 folio, under the title of "Astronomia, Jacobi Bassantini Scoti, opus absolutissimum, &c. &c." He also published "Paraphrase de l'Astrolabe, avec une amplification de l'usage de l'Astrolabe," or an ample explanation of the astrolabe, printed at Lyons in 1555, and at Paris in 1617, 8vo.; "Super Mathematica Genethliaca," or of the calculation of nativities; Arithmetic; "Musica secundum Platoni;" and "De Mathefi in genere." Biog. Brit.

BASSANUS, in *Ornithology*, a species of PELECANUS, as large as a common goose, with a wedge-shaped tail; body white; bill and primary quill-feathers black; and face blue. Gmelin. Latham, &c.

This is the common gannet, or soland goose; a bird found in great plenty on all the northern coasts of Britain, but rather less common to the southward. The adult birds have the plumage nearly all white; but during the first years it is of a dusky colour, and only speckled with white. The bill is blueish-ash colour, about six inches in length, and has the nostrils placed in a furrow; the mouth within is black; the throat is bare; and the skin very dilatable, forming a pouch of sufficient size to contain five or six herrings; the legs are black, marked with a stripe of pea-green before; and the claw of the middle toe is pectinated. The males and female are very much alike in plumage. The gannet is particularly abundant in the isle of Ailsa in the firth of Clyde; the rocks adjacent to St. Kilda; the stalks of Soulliskerry, near the Orkneys; the Skelig isles off the coasts of Kerry, Ireland; and the Bass island in the firth of Edinburgh. Dr. Hervey gives some account of the latter in these words. "There is a small island, called by the Scotch *Bass island*, not more than a mile in circumference; the surface is almost wholly covered during the months of May and June with nests, eggs, and young birds; so that it is scarcely possible to walk without treading on them; and the flocks of birds in flight are so prodigious as to darken the air like clouds; and their noise is such that you cannot without difficulty hear your next neighbour's voice. If you look down upon the sea from the top of the precipice, you will see it on every side covered with infinite numbers of birds of different kinds, swimming and hunting for their prey; if in sailing round the island you survey the hanging cliffs, you see in every cragg or fissure of the broken rocks innumerable birds of various sorts and sizes, more than the stars

stars of heaven when viewed in a serene night ; if from afar you see the distant flocks either flying to or from the island, you would imagine them to be a vast swarm of bees."

"The gannet," observes Dr. Latham, "inhabits the colder parts of this kingdom, and more especially several of the northern isles, and in particular that of Bafs in Scotland, whence the name. It generally first makes its appearance in March, and after making a circuit of the island, departs in October or November. This race seems to be in pursuit of the herrings and pilchards, whose motions it watches; and the fishermen know the coming of these fish by the appearance of the birds. That this is the inducement seems probable, as they are likewise seen, in the month of December, as far south as the coast of Lisbon and Gibraltar, plunging for sardinæ. The gannet is also common on the coasts of Norway and those of Iceland, and now and then met with on the southern coast of Greenland. In America, it is found on the coasts of Newfoundland where it breeds, migrating in winter as far as Carolina: said also to have been met with frequently in the southern ocean; but we are not clear whether the sort meant by them is the common gannet, or the lesser one."

"The gannets," Mr. Pennant remarks, "are birds of passage. The first appearance in those islands being in March, and their continuance till August or September, according as the inhabitants take or leave their first egg; but in general the time of breeding and that of their departure seems to coincide with the arrival of the herring, and the migration of that fish, which is their principal food, out of those seas."—"I have in the month of August," he adds in another place, "observed in Caithness their northern migrations. I have seen them passing the whole day in flocks, from five to fifteen in each. In calm weather they fly high, in storms they fly low and near the shore; but never cross over land, even when a bay with promontories intervenes, but follow at an equal distance the course of the bay, and regularly double every cape. I have seen many of the parties make a sort of halt for the sake of fishing; then darting headlong into the sea, make the water foam and spring up with the violence of their descent: after which they pursued their route. I enquired whether they ever were observed to return southward in the spring, but was answered in the negative; so that it appears, they annually encircle the whole island."

They are well known on most of our coasts by different names. In Cornwall and in Ireland they are called *gannets*, and by the Welsh *gan*. It comes on the coasts of Cornwall in the latter end of the summer or beginning of Autumn, hovering over the shoals of pilchards that come up through the St. George's channel from the north sea. The gannet seldom comes near the land, but is constant to its prey; and when the pilchards retire, which happens about the end of November, they are seen no more.

The nest of the gannet is composed of various materials, such as grass, and water plants intermixed with any thing the bird finds floating on the water. Each bird, if undisturbed, would lay only one egg in the year; but if that be taken away, they will lay another; and if that be taken away also, they will lay a third, but no more. The young gannets, as well as the eggs, are eaten. Martin assures us, that the inhabitants of St. Kilda consume annually no less than 22,600 young birds of this species, besides an amazing quantity of their eggs; these being their principal support throughout the year: they preserve both eggs and fowls in pyramidal stone-buildings, covering them with turf ashes to preserve them from moisture. This is a dear-bought food; and earned at the hazard of their lives, either

by climbing the most difficult and narrow paths, where to appearance they barely cling, and that too at an amazing height above the raging sea; or else, being lowered down from above, they collect their annual provision, thus hanging midway in the air, and placing their whole dependence on the uncertain footing of one person who holds the rope by which they are suspended at the top of the precipice. The young birds are a favourite dish with the north Britons in general, during the season they are constantly brought from the Bafs ille to Edinburgh, and are roasted and served up a little before dinner as a whet: the price they are sold for in the markets are twenty-pence a piece.

The following account of the gannets in the isle of St. Kilda is given by Mr. Macauley. "The rocks are in summer totally covered with the soland geese and other fowls, and appear at a distance like so many mountains covered with snow. The nest of the soland goose, not to mention those of other fowls, are so close, that when one walks between them the hatching fowls on either side can always take hold of one's clothes; and they will often sit till they are attacked, rather than expose their eggs to the danger of being destroyed by the sea gulls: at the same time an equal number fly about, and furnish food for their mates that are employed in hatching; and there are, besides, large flocks of barren fowls of the different tribes that frequent the rocks of St. Kilda.

"The soland geese, equal almost the tame ones in size. The common amusement of the herring-fishers shows the great strength of this fowl. The fishers fix a herring upon a board, which has a small weight under it to sink it a little below the surface of the sea: the soland goose observing the fish, darts upon it perpendicularly; and with so much force, that he runs his bill irrecoverably through the board, and is taken up directly by the fishers.

"The soland geese repair to St. Kilda in the month of March and continue there till after the beginning of November. Before the middle of that month they, and all the other sea-fowls that are fond of this coast, retire much about the same time into some other favourite regions; so that not a single fowl belonging to their element is to be seen about St. Kilda from the beginning of winter down to the middle of February. Before the young soland geese fly off, they are larger than their mothers, and the fat on their breast is sometimes three inches deep. Into what quarter of the world these tribes of wild fowl repair, after winter sets in, whether into the northern ocean, the native country and winter-quarters of herrings in general, or into some other region near the sun, or whether they be of the sleeping kind, they who pry into the mysteries of natural history, or have conversed much with writers of voyages can best explain. I shall only pretend to say that these different nations of the feathered kind are taught to chuse the properest habitations and feeding places, and so shift their quarters seasonably by the unerring hand of God.

"From the account given above of the multitude of sea-fowls that seek their food on this coast, we may justly conclude that there must be inexhaustible stores of fish there. Let us for a moment confine our attention to the consumption made by a single species of fowls. The soland goose is almost insatiably voracious; he flies with great force and velocity, toils all the day with little intermission, and digests his food in a very short time; he disdains to eat any thing worse than herring or mackerel, unless it be in a very hungry place, which he takes care to avoid or abandon. We shall take it for granted that there are a hundred thousand of that kind around the rocks of St. Kilda; and this calculation is by far too moderate, as no less than twenty thousand

band of this kind are destroyed every year, including the young ones. We shall suppose, at the same time, that the inland geese sojourn in these seas for about seven months in the year; that each of them destroys five herrings in a day, a subsistence infinitely poor for so greedy a creature, unless it were more than half supported at the expence of other fishes. Here we have 100,000,000 of the finest fish in the world devoured annually by a single species of the St. Kilda sea-fowls," &c.

In concluding this account of the gannet, it is proper to observe that *le grand fou* of Brisson and Buffon, and *great booby* of Catesby, an inhabitant of the sea-shores of Florida, is supposed to be the young or at least a variety of *pelecanus Bassanus*; and that observed by navigators so common on Alcention island *pelecanus piscator*, a different species.

BASSAWS, or BONA, *Shoals*, in *Geography*, lie on the west coast of Africa, beginning about west, or to the south of west from Sierra Leone, and running out far to sea in rounds and hollows, so that ships cannot clear them without standing off out of sight of land.

BASSE, BASS, or LA BASSEE, a town of France, in the department of the North, and chief place of a canton in the district of Lille; ceded by the Spaniards to France by the treaty of Aix-la-Chapelle, in 1668; formerly a place of considerable strength, but dismantled by Louis XIV. It is situated on the Deule, 2 leagues east of Bethune, and $3\frac{3}{4}$ south-west of Lille. The place contains 2171, and the canton 11,913 inhabitants: the territory includes 75 kilometres and 11 communes. N. lat $50^{\circ} 53'$. E. long. $3^{\circ} 0'$.

BASSE, in *Ichthyology*, the English name of a fish found on some of the British coasts, and named *perca labrax*. Linn. Syst. 482. ed. 12.

BASSE-Cour, in *Building*, a court separated from the principal one, and destined for the stables, coach-houses, and livery-servants.

BASSE-Cour of a country-seat, is the yard or place where the cattle, fowls, &c. are kept.

That where strange creatures of divers sorts are kept for curiosity, is called by the French *menagerie*. The Romans gave the name of *vivarium* to that place, where beasts were kept for the public shows.

BASSE, in *Middle Age Writers*, denotes a collar for cart-horses, made of flags. Hence also the round matted cushions of flags, used for kneeling in churches, are called *basse*; in Kent, a *truss*.

BASSE de Flute traversiere, Fr. in *Music*, a side-flute, a fifth below the usual compass of the German flute, now out of use in France; and we never remember its use in England.

BASSE-Flute. When, at the beginning of the last century, the flute à-bec, or common flute, was in general use and favour, there were flutes of every size and pitch. F natural being the best in tune, and the easiest key on the common flute, all songs and other favourite airs were transposed for the flute into that key, or into C natural, at the bottom of the plate, when printed. The base flute was an octave below this F, and the octave flute an octave higher. See FLUTE.

BASSE Tonique, the base of the key-note, or Tartini's third sound, produced by the concurrence of two treble notes perfectly in tune, and steadily sustained with two voices, violins, flutes, hautbois, or by two strings in double stops on one violin, or two keys on the organ. See TERZA SUONA.

BASSEEN, or BASAIM, in *Geography*, a fortified city, situate on the point of the continent on the western coast of the peninsula of India, opposite to the north end of Salfetta. It lies in N. lat. $19^{\circ} 19'$, and under the same meridian as Bombay. This place fell into the hands of the English, after a smart siege in 1780, but was restored to the Mahrattas,

together with all the other conquests made on that side of India, at the peace of 1783; Salfetta and the small islands excepted.

BASSENTO, a river of Italy, in the kingdom of Naples, which runs into the Grati, near Cosenza.

BASSERSTORF, a town of Switzerland, in the canton of Zurich, 4 miles N. E. of Zurich.

BASSET, or BASETTE, a game with cards, said to have been invented by a noble Venetian; for which he was banished. It was first introduced into France, by signior Justiniani, ambassador of Venice in 1674. Severe laws were made against it by Louis XIV.; to elude which they disguised basset under the name of *pour et contre*, that is, for and against; which occasioned new arrests and prohibitions of parliament. The parties concerned in it are, a dealer or banker, his assistant, who supervises the losing cards, and the punter, or any one who plays against the banker.

Besides these, there are other terms used in this game; as, 1. The *fusse*, or *face*, which is the first card turned up by the *tailleur* belonging to the pack; by which he gains half the value of the money laid down on every card of that sort by the punters. 2. The *couch*, or first money which every punter puts on each card; each person that plays having a book of thirteen several cards before him, on which he may lay his money, more or less, at discretion. 3. The *paroli*, which is, when a punter having won the first stake, and having a mind to pursue his good fortune, crooks the corner of his card, and lets his prize lie, aiming at a *sept et le va*. 4. The *masse*, when having won the first stake, the punter is willing to venture more money on the same card. 5. The *pay*, when the punter having won the first stake, be it a shilling, half crown, guinea, or whatever he laid down on his card, and not caring to hazard the *paroli*, leaves off, or *goes the pay*; in which case, if the card turn up wrong, he loses nothing, having won the couch before; whereas, if it turn right, he by this adventure wins double the money staked. 6. The *alpieux*, much the same with *paroli*, and used when a couch is won by turning up, or crooking the corner of the winning card. 7. *Sept et le va*, the first great chance or prize, when the punter having won the couch, makes a *paroli*, and goes on to a second chance; so that if his winning card turns up again, it comes to *sept et le va*, which is seven times as much as he laid down on his card. 8. *Quinze et le va*, is the next higher prize, when the punter, having won the former, is resolved to push his fortune, and lay his money a second time on the same card, by crooking another corner; in which case, if it come up, he wins fifteen times the money he laid down. 9. *Trent et le va*, is the next higher prize, when the punter crooking the fourth corner of his winning card, if it turn up, wins thirty-three times the money he first staked. 10. *Soixant et le va*, is the highest prize, and entitles the winner to sixty-seven times his money; which, if it were considerable, stands a chance to break the bank; but the bank stands many chances first of breaking the punter. This cannot be won, but by the *tailleur's* dealing the cards over again.

The rules of the game of basset are as follow: The banker holds a pack of fifty-two cards, and having shuffled them, he turns the whole pack at once, so as to discover the last card; after which he lays down all the cards by couples. The punter has his book of thirteen cards in his hand, from the king to the ace; out of these he takes one card or more at pleasure, upon which he lays a stake. The punter may, at his choice, either lay down his stake before the pack is turned, or immediately after it is turned, or after any number of couples are down. Supposing the punter to lay down his stake

Take after the pack is turned, and calling 1, 2, 3, 4, 5, &c. the places of those cards which follow the card in view, either immediately after the pack is turned, or after any number of couples are drawn. Then if the card, upon which the punter has laid a stake, comes out in any odd place except the first, he wins a stake equal to his own. If the card upon which the punter has laid a stake, comes out in any even place except the second, he loses his stake. If the card of the punter comes out in the first place, he neither wins nor loses, but takes his own stake again. If the card of the punter comes out in the second place, he does not lose his whole stake, but only one half; and this is the case in which the punter is said to be faced. When the punter chooses to come in after any number of couples are down, if his card happen to be but once in the pack, and is the last of all, there is an exception from the general rule; for though it comes out in an odd place, which should entitle him to win a stake equal to his own, yet he neither wins nor loses, from that circumstance, but takes back his own stake.

This game has been the subject of mathematical calculations. Mr. De Moivre solves this problem; to estimate at basket the loss of the punter under any circumstance of cards remaining in the stock, when he lays his stake, and of any number of times that his card is repeated in the stock. From this solution he has formed a table, shewing the several losses of the punter in whatsoever circumstances he may happen to be. See Doctrines of Chances, p. 63.

From this table it appears, 1. That the fewer the cards are in the stock, the greater is the loss of the punter. 2. That the least loss of the punter, under the same circumstances of cards remaining in the stock, is when his card is but twice in it; the next greater when but three times; still greater when four times; and the greatest when but once. The gain of the banker upon all the money adventured at basket, is 15s. 3d. per cent. De Moivre, Doctr. of Chances, p. 69. edit. 3.

BASSET, in *Zoology*, the name given by Buffon to that kind of dog which is called in England the turnspit, *canis vertagus* of Gmelin. Of this kind he makes two varieties; le basset à jambes droites, and le basset à jambes tortes; the first having straight legs, and the last crooked ones.

BASSETTERRE, in *Geography*, a general name given by the French to the low lands of the West India islands; such are the S.W. part of the two parts of Guadaloupe island, separated by a small arm of the sea, called the Salt river: and also the N.W. part of the island of Martinico.

BASSETTERRE Town, a sea-port town on the S.W. coast of the island of St. Christopher in the West Indies, and capital of the island, situated at the mouth of a river, opening into a bay, called Bassetterre road. The town contains about 800 houses, and is defended by three batteries. N. lat. 17° 24'. W. long. 62° 37'.

BASSETTERRE Town, is also a sea-port town on the S.W. coast of the island of Guadaloupe, regularly built, with some handsome houses, and defended by a citadel. N. lat. 15° 59' 30". W. long. 61° 59' 15".

BASSETING, in the *Coal Mines*, denotes the rise of the vein or coal towards the surface of the earth, till it come within two or three feet of the surface itself.

This is also called by the workmen *cropping*, and stands opposed to *dipping*, which is the descent of the vein to such a depth that is rarely, if ever, followed to the end.

BASSI, ANGELO, in *Biography*. See POLIZIANO.

BASSI, LAURA, an Italian lady, distinguished by her acquirements, was the wife of Dr. Joseph Verati of Bologna. She understood the Greek, Latin, and French languages, as

well as her own, and was eminent for her literature and science. In 1732, she was honoured with the doctoral dignity, and she kept up a correspondence with many learned persons in Europe, who admired her talents and accomplishments. She commenced a course of lectures in philosophy in 1745, and continued them to her death. Her morals were pure, and her character amiable; and she was liberal in her acts of charity to the poor and orphans. She died at an advanced age at Bologna in 1778. *Neuv. Dict. Hist.*

BASSIA, in *Botany*, so named by Kœnig in honour of Ferdinando Bassi, curator of the botanic garden at Bologna. Linn. Gen. Reich. n. 645. Schreb. 805. Juss. 132. Gært. t. 104. Class and order, *dodecandria monogynia*. Nat. Ord. *Dumoseæ*; *Sapotæ* of Juss. Gen. Char. *Cal.* perianth four-leaved; leaflets coriaceous, ovate, permanent. *Cor.* monopetalous, bell-shaped; tube inflated, ovate, fleshy; border shorter than the tube, eight-parted; divisions ovate, almost upright. *Stam.* filaments sixteen; eight below the jaws, and eight in the middle of the tube; anthers linear, sagittate, acute, villose on the inside, shorter than the corolla. *Pist.* germ superior, ovate; style subulate, twice as long as the corolla; stigma acute. *Per.* drupe fleshy, milky. *Seeds*, nuts five, oblong, three-cornered.

Ess. Ch. *Cal.* four-leaved. *Cor.* eight-cleft; tube inflated. *Stam.* 16; drupe five-seeded. (Berry five-celled, with a seed in each cell. G.)

Species, 1. *B. longifolia*. Ilippe Malabaris, and Miele Ceylonensis. "Leaves ovate-lanceolate, peduncles axillary." A lofty tree, with the outmost branches recurved, thickish, and covered with a grey down: leaves on them alternate, approximating, petioled, entire, veined, naked, half a foot long, and deciduous; petioles roundish, short; peduncles axillary, from one to five, filiform, one-flowered, upright; after flowering, prolonged and pendulous; berry oblong, slightly compressed, smooth, shining, and yellow, with a white band. A native of Malabar and Ceylon. 2. *B. dubia*. Seed large, half-moon shaped; flattened like a lens, smooth and shining, of a dark chestnut colour, excepting an oblong, rugged, umbilical area, which is almost white. The shell is thick, stony, and very hard. The seeds of bassia are not easily distinguished from those of sapota, without attending to the albumen, of which bassia is entirely destitute; and the inner integument is also commonly wanting. 3. *B. obovata*. Forst. Florul. n. 200. "Leaves obovate; peduncles heaped, terminating." A native of the isle of Tanna, in the South seas. Martyn's Miller's Dict.

BASSIANO, LAUDI, in *Biography*, born at Placenza, discovering early a propensity to the knowledge of medicine, was sent to Padua, where he studied under Baptist Monti, and, having performed the usual exercises, in 1544 he was admitted doctor in philosophy and physic. In 1547 he was made professor in those sciences, and acquired considerable reputation as a public teacher. Going to his house, in 1562, he was assaulted by an assassin, who killed him by stabbing him in several parts of his body with a bayonet. He left several publications, of which the principal are, "Iatrologia five dialogi duo, in quibus de universæ artis medicæ præcipue vero morborum omnium et cognoscendorum et curandorum absolutissima methodo, discribitur," Basileæ 1543, 4to.; "De origine et causa pestis," Patav. 1555, 8vo; "De prodigiis partibus." Haller. Bib. Med. Eloy. Dict. Hist.

BASSIN'S RIVER, in *Geography*, is situated on the coast of Labrador, in North America, nearly opposite to the north point of Newfoundland.

BASSING, a town of France, in the department of the Meurte, and chief place of a canton in the district of Dieuze, $1\frac{1}{2}$ league N. E. of Dieuze.

BASSIUS, HENRY, in *Biography*, son of Gerard Bassius, or Bass, a surgeon of eminence at Bremen, born in 1690. In 1713, he went to Halle, where he studied medicine under Frederic Hoffman, in 1715 to Strasburg, and two years after to Basle; attaching himself particularly to acquiring a knowledge of the improvements that had been lately made in anatomy and surgery. Returning thence to Halle, he was created doctor in medicine; and soon after professor in anatomy and surgery, which office he continued to hold till the time of his death, March 5th 1754. His works are, "Disputatio de fistula ani feliciter curanda," 8vo. 1718; "Observationes anatomico-chirurgico-medice," Halle 1731, with figures, representing some instruments invented by the author,—a work much commended by Haller; "Tractatus de morbis veneris," Lipsæ 1764, 8vo.; a posthumous work, to which the editor has added some valuable observations. He also published, in the German language, "Commentaries on Nuck's Art of Surgery," 8vo. 1728. Haller, Bib. Anat. et Chir. Eloy. Dict. Hist.

BASSO CONTINUO, in *Music*, originally meant the accompaniment to the higher parts of a sonata, concerto, or chorus, in whatever style it was written, which served as a base, when the real base was silent; as in fugues, and other movements; to let the accompanier on the organ or harpsichord know what was doing by the other instruments, while his part was at rest. This may still be seen in the organ part (organo) to Corelli's Sonatas, Op. 1ma, which were composed in the seventeenth century, after which the custom was discontinued, there being no instance of it in his other works. Though in the sonatas of Bassani, his master, and in those of Torelli, it is constant. Handel, in his hautbois concertos, and in his twelve grand concertos, calls the ripieno base, basso continuo.

It was to this kind of choral base for the organ or harpsichord, in ecclesiastical music, that the harmony of the whole score, without a treble part, was first expressed by figures over the base notes. Basso continuo, by an awkward translation, is, in English, synonymous with *thorough-base*, which see.

It was in the beginning of the seventeenth century that Ludovico Viadana (not Viana, as erroneously written by Rousseau, and copied from him in both editions of the Encyclopædic) one of the most distinguished ecclesiastical composers of that time, invented the indication of chords by figures, in what the Italians call the basso continuo, and the English thorough-base, or accompaniment on keyed instruments, lutes, harps, and, in recitatives, even violoncellos: but we have found several instances of the minute beginnings of this expedient before the time of Viadana; though he was doubtless the first who drew up general rules for expressing harmony by figures over the base in 1615. Draudius, in an ample list of his ecclesiastical compositions, which were very numerous, tells us of one that authenticates his claim to this invention, which was a collection of all his choral pieces of one, two, three, and four parts; "with a continued and general base, adapted to the organ according to a new invention, and useful for every finger as well as organist; to which are added short rules and explanations for accompanying a general base, according to the new method." Viadana was therefore the first who composed an organ-base different from the voice-part, in the execution of which the new-invented figures enabled the performer to give the fingers the whole harmony of the several parts of a full composition, without seeing the score.

In 1731, Mattheson, in his "*Grosse general basse schule oder der exemplarischen organisten proben*," a treatise on thorough-base, has given a list of twenty-two writers

on accompaniment from the time of its invention in 1606. The invention has been indisputably secured to Viadana in Draudius's Catal. ii. (Draudio Bibliotheca Classica, 2 vols. 4to. Frankofurti 1625.), where there is a list of all his works, and among the rest, "Dr. Ludovici Viadanæ Itali opera omnia sacrorum concertuum, 1, 2, 3, & 4. voc. cum basso continuo & generali, organo applicato, novaque inventionione pro omni genere et sorte cantorum et organistarum accommodata. Adjuncta insuper in basso generali hujus novæ inventionis instructio et succincta explicatio, Latine, Ital. et Germ. ap. Steinium 4. 1613."

In the list which Mattheson has given of twenty-two authors on accompaniment before 1731, it is observable that only one tract is in English; and that written by Keller a German, who lived in queen Anne's time, and dedicated to her majesty six sonatas for two flutes and a base.

In Rameau's system, and still less in that of the abbé Feytaud, as the fundamental base can have no melody, but what arises from its own harmony or single common chord, la basse continue may be regarded as a kind of low treble under the violins and tenor, or as a variation of the fundamental base.

Basso *Stretto*, Ital. a base confined to a few bars or notes, repeated to different and varied treble parts. The English call this kind of monotonous movement a ground. During the seventeenth century, the Italians and their imitators were very fond of writing upon a ground-base; Stradella and Purcell frequently manifested their ingenuity under such restrictions; nor had the fashion quite subsided in Handel's time, as may be seen in the last chorus of his Dettingen Te Deum, and elsewhere in his numerous and admirable works. See GROUND, CIACONA, and CHACONNE.

Basso *Cantante*, Ital. *Bassiste*, Fr. the vocal base-part, or the base singer in an oratorio, opera, or concert.

Basso *Relievo*, Italian, *Bas-relief*, French, in *Sculpture*, is the representation of figures on a back ground, in such a manner that no part of them is detached from it; alto relievo, high relief, has the grosser parts attached to the back ground whilst the smaller parts are free from it; some distinguish a third kind, or mezzo relievo, middle relief, between both; although it must be acknowledged that all three kinds are implied, in a general mode of speaking, by the common term of basso-relievo, or bas-relief, because almost all figures in relievo, even alto-relievo, are more compressed or flattened than their insulated archetypes in nature. This, like many other terms in the art of design, is of modern date, and was most likely invented; or at least compounded and applied, in the eleventh or twelfth centuries, when sculpture and architecture began to revive in Italy, and these kinds of works became a very considerable decoration to the new cathedrals. The Greeks, to whom we must look for the best definitions in this art, as well as the most excellent works, called this species simply anaglypta, carved (Pliny, lib. 33. c. 11.); that which we call alto-relievo was distinguished by them from the low-relief, by the word, toreuticen, rounded. Pliny, l. 34. c. 8.

Basso-relievo, although a considerable province of sculpture, is in a particular manner allied to architecture and under its dominion; as any considerable work of this kind must be made for the pediment, frieze, or pannel of a building, or architectural form, such as a sarcophagus or pedestal: and therefore the general shape of the ground, the distribution and projection of the figures, must be subservient to the surrounding and containing parts, in order that they may produce a beautiful whole.

It is well remarked by the authors of the French Encyclopædie, that "the origin of basso-relievo is confounded with that of the hieroglyphic; that is to say, it owes its birth

birth to figured writing. Under this point of view, it is common to all people, and is found among the most savage. It was invented by necessity, appropriated by religion. The progress alone of the arts of imitation could perfect these primitive signs and give them life. This honour was reserved for the Greeks. In Greece the arts were in some sort the ministers of religion; in Egypt and Asia they were the slaves. A religious respect for these primitive characters, which worship had sanctified, feared perhaps to change the ideas in changing the forms to which they were attached: all contributed, among the Egyptians, to retain the arts in a kind of infancy, from which religion prevented them from emerging."

All the larger hieroglyphics engraven in the surface of Egyptian architecture, or on the figures of men and inferior animals, may be considered as basso-relievo; and as of the most simple, it may be consequently of the most ancient kind; because the figure was sunk in such a manner, that the surface of the ground was left, forming an enclosure or outline whose greatest depth was equal to the greatest projection of the figure, which was productive of these advantages. As many of the hieroglyphics were cut in granite, a very brittle marble, it prevented the danger of spoiling the outline in sinking the back-ground, one third of the labour was saved, and a strong shadow all round the figure, particularly when the sun shone on it, defined its form to the sight. All the temples and palaces enumerated by Ripaud, and described by Denon in the late expedition of the French into Egypt, shew that the greater part of those edifices, as well as inferior works, were covered with hieroglyphics, or sacred figure-writing in the kind of bas-relief above described: the largest of these formed regular ornaments to the friezes, centres over the doors, corresponding tablets, or pannels where the symmetry of the architecture required. The principal of these figures, according to a comparison of what we find in Orus Apollo, Iamblichus on Hieroglyphics, and other authors, with the hieroglyphics themselves, seem to be the representation of some characteristic or attribute of the divinity, and the operations of his providence in nature, accompanied by acts of adoration; the inferior figures and characters are ranged in lines like writing.

Besides the hieroglyphics, the Egyptians employed bas-relief, with the ground levelled to the lowest part of the figure, to describe the political or military prowess of their heroes, and for other historical purposes. Of this kind are those in the palaces of Karnac, engraved by Denon, and those described in the Bird's Well, of which there is a specimen in the hall of the British Museum. It is in a soft calcareous stone in very low relief: the subject, men slaying oxen. The human figures are in violent action, which they seem to have attempted in historical more than in sacred subjects. Nor is it surprising that such actions are extravagant, and not well rendered; when we see by the works themselves, that the stock of knowledge which the sculptors possessed, was insufficient to account for the parts of the body by a fine proportion, beautiful outline, and the anatomical changes of appearance in the different circumstances of motion. But the prodigious quantity of this kind of labour still remaining must have occupied the diligence of so many hands for a series of ages, that they could have had little leisure to make advances, either in the sentiment or scientific perfection of their figures. This may account, in part at least, for the execution of the quadruped being better than that of the human figure, which is so much more difficult.

It is necessary to give a general account of the character and style of design in the Egyptian figures, because what is said on this subject will be in a great measure applicable to

the early progress of the arts among the Hindoos, Persians, and Greeks, allowing for some peculiarities in each nation. The arts of design are strictly imitative in the early attempts; and we find in the Egyptian figures, compounded of different animals, that each part is a copy of nature. In the human figure, the body and limbs were represented in general forms. The face, as being the most interesting part of the person, was more minutely expressed. The form of the face was a rounded egg, lines of the eye-brows and lids, simple curves, inclining upwards from the nose, the bottom of the nose and the line of the mouth inclined upwards in the same direction with the eyes. The eyes were full, nearly on a level with the forehead and cheeks, and the lines of the eye-brows, lids, and borders of the lips, marked with precision. The chin appeared small and bony, the neck round, the shoulders high and broad, except the marking of the breast, little distinction of the muscular forms in any part of the body and limbs, the loins narrow, the limbs round, rather straight and slender, their joints slightly indicated, the hands and feet rather flat, the fingers and toes rounded, without the appearance of joints, and nearly of the same length. According to a figure Denon found, measured by 22 squares in length, the half of the figure each way was from the division of the thighs, the head was rather less than a seventh part of the figure's height. See Denon's Voyage, plate 124, fig. 1.

The quadrupeds on Egyptian monuments, are represented in profile, and in the simplest attitudes. The parts of which these are composed, are fewer and more general than those in the human figure. This is one reason why the Egyptians excelled in their animals; the mechanical manner in which the shoulder is drawn of the lion and sphinx (where they have displayed more anatomy than in any other part) presents a simple, but not just account of the structure of that member of the body: these observations apply to the state of sculpture before the time of Alexander the Great; after which period, it partook of the improvements introduced by its Grecian conquerors.

Basso-relievos are found in India, which decorate the excavations of Ellora and Elephantis in an astonishing profusion. The subjects are sacred, suitable to the temples in which they are carved; the drawing of the figures and their parts bears a strong resemblance to the Egyptian style; but inferior in this, that many of the figures have very large heads, the limbs and bodies disproportioned. It seems likely that the Egyptian hieroglyphics are more ancient, because more simple than the Hindoo basso-relievo; the former having the ground left even with the highest relief, the latter having the ground cut level with the lowest outline of the figure. For the most extensive, accurate, and valuable publications of these subjects we are indebted to the abilities and unwearied labour of our countryman Thomas Daniel, esq. R. A.

The Persians employed basso-relievo like the other ancient nations as a figured writing, at once to record and represent the symbols of Almighty power and operation, their religious ceremonies, and the prowess of their heroes. The bas-reliefs on the palace of Persepolis and the royal tombs are arranged in lines, horizontal and perpendicular, to answer the double purpose of description and architectural decoration: the style of drawing resembles that of the figures in the later hieroglyphics, although the dresses are extremely different. The Egyptians are particularly distinguished by the hood, the mitre, the full hair artificially curled, the close tunic, the apron of papyrus; the Hindoos by the necklaces, bracelets, and anklets; the Persians have long beards and hair ending in small curls, caps, full tunics with regular folds and large sleeves; the Medes in the same ruins of Persepolis have close tunics. The drapery in these bas-reliefs is rather

more like nature than that in the Egyptian hieroglyphics and other bas-reliefs, but this may be the consequence of what the artists had more frequently to imitate, instead of a proof that the arts were more advanced in Persia than in Egypt, which seems still less probable when we consider, the different positions of the human figure, the variety and extent of the historical compositions in the palace of Karnac, the Theban tombs, &c. and the exquisitely neat and perfect execution of the hieroglyphics on the obelisk of Sesostris, lately erected on Monte Citorio by Pius the VIth, far exceeding the workmanship of any figure at Persepolis. See Denon's Egypt. Le Bruyn's Travels, vol. 2.

The earliest Greek sculpture extant is still more like the Egyptian in the principles of design, than that of any other nation. The face of the human figure has the same oval, the features described by the same simple curves, the eye kept full as the easiest to execute, being more distinguished by the lines of which it is formed, than by its appearance in profile; and nearly the same general parts represented the body and limbs. That there should be this similarity in different nations in the imitative arts, is strictly agreeable to reason; because conformably to their limited progress in science, they will represent in a simple and gross manner those objects, the detail of which their minds have neither comprehended nor understood, and which in that stage of progress the hand would be as little likely to perform with the requisite accuracy. It is equally reasonable to expect such imitations should resemble each other; being made from examples of general likeness, and done without the influence of manner, which is the consequence of imitating art instead of nature.

It is most likely that some imitations in sculpture of the human figure were made in Greece, previously to the introduction of letters by Cadmus, because modern travellers have found such imitations among many barbarous people unacquainted with letter-writing, and because the Greeks appear to have used figure-writing before they were acquainted with letters: see Wolf's Prolegomena to Homer, page 81; who believes that figure writing only was known in the time of Homer. But it is equally certain that small bronze figures exist with inscriptions of Cadmean letters on them, which are very poor and barbarous imitations of the human form; so that we may fairly infer, that the sculpture previous to this period could not have been very superior to the productions of Mexico, Otaheite, or the Sandwich Islands. In the popular story of the Maid of Corinth, related by Pliny, lib. 35. cap. 12. he says, Dibutades the Sicyonian potter, her father, first invented a method of taking likenesses, the process of which is described as follows: "His daughter being in love with a young man who was going to a foreign country, she circumscribed the shadow of his face with lines upon the wall by lamplight; her father took the impression in clay and baked it in the fire with his vases." It seems, therefore, that as this was the first invention of portraits in clay, and as this portrait was only the relief impressed from a line scratched on the wall, that it must have been the very first stage of basso-relievo. Pliny proceeding says, that Dibutades made another addition to basso-relievo, by ornamenting the lowest row of rounded tiles, used to terminate roofs, with mask faces. These may be considered as two inventions, which distinguished the Sicyonian school. Pliny does not say at what time Dibutades lived, but he mentions him before Demaratus the father of Tarquinius Priscus, who must have been 630 years before Christ.

Independently of what may be deduced from these quotations, concerning the progress of basso-relievo in Greece, examples in this branch of sculpture exist in marble and bronze, which, with the aid of coins and gems, if properly arranged,

would form a complete chronological series from the introduction of letters in Greece. As the most ancient subjects to be chiefly selected are those which bear inscriptions, this arrangement would necessarily follow: the inscriptions of Cadmean letters first, the Boustrophedon manner of writing next, and the more modern as circumstances point out their propriety. This method would be found perfectly agreeable to the progress of science discernible in the works themselves, as well as the perfection of execution; and thus the antiquarian, or the artist having insured an accumulation of testimony, would be in little danger of mistake. A passage in Pausanias, the first Eliacs, or 5th book, shews the propriety of this method: he says, the cedar chest in which Cypselus was preserved by his mother (about 669 years before Christ), was dedicated by his posterity in Olympia. This chest is described as being covered with basso-relievo of allegorical and heroical subjects, explained by Boustrophedon writing, which the author describes as very old and difficult to read.

The earliest Greek sculpture which has come down to us is equal in the proportion of the figure to the Egyptian, and superior in the drawing of the body and limbs. Vitruvius informs us, that as the height of the human figure was six times the length of the foot, that was made the rule for the Doric column. (Book iv.) Thus we see the Greeks had been in the habit of measuring the human figure by its own parts, previous to the establishment of architectural proportions; and we find very tolerable general forms of the muscles and bones most commonly seen in the living body, which those early Greeks copied by close attention to the naked figures they constantly saw before them, without the aid of anatomical system; for Pliny (lib. xxix. c. 1.) says, the art of medicine remained in the darkest night from the siege of Troy to the time of Hippocrates. A few examples from the many existing will shew the progress of sculpture in basso-relievo, from the introduction of letters in Greece to the time of Phidias: these shall be set down according to their apparent antiquity, and followed by general observations.

In Winkelmann's "Monumenti inediti," plate 3. is a print from a scarabæus of Jupiter in his car, holding the thunder with one hand, and trident with the other. This has the appearance of great antiquity in design and character, and perhaps is the oldest work cited in this article. The next is a patera of bronze in the British Museum, on which is carved Minerva, subduing Hercules, or wisdom prevailing over strength. The next is an engraving of five of the seven chiefs who besieged Thebes. The last is Hercules bearing away the tripod from Apollo, which, by the improved style of drawing, seems to approach the time of Phidias. The first observation that occurs in this part of the subject is, that antiquarians have fallen into a considerable mistake in pronouncing many early works to be Etruscan, which later discoveries have almost certified to be Greek. The Grecian subjects cut on gems, the backs of which were formed into scarabæi like the Egyptian seals, have been positively called Etruscan by Winkelmann; notwithstanding that the style of the figures is early Greek, the subjects are Greek, and the letters upon them are Greek; besides which, Mr. Hawkins, a late accurate and highly-qualified traveller, has brought a Cornelian scarabæus found in that country to England, which has a Mercury engraved on it in that early style called Etruscan. How many more of these might travellers, if they sought for them, find in that country? And is it not likely that the Roman lords of the world would bring into their own country as many curious Greek gems as statues, when a dozen of the former may be conveyed in the

palm of a man's hand, whereas vast operations are necessary to transport only one marble or bronze statue? These arguments alone are sufficient to account for the gems of this description which have been found in Italy; besides some which may have been wrought in that country by Greek colonists, or the scholars of Greeks. A crowd of evidence might be adduced in this place to shew, that the vases formerly called Etruscan have been found in great abundance in Greece. Mr. Stuart and Mr. Parrs brought many fragments of them from Athens, which are lodged in the British Museum; Mr. Greaves brought several entire and beautiful painted vases from Greece, some of which were afterwards in the possession of Sir William Hamilton: and to these might be added many other testimonies and collections on this part of the subject.

One error more should be refuted before we proceed: Winkelmann (vol. i. lib. 3. c. 4.), in his history of the art, asserts, that "the Etruscans gave their Fauns horses' tails; whereas the Greeks represented Fauns and Satyrs with short tails like goats." The head-piece, (p. 23. chap. 3. vol. ii.) of "Stuart's Athens," is a sufficient answer: it is a bas-relief of a Bacchanalian dance, in which two Satyrs have horses' tails. It was found in the ruins of the theatre of Bacchus, is of the style commonly called Etruscan; but in fact, according to the time when this theatre was built (nearly 500 years before Christ), it is of the style of sculpture which prevailed in Greece immediately prior to the time of Phidias.

The general remarks on these works, during the period of about 550 years from the time of Cadmus to the time of Phidias, shall be confined to the three following: the manner of representing the gods; the manner of drawing the human figure and its actions; and, lastly, some observations on the draperies and utensils.

From the two proofs adduced that Grecian sculpture has been called Etruscan from the want of sufficient knowledge of the subject, and to which other proofs equally certain might be added (for instance that all the early Greek coins are of the same style with that called Etruscan), it will seem to be a safe conclusion, that all ancient sculpture representing Greek subjects, should be considered as the work of Greeks, their colonists, or scholars, excepting in such cases as there is sufficient reason to believe the contrary.—Conformably to this regulation, the following observations may be offered on Greek sculpture preceding the time of Phidias. As the ancients represented their divinities in human forms, in the early times those forms were gross and imperfect, their aim being only to copy human nature; thus, in the gem above cited, of Jupiter with the thunder and trident, in Winkelmann's "*Monumenti inediti*," pl. 3. his body and limbs are formed of few parts, gross and inelegant, his face is beardless, and his hair is thick and matted. Nearly the same may be said of the Hercules on the bronze patera in the British Museum above mentioned; a figure of Neptune on the oldest coins of Pæstum; and the other monuments of the same ages, which represent Jupiter, Neptune, Mercury, and Hercules, by such figures as they employed to represent common men, equally devoid of beauty and character. The face of Minerva is not more delicate than that of Hercules, nor do his limbs appear more robust than those of Apollo. The gods were only known by their symbols: Jupiter by his thunder, Neptune by his trident, Mercury by his caduceus, Minerva by her helmet and ægis, &c. The gem of Jupiter with the thunder and trident above mentioned, which has also a four-footed animal under his car, perhaps a horse, agrees with Orpheus's hymn to that god, in which

earth and sea are said to be his; in this respect agreeable to the most ancient religion, and an argument of the high antiquity of the workmanship.

Concerning the manner of drawing the figure, it has been judiciously observed by the authors of the French Encyclopædie, "that the Greeks began where the Egyptians left off;" and some of the bettermost (not perhaps the very best) of the Egyptian figures, are nearly fac-similes of the beginnings of Grecian art. However, improvements were soon made; they began to distinguish between muscle and bone, and the surface of the body and limbs were carefully marked with their greater subdivisions; the mastoid muscles and gullet marked the neck, the collar bones were marked by nearly straight ridges, the edges of the ribs by an high arch, the abdomen by a double row of three nearly-square muscles on each side of the linea alba, and the division of the trunk from the limbs is strongly indicated by the edge of the pelvis; the shoulder is rounded, the biceps of the arm defined, the elbow expressed; a gentle indenture down the back of the lower arm shewed the situation of the ulna, the arm tapered downwards with a graceful swell for the muscles, and flatness for the part composed of bones and tendons; the insides of the thighs were flattened in the progress of the sartorius muscles, the lower tubercle of the thigh-bone was shewn immediately above the knee, which was expressed by the form of the patella; the inside of the shin was strongly expressed, as were the calves of the legs; the ankles were neat and small, rounded at the bottom; the feet and hands partook more of the forms of nature than the Egyptian, and the fingers and toes were made more neat, distinct and various in the outline; on the back, the blade bones were marked as being little disguised by flesh, and the glutæi as small and firm. Upon the whole, there are men in an early state of society, whose hard and constant exercise in leaping, running, feats of dexterity in war and hunting, has made the covering of their bones tendinous and elastic, tapered their limbs, and whose quick and strong digestion has kept the loins narrow and the abdomen flat, whilst a free and powerful respiration expanded and raised the chest. The first essays of sculpture in the round figure, required that the arms should be attached to the body, and the legs joined together, for support, and to prevent the unskilful artist from breaking his work: but this restraint did not extend to bas-relief, in the same early compositions of this kind; in which you see such simple positions as approach to formality. There are also figures in violent actions; as dancing satyrs, groups contending, and such exertions as shew the figure, with sprawling, angular, and extravagant appearances: for hitherto the indications of grace were as small as those of beauty.

The draperies in the early bas-reliefs are thin, shewing the forms of the body and limbs; the folds regular, small, and distinct, consisting chiefly of perpendiculars and zig-zags. Some of the head-dresses consist of small curls, very like the fashions of barbarous nations described and drawn by modern travellers; and in the bronze patera in the British Museum above mentioned, the club of Hercules is ornamented with spiral flutes, like one brought by captain Cook from the Sandwich islands.

The bas-relief of Hercules bearing the tripod from Apollo, mentioned above, seems to be nearer the time of Phidias than any of the other above examples; not only from the superior elegance of the design, but likewise from its being in style very similar to the Bacchanalian dance found in the theatre of Bacchus at Athens. This subject of Hercules bearing the tripod from Apollo, is described by Pausanias

in the temple of Apollo at Delphos. It has been frequently repeated by the ancients in bas-reliefs and gems. A bas-relief of this subject, brought from Greece, was preserved in the Museum Nani at Venice; besides two others in the Albani collection. Thus we ascertain this to be a Grecian work, although in a style which has been supposed Etruscan; and by the likeness of its manner to the Bacchanalian dance above mentioned, its age may be nearly ascertained.

Our subject now presents the most important and perfect period in the art of sculpture, beginning with the great works executed by Phidias and under his direction, during the administration of Pericles. Greece enjoyed physical advantages, as well as moral and political institutions, peculiarly adapted to give the arts of design that perfection which could not be looked for in other countries. The climate was temperate, warm, and genial, which, to penetrating and elevated genius, added beauteous persons in its inhabitants: their games and exercises gave vigour and perfection to their forms; which initiated and familiarized the spectator with all the appearance of beauty in the human figure, in the different states of exertion or repose, whether naked or clothed. The practice of the arts of design was the peculiar privilege of those who possessed the greatest natural advantages, and were the best instructed; and in the person of the artist, as well as the subject represented, were frequently united the philosopher, the lawgiver, and the heroic defender of his country. Such were the studies for the artists, and such were the men who practised the art. The stores of theological and metaphysical knowledge had been laid in from Egypt and the East; science had accumulated; and commerce cultivation, and patriotism, supplied the means of raising those monuments which were to be the admiration and study of all future ages.

These were the times and circumstances in which Phidias was employed by Pericles to adorn Athens with architecture and sculpture, with the assistance of the architects Callicrates and Ictinus, who worked under his direction. Under these illustrious men, the Propylæum, the Temple of Minerva or the Parthenon, in the citadel, and the Temple of Theseus in Athens, were erected. The decorations of sculpture in these buildings are the most perfect specimens of art; which we must apply ourselves to with the utmost diligence to understand, if we would entertain hopes of producing any thing excellent in the same kind. The basso-reliefs which fill the friezes which go round the pronaos, cell, and porticus, of the Parthenon, represent the panathenaic procession in honour of Minerva; which consists of a numerous company on horseback, victors in chariots, men leading oxen to sacrifice, tray-bearers, chorusses of virgins, some bearing candlesticks and some baskets, with their assistants and attendants. The sacred veil is produced and examined, the hierophantes explain the mysteries, and the gods themselves are seated, beholding, directing, and approving the whole. The alto-relievos in the metopes are the contests of the Lapithæ and the Centaurs. The alto-relievos in the tympanums of the east and west ends, are, alas! no more; war has deprived us of them. That of the east end was a miracle of art, from the remaining fragments (see Stuart's Athens, vol. ii.); and such it appeared to Sir G. Wheeler, who had the happiness to see it entire. However, we know by Sir George's description and drawing, that the subject of the east end was the birth of Minerva, or rather Minerva introduced by Jupiter to the gods; that on the west end, the contest of Minerva and Neptune for the patronage of Athens. As these subjects are of the highest kind the mind can conceive, so they are the noblest the hand can execute: they are theo-

logical and moral, as they represent the gods, their operations in the government of the universe, and providence in the disposition of human affairs; the heroes are exerted in the cause of justice, and the destruction of monsters.

Mr. Fuseli, the able and learned professor of painting in the Royal Academy of London, has judiciously applied Aristotle's division of poetry to the arts of design; and he considers the greater productions, as either epic, dramatic, or historic. According to these classes, the sculpture in each tympanum was entirely epic, as the gods only were represented in them engaged in single acts; the groups in the metopes are dramatic, because they represent a series of actions; and the frieze which goes round the temple is epic, inasmuch as the gods are presiding; and are perhaps also historic, as particular persons and events may be represented in the procession. In the temple of Theseus, the alto-relievos formerly in the pediments are gone entirely; nor do we know even what the subjects were. In the frieze round the pronaos is the battle of Marathon, in which the apparition of Theseus casts great stones on the Persians; Jupiter, Juno, and Minerva, Neptune, Apollo, and Diana, sit, behold, and determine the victory, the trophy of which is raised by the Athenians. The battle of the Lapithæ and Centaurs is in the frieze of the porticus: the metopes are filled with the labours of Theseus and Hercules.

The execution of these works is equal to the conception; the sentiment is elevated and fit, the composition is noble, full, and various; the gods are sublime and beautiful, their positions present dignity and repose; the heroes are vigorous and active, and an admirable simplicity reigns through the whole; whether you are roused by the terrific engagement of a Centaur and a Lapithæ, or captivated by the modesty of the virgin chorusses. In the battles, the figure is shewn in those elastic curves and varied movements, those uncommon but advantageous situations, which equally excite surprise and admiration; every part is intelligible; they occupy such spaces of the ground as leave sufficient blank to render the outline distinct; and their quantities are so distributed, that one part is not bare while another is crowded: the lines themselves also become an ornament. The stories are told by one plan or ground of figures; and, like the principal characters in the tragedies of Æschylus, Euripides, and Sophocles, their effect is weakened by no under-plot of inferior heroes. The drawing of the figures is of the finest style, the outline and forms are chosen, the greater parts boldly expressed, the lesser parts delicately indicated, but not more than necessary. The heads fine, the drapery rich in folds, but perfectly natural; some of the remaining hands and feet of the most perfect beauty; and the horses may be described in the words Sir George Wheeler used to express his opinion of those he saw in the eastern tympanum of the Parthenon: "The horses are made with such great art that the sculptor seems to have outdone himself, by giving them a more than seeming life; such a vigour is expressed in their prancing and stamping, natural to generous horses." The edges of the figures have been kept square in the working, to give the bolder effect to the relief; which was not high in the procession round the frieze under the portico of the Parthenon, in order that the sculpture might not overpower the architectural members. The sculpture in the two pediments of the Parthenon, the metopes in that temple and the temple of Theseus, as well as that round the frieze of the latter temple under the portico, are in alto-relievo. This Phidias discovered; it is called *toreuticen*, rounded, by Pliny (lib. 34. cap. 8.); and he says, Polyclethus "so taught *toreuticen*, alto-relievo, rounded work,

work, as Phidias had invented it :—*et toreuticen sic erudisse, ut Phidias aperuisse.*”

Besides the basso-relievos above mentioned, several others in Athens are of the highest beauty : the figures on the Temple of the Winds ; the story of Bacchus and the Tyrrhenian mariners transformed into dolphins, on the Choragic Monument of Lyficrates (Stuart's Athens, vol. i.), raised in the time of Alexander the Great ; and two alto-relievos of the battle of the Athenians and Amazons, with another battle, subject unknown. (See the last two plates, vol. ii. of Stuart's Athens.)

Before we quit the subject of basso-relievo among the Greeks, it is proper to observe, that foliage ornaments in basso-relievo seem to have been introduced in Ionia about the same time with the Ionic capital ; in the reign of Alexander the Great. (See the capital of an Ionic pilaster enriched with foliage, in the ruins of the temple of Apollo Didymæus, tail-piece, p. 55. Rivett's Ionia.) These inventions are the two characteristics of the Ionian school.

Soon after this period, the most eminent Grecian sculptors and architects were almost entirely engaged in decorating the capital of their Roman conquerors. Most of their public works at home were inferior in beauty and spirit, in proportion as the intention was debased, which was chiefly that of paying fervile compliments to their masters ; and the buildings raised, with a very few exceptions, were distinguished by a colonial inferiority from those of Rome, which the genius of Greece, and the spoils of the world, rendered the most magnificent of the times.

We may begin the observations on the basso-relievos executed or existing in Italy, by some notice of those cut in the rock. In the garden of the Capuchin's convent at Palazzuolo, on the lake of Albano, is a tomb ; and in the tufobeneath, on the side of the rock, are carved the faces, the curule seat, the diadem, and the sceptre. M. D'Hankerville believes this to have been the tomb of Tarquin the Elder ; because he received these regalia from the Etruscan states, and because the tomb stands on the estate which belonged to him. There are other basso-relievos cut in the tufa, representing the combats of lions and gladiators, with other apparently domestic subjects, on the sides of a tomb at Corneto, the ancient Tarquinium : and although these works may be considered as Etruscan, yet there are reasons for thinking they are of Grecian origin ; for Pliny (lib. 35. c. 12.) says, “ that Demaratus, the father of Tarquin the Elder, in Etruria, who was afterwards king of Rome, flying from Corinth, was accompanied by the modellers (*scultores*) Euchira and Eugrammus, by whom modelling was brought into Italy.” There are, indeed, works known to be Etruscan, in the gallery of Florence ; among which are many square cinerary urns of terra cotta : some of them bear basso-relievos of Greek subjects, and these are much the best ; the rest are of an execution and manufactory equally ordinary. A terra cotta frieze of small figures, seven different subjects, was found some years since at Velletri, and preserved in the Borgian Museum. This seemed to be of the oldest Etruscan style : but still, as antiquarians have believed the stories to be Greek, and the frieze itself to be copied from a Greek original, so far this likewise must be considered as a production of the Grecian school. There is a print from one of these subjects, representing two women in a car drawn by two winged horses ; the first head-piece, vol. iii. of Winkelman's History of the Arts of Design, Fea's edition.

The taste for carved or chased plate of gold and silver was introduced at Rome, by the immense quantity which Lucius Scipio brought in triumph from the spoils of Asia, con-

sisting of 1,400 pounds weight of chased silver, and 100,000 pounds of gold vases, about 150 years before Christ. Pliny describes the fickleness of the Romans afterwards in works of this kind. “ The vase of silver varies, by the wonderful inconsistency of the human disposition, not approving long the production of any workshop : now we seek the Farnian, now the Clodian, now the Gratian, now basso-relievo sharply cut, and now pictures expressed in lines.”

Modelling in stucco, called *plastice* by Pliny, was practised under the first emperors, with extraordinary beauty, freedom, and slight of execution ; as may be seen in the ornaments of the bath of purification at the temple of Ius at Pompeia, and the baths of Livia in the palace of the Cæsars at Rome.

It may be proper to enumerate some of the finest detached basso-relievos in the Roman collections, previous to those existing in the ancient buildings. In the Villa Borgheze is one of young women in fine drapery, holding each other by the hand, and dancing. The figures are almost round ; it is distinguished by beauty and simplicity. The sleeping Endymion of the Capitol ; the sentiment of which is perfect, the figure elegant, and the execution bold : the Perseus delivering Andromeda from the rock ; likewise in the Capitol : the large fragment of Antinous, in the Villa Albani : to which may be added, a most beautiful frieze on one side of the cortile of the palace Santa Croce, of Neptune and Amphitrite, sea-nymphs, tritons, and marine animals ; and another beautiful frieze in the palace Della Valle, of victory sacrificing bulls to Mithras. Some others will be noticed under particular heads.

The alto-relievo of Auge and Telephus, mentioned with so much rapture by Winkelman and some of his followers (see the Monumenti inediti, plate 72.), will only be noticed here to expose an hypercriticism. It is highly extolled for having three plans of objects in proportionate gradations of relief : it is self-evident that objects placed one beyond the other on a ground, must have different gradations of projection ; but as this work has nothing else to recommend it particularly, either in character, sentiment, or composition, what has been said is sufficient to shew, that an indifferent work may become the object of admiration, by the magic of technical jargon, where sentiment, expression, a beautiful design, composition, harmony of parts, and all those particulars which can alone constitute excellence, are wanting.

Of the basso-relievos executed whilst the arts still retained some perfection under the Roman emperors, no specimens are remaining of those compositions of figures which adorned the pediments of buildings. A fragment of the frieze on the Temple of Minerva in Rome, near the Capitol, is still in tolerable condition ; there are several prints of it in the “ *Admiranda Romanorum*.” There are likewise in the different collections, detached specimens and fragments of friezes, panels, and dies of pedestals. But the greatest number of basso-relievos in their original places, is on the triumphal arches and columns ; and the greatest profusion of subjects is to be found on the sarcophagi. We shall pass the more hastily over these, because we have already noticed whatever is most excellent in this department of sculpture, in the ruins of Athens. The following triumphal arches are enriched with basso-relievo : those of Augustus, at Suza and Rimini ; that of Trajan, at Beneventum ; and at Rome, those of Titus, Marcus Aurelius (the basso-relievos of which are preserved in the Capitol, although the arch is destroyed) ; that of Severus ; the goldsmiths' arch ; and that of Constantine. The noblest composition, perhaps, among them is the apotheosis of Faustina, from the arch of Aurelius. (See Bartoli's Triumphal Arches.) The arch of Constantine is remarkable

able for its sculpture, part of which was done in the reign of Trajan, and the rest under Constantine; some of the former as remarkable for its grandeur, beauty, and boldness, as the latter for its barbarity; shewing the miserable decay of the arts in the course of 240 years. The two battles, the figures in which are as large as life, forming friezes under the cornices of the imposts in the middle opening of the arch, are grand and animated compositions, in a noble style of sculpture (see plate 42. and the following, in the *Veteres Arcus Augustorum*). Two observations on the arch of Severus will shew, that sculpture had declined considerably from the best ages. The principal basso-relievos occupy very large squares, containing figures, animals, cities, forts, and great warlike machines, on different plans, irregularly distributed, with regard to perspective; and thus, when viewed at such a distance that the detail becomes indistinct, they present the appearance of rustic work irregularly rough, and disagreeable as mixed with regular and magnificent architecture: unlike the friezes in the temples of Athens, which, as they have only one plan of figures, each simply and beautifully conceived, when viewed at a distance in which the detail disappears, they present to the eye a composition of lines distinct and harmonious, forming an ornament. It is also to be observed, that the small figures in these great squares are so boldly relieved, that they interfere with and destroy the effect of the smaller architectural members near them.

The triumphal columns demand our particular attention, not only for their magnificent design, structure, and materials, but also for the immensity of basso-relievo which covers them. But here we may observe, that imperial grandeur, by the endeavour to outstep, falls short of real greatness; and that where too much is expected or intended, too little is the result. With respect to the very conception of the Trajan column, a doubt has been entertained, whether a tower might not have allowed of a more grand and simple design for the purpose of a stupendous structure, than a Tuscan column mounted on a Corinthian pedestal. But notwithstanding the doubts of some judicious and unprejudiced persons on this point, the column has been the wonder and delight of all beholders for 1600 years. The spiral basso-relievo, reaching from the bottom to the top of the shaft, represents Trajan's first and second expedition against the Dacians, and his victory over their king Decebalus. Vasi (in his *Itinerary of Rome*) says, "they count upon it upwards of 2,500 figures, without reckoning horses, elephants, arms, machines of war, and an infinity of other objects;" to which may be added the four eagles on the corners of the pedestal, bearing festoons of laurel, and the arms on the die of the pedestal, all of masterly, and the last mentioned of the most delicate and laborious execution. But here a defect must be noted, in justification of the first observation on this noble monument, that although the figures increase somewhat, both in size and projection, as they approach the top of the column, yet it is certainly true, that any person standing on the ground cannot see the objects distinctly above one-third of the height of the shaft, beyond which all is confusion. Does it not follow, that if figures of that size were intended to be seen, they should not have been raised above one-third of the column; and if they were intended to be seen at a greater distance, their size should have been proportionably increased? That this is an optical defect cannot be denied; yet critics have taken pains to make their readers believe, that every thing relating to perspective in this column was beyond the reach of most modern comprehension for excellence; when any person acquainted only with the very first principles of perspective, must perceive

no attention whatever has been given to linear perspectives from the top to the bottom of the column: such injudicious praise proves only the absurdity and ignorance of the eulogist. Certainly the ancient sculpture contains whatever is truly excellent and admirable in the art; but let us choose the objects which are really possessed of those qualities; always distinguishing between beauty and the want of it; and then we cannot bestow our praises too liberally, nor study with too much diligence those perfections we would imitate, or be thoroughly acquainted with. The Antonine column is covered with basso-relievo, representing the victories of Marcus Aurelius over the Marcomanni. The sculpture is inferior to that on the Trajan column; and figures, having more projection, deform the outline of the shaft at a near view. The Theodosian column at Constantinople, drawn by Gentil Bellini (see Montfaucon), induce us to believe that sculpture did not decline so hastily in the East as in Italy.

Marble sarcophagi do not seem to have been used in Rome much before the time of Crassus, whose wife Cecilia Metella was buried in one. The fronts and ends of these coffins, from that time for many ages afterwards, were decorated with figures. Some of the finest compositions of the ancients are to be found upon them, most probably copied from Greek originals, by Roman manufacturing statuary; one of whom lived on the Appian way, and occupied an extent of two miles in his works, as has been supposed from the quantity of sculpture finished and unfinished found on the spot, as well as an inscription which confirms the fact. The sublimity of the subjects leads us to think, that some have derived their origin from Phidias, Polyclitus, and other of the greatest masters; as it is scarcely possible such groups and such expression as we see in these bad copies, could at first have been produced by inferior artists. Among them are the stories of Prometheus, Medea, Phaëton, Orestes, Alceste, the anger of Achilles, Bacchus and Ariadne, the fall of the giants, the judgment of Paris, &c. &c. These continued to be repeated till after the time of Constantine, when subjects from the Old and New Testament succeeded: but these were so barbarous that they merit no farther notice at present; and indeed the removal of the seat of empire to Constantinople had so despoiled Rome of riches and ability, that little effort could be expected in the West, and the little that was left became the successive prey to the Northern invaders, and the unavoidable destruction of time, for the following six centuries. Bas-reliefs of the eighth century, round the capitals of columns, representing Charlemagne and other figures, are in the Museum of French Monuments at Paris. There is also a bas-relief of Samson killing the lion, on a capital in the crypt of St. Peter's church, Oxford, done in the time of Alfred. Like all the works of these ages, they are barbarous and unmeaning.

In 1063 the Pisans began to build their cathedral, the old bronze gate of which contains a series of subjects from scripture in bas-relief; but so rude and gross, that they must be considered as the very beginnings of art. There is a basso-relievo of the acts of Abraham forming capitals to a group of columns, in the west door of the cathedral of Carrara, carved between 1100 and 1200, which is rather more detailed, though the figures are gross and disproportioned, not being above five heads high. Similar specimens may be seen of this age in different countries of Europe, from the first feeble efforts to revive sculpture. In such attempts as have been just mentioned, little improvement was made till towards the year 1230, when Nicolo Pisano having diligently studied some antique basso-relievos on sarcophagi at Pisa, was employed in carving similar ornaments of sacred subjects, in several

several cathedrals building at that time in different parts of Italy. He was assisted by his son John, and among other pupils, by two who seem to have been particularly esteemed, Arnolpho and Lapo. Besides being architect to several cathedrals in Italy, Nicolo, with the assistance of his pupils, carved some basso-reliefs in marble; which were works of wonderful merit in that age, and would certainly deserve considerable admiration and respect in any other time or country, for sublimity, sentiment, truth, and beauty of execution. The following deserve particular notice: Stories from the Life of our Saviour, on the pulpit and baptistery of Pisa; similar subjects on the pulpits of the Duomos of Sienna and Pistoia. But the greatest and most estimable of these works is on the front of the cathedral of Orvieto. This front is one of the most splendid, both for materials and art, that the mind can conceive, or the resources of nature furnish. It is built of statuary marble, wrought with the nicest care, and ornamented with the most delicate labour; the bolder mouldings and smaller pillars are relieved by Mosaic lists of the most splendid colours and gold; and magnificent Mosaic paintings of sacred subjects finish the decoration immediately under the cornice. The basement between the great and two side doors, from the height of six feet to that of twenty feet, is covered with subjects from the Bible in a great number of divisions representing all the principal facts, and concluding with the Resurrection, Judgment, and final destination of the good and wicked; the subjects are divided by running ornaments of vine, and other foliage, of uncommon delicacy and fancy. There is an alto-relievo by Nicolo, on the church of St. Martin at Lucca, of the Descent from the Cross, which is extremely pathetic and simple. The basso-reliefs on the oldest bronze gate of the baptistery of Florence, by Andrea Ugolino of Pisa, after designs by Giotto, of the Life of St. John the Baptist, are simple and grand. Donatello, born in Florence 1393, executed bronze basso-reliefs on the two pulpits of St. Lorenzo in that city: the principal subjects are the Crucifixion and Interment of our Saviour, in which the expression is admirable. Vellano of Padua, his scholar, made some fine basso-reliefs of bronze in the church of St. Antony in that city. But the work of this description which obtained the highest reputation in that age, was the second bronze gate, executed by Lorenzo Ghiberti, his father, and other assistants, for the before-mentioned baptistery of St. John in Florence. On it, ten compartments are filled with subjects from the Old Testament, beginning with the Creation and ending with the meeting of Solomon and the Queen of Sheba; the spaces between the pannels are adorned with foliage, heads, and beautiful figures of prophets and sybils; the architrave is ornamented with festoons of flowers and birds, of so perfect an execution that they seem to be cast from nature: the whole is of gilt bronze. Vasari relates that Michael Angelo said, "It deserved to be the gate of Paradise." Certainly an admirable fancy, delicacy, expression, grace, and execution, are to be found in every part of it; but its general character is rendered trivial by the introduction of so many plans, so much landscape and architecture in perspective, with the affectation of picturesque effect in the chiaro-scuro. But this fault must be palliated by the remembrance, that perspective was a new discovery to the moderns, wonderfully admired at the time: it had turned the brains of Paolo Uccello, a painter of great merit; and it is not to be wondered at, if Lorenzo Ghiberti, who had practised painting, should have fallen into the delusive hope of adding a new charm to sculpture, which in fact belongs to painting exclusively.—From this time little can be said in commendation of the practice of basso-relievo. Memory was substituted for imitation, fancy for nature; and the consequence was,

those various species of affectation which are called manners. The schools of John of Bologna, Algardi, Bernini, will justify this remark; and whoever takes the trouble to examine their productions in this department of sculpture will see, that art more than nature has been their object.—Within the last century a number of circumstances have combined to develop the principles of sculpture, and a considerable emulation has been excited to attain its real perfections. A prodigious number of ancient statues, groupes, busts, and basso-reliefs in marble and bronze, as well as pictures, have been discovered; these have been magnificently and judiciously arranged, not only in the public museums of Italy, but in private collections of the different countries of Europe. Such admirable works have excited universal curiosity and interest, the number of books on the subject have been increased by learned men and elegant critics; students have repaired in greater numbers than formerly from all parts to copy those works with great diligence; the number of contenders has produced emulation, each one endeavouring to distinguish himself above his competitors; thus they have laid up a large stock of ability for employment in their own countries, where taste for the arts of design has been gradually increasing; so that now there are sculptors in Italy, France, England, Germany, &c. who have produced basso-reliefs of great merit, as well as other works of sculpture.

Winkelmann has said, "that Sculpture, like an elder sister, has introduced and led her younger-sister, Painting, into the world:" this is elegantly said, and on that account is likely to obtain currency more than for the certainty of its truth. What additional value does one art acquire over the other by being older? Both arts are noble and virtuous pursuits; the fine productions of both afford intellectual and rational delight; and there is difficulty enough in the way to excellence in both, to exercise the utmost stretch of the most powerful geniuses who have engaged, or may engage, in the study of them. It should seem by Piny's account, lib. 35. c. 3. and c. 12. that the beginning of painting and basso-relievo were alike; for the first advances towards basso-relievo were made by Dibutades's taking the impression of an outline. Ardicus the Corinthian, and Telephanes the Sycenian, made the first essays towards painting, before colour was used, by outline also.—But to leave this question of little moment, let us go to those considerations which are of real importance to the subject we are treating. It has already been shewn, that basso-relievo, from the earliest ages, was used as representative writing; and the right and only good purposes to which writing as well as speaking can be applied is to honour God, and to recommend and disseminate whatever is virtuous in public or private, and useful among men. Thus was basso-relievo employed in the best ages by the ancients, according to their several systems of theology, philosophy, and ethics: and thus only it should be employed; for when it is applied to other purposes, it is a deviation from the original intention, ceases to be useful, and must engage the artist in the representation of persons and things below that standard at which he should constantly aim. Phidias gave a perfection to his Jupiter which astonished all men, and induced them to believe he had been favoured with a revelation of the god, by the human representation of power, majesty, benignity, and wisdom. And we shall find that whatever appears admirable, perfect, or lovely, in the representations of the ancient deities or heroes, is some mental or bodily perfection. The Christian religion presents personages and subjects no less favourable to painting and sculpture than the ancient classics: angels and archangels should be as perfect in youth and beauty as the youthful divinities of Greece. The heroes of the Old Testament bear so striking a resemblance to those of Greece, that eminent moderns have mistaken

them for the same persons. Nothing can be found in the fages of Greece, more august or sublime than in the patriarchs or prophets: they were equally inhabitants of warm climates, favourable to the display of the human figure; and their cloathing and arms were nearly similar. Indeed it may be safely asserted, that the bass-relievs of the Last Judgment by Nicolo Pisani, the Crucifixion and Entombing of our Lord by Donatello, and some of the pannels in Ghiberti's gate, prove that the Bible presents subjects, and those almost innumerable, of greater interest, and as abundant in all the excellence of composition, as any to be found in the classical authors: such subjects are the proper decorations for churches and other public edifices of most importance to society, which should be perpetual schools of instruction.—After the choice of subject, the economy and manner of treating are next to be considered. And here several hints may be found in Aristotle's poetics, and in the conduct of the Greek tragedies, as useful for the composition of a basso-relievo as a poem; with this difference, a poem embraces a succession of times, but a basso-relievo one moment only: and where this rule has been trespassed, the same person has been introduced twice over. That one moment must represent an action, into which no more figures should be admitted than are necessary; because the increase of number is the distraction and loss of expression. The sentiment, the expression, and every part should be as elevated and advantageous as the nature of the subject will admit.—Concerning the execution, the basso-relievs of the Parthenon temple of Theseus, the others in the ruins of Athens, and a few more which are truly Greek, must be set up as the perfection of what has hitherto been done: the compositions are intelligible, because the figures are distinctly seen on the back-ground and not crowded one behind another; the drawing of the figures is from chosen examples, feelingly, forcibly, and faithfully copied; the pathos of the subject is not weakened by the introduction of building in perspective, or the affectation of chiaro-scuro, which attempts to introduce the distances of painting in basso-relievo. Agatharchus employed perspective in painting scenes, but Phidias and Polyclethus knew that the form and expression of the human figure was the object of their sculpture.

Some very fine and extraordinary antique basso-relievs enrich the collections of England:—

The tomb-stone of Xanthippus, and a man culling a horse, both about the time of Phidias, are in the collection of Charles Townley, esq.

The marquis of Lansdown has a Greek bas-relief of Chalcas, as large as life.

At Wilton House there is a fine example of the death of Meleager, and a small but curious Hercules and Ægle, a basso-relievo composed of mosaic, in natural colours, which is supposed to be the only one of the kind.

The celebrated Barberini vase, in the possession of the duke of Portland, is of dark blue glass, bearing figures in basso-relievo of white enamel or glass of admirable workmanship. (See Bellori *Sepolchri Antichi*, *Plate 84*.) Fragments of basso-relievs in similar materials have been found in the ruins of the Cæsars' palace in Rome, where they had been fixed in the walls.

John Hawkins, esq. the Grecian traveller, possesses a beautiful small bronze basso-relievo of Paris, Helen, and two Genii, which he brought with him from Greece.

Plate I. 1. Contains an Egyptian hieroglyphical sphinx. 2. An Hindoo bas-relief. 3. A Persian bas-relief. 4. Jupiter with the thunder and trident, a Greek gem of the oldest style.

Plate II. 1. Minerva subduing Hercules, from a very ancient Greek patera of bronze in the British museum. 2. Apollo and Hercules contending for the tripod.

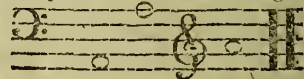
Plate III. The tomb-stone of Xanthippus, father of Pericles.

Plate IV. 1. A capital of a column in the west door of the cathedral of Carrara, representing part of the history of Abraham; a work of the twelfth century. 2. A beautiful Greek basso-relievo, near the time of Phidias, of Zethus and Amphion comforting their mother Antiope; from the Villa Albani.

Basso & Alto, in *Law*. See *ALTO*.

BASSOMPIERRE, FRANCIS DE, *Marshal*, in *Bio-graphy*, was a descendant of a distinguished family in Lorraine, and born in 1579. Engaging betimes in military service, he rose to the office of colonel-general of the Swiss, and in 1622, to that of marshal of France. He was also employed in a diplomatic capacity to Spain, England, and Switzerland. In these employments he was distinguished by his talents and conduct, and particularly by his wit, noble air, politeness, and generosity. He spoke all the European languages, was an adept in gallantry, and much addicted to play. By his bons mots, which were sharp and satirical, he offended cardinal Richelieu; who caused him to be confined in the Bastille in 1631, where he continued for twelve years till the death of this minister. In this retreat he passed his time in reading and writing; and the historical works which he composed were the productions of his imprisonment. These are "Memoirs, containing the history of his life, and of the most remarkable occurrences at the court of France from 1598 to 1631," 3 vols. 12mo.; "An account of his Embassies," 2 vols. 12mo.; and "Remarks on the History of Louis XIII. by Dupleix," 12mo. These works abound with curious particulars and strokes of satire. After his liberation he was restored to his rank of colonel of the Swiss, and was fixed upon as governor to the young king Louis XIV., but excused himself on account of his age and infirmities. Towards the close of his life he became very corpulent, and died of an apoplexy in 1646. *Gen. Biog.*

BASSOON, in *Music*, from *bas son*, Fr. low sound, in opposition to *hautbois*, to which it is the natural base. Like the hautbois, it is played with a reed, and is a continuation of the scale downwards. It is composed of four different pieces or tubes, which when separated, are bound together like a faggot; hence by the Italians called *fagotto*. It has three keys of communication to open and shut the ventages, which from the length of the instrument are out of the reach of the fingers. It has a crook, or mouth piece, to which the reed is fixed. (See *REED*.) The whole length of the instrument is eight feet; but reduced to four, by being doubled up like a trumpet for convenience in performance and carriage.



Its compass is three octaves,



from double AA in the base to a in the second space of the treble; of which the tones and semitones are as complete as on an organ, or any other keyed instrument. Every performer is not able to produce a lower sound than double BBB in the base, or a higher than G in the second space in the treble.

In the last age, Miller was the favourite performer on the bassoon in England at all public places; but we have at present Mr. Holmes, a superior performer, at least in point of tone, to any that we have ever heard elsewhere. A scale for this instrument will be found in the musical plates.

The two Bezozzis of Turin rendered these kindred instruments, the hautbois and bassoon, famous in Italy, during the middle of the last century. See *Bezozzi*.

BASSORA.

BASSORA, BALSORA or BASRA, in *Geography*, a famous city of Asia, in the Arabian Irak, situate on the western banks of the Shat al Arab, which is a navigable canal, formed by the junction of the Euphrates and Tigris. This canal is navigable for vessels of fifty tons to the Euphrates, and thence to the gulf of Persia, from which it is distant about 15 leagues north-west. This city was founded in the year 636 by order of Omar, the second caliph, to hinder the commerce that subsisted between the Indians and Persians, and to secure the command of the two rivers by which goods imported from India were conveyed into all parts of Asia. The first colony was composed of 800 Mussims; but the situation was so wisely chosen that it soon became a flourishing and populous capital, and a place of trade, scarcely inferior to Alexandria. The air, though excessively hot, is pure and healthy; the meadows are covered with palm trees and cattle; and one of the adjacent valleys has been celebrated among the four paradises or gardens of Asia. Under the first caliphs, the jurisdiction of this Arabian colony extended over the southern provinces of Persia. The city has been sanctified by the tombs of the companions and martyrs; and the vessels of Europe still frequent the port of Bassora as a convenient station and passage for the Indian trade. Merchants of Arabia, Turkey, Armenia, Greece, Jews and Indians reside here; the English and Dutch have their consuls, and their ships come from India loaded with various kinds of merchandize. Those from Bengal, which arrive from the month of March to June, bring white linens, silk, muslins, ballard sassaparilla, sandal, and other woods, benzoin, vanilla, rice, lead, European tin and iron. From the coast of Coromandel they bring thicker cloths, white or blue; which are used by the Arabians for their garments. From the coast of Malabar they bring cardamom seeds, pepper, &c. From Surat they receive all kinds of gold and silver stuffs, turbans, blue cloths, indigo, and steel; of which the Persians are the chief purchasers for the manufacture of their sabres. The principal merchandizes of the Dutch are spices and coffee from Java. Some Arabians bring slaves, and others bring pearls from Bahrein, and coffee from Mocha. The neighbouring countries also furnish merchandize for exchange; of which the most considerable are the ancient copper of Persia in small cakes, drugs of various kinds, grain when it is allowed to be exported, dates, wine, and dried fruits. The merchandize is sold for ready money, and passes through the hands of the Greeks, Jews, and Armenians. The Banians are employed in changing the coin current at Bassora for that which is of higher value in India. The abbé Raynal values the merchandize annually brought to India at 525,000*l.*; of which the English furnish 175,000*l.*, the Dutch 87,500*l.*, and the Moors, Banians, Armenians, and Arabs furnish the remainder.

Bassora has been subject to the Turks ever since the year 1668; and, like other cities, tributary to that dominion, is governed by a cafi appointed by the prince of Bassora. But it may now be regarded as belonging to an independent Arabian prince, who pays dubious homage to the Ottoman Porte. The prince allows full liberty to all nations to come and trade to his capital; and the police of the city is so well maintained, that a person may pass safely through the streets at any time of the night. The prince derives his chief revenue from the exchange of money for the horses and camels that are sold here, and also from his plantation of palm-trees, which is said to be 90 miles in length. The horses that are bred in its vicinity are in great repute, and are sold at a high price. The income of the prince from the several articles of money, horses, camels, and dates, is so great, that he

has a considerable surplus after discharging all the expenses of his tribute and government. The opulence of Bassora is owing partly to the extensive commerce which is carried on by the intervention of this town between Asia and Europe; partly to its being a place whence letters may be dispatched into all parts of Europe, particularly England and Holland, by way of Damascus and Aleppo, for which purpose Arabs, who are very swift-footed, are employed; and partly to the resort of Persian caravans in their pilgrimages to Mecca, where they pay considerable duties to the government, and exchange many valuable commodities. The number of inhabitants is computed to be about 50,000; the majority being Arabs: the rest are principally Turks and Armenians. The latter are the merchants, and some of them are very respectable. As to the religion of Bassora, besides Mahometans, there are Syrian Jacobites and Nestorians, and monks from Europe; and also some modern Sabzeans, whom they call disciples of St. John. The town is of great extent, and surrounded by a wall of clay, said to be twelve miles in circumference. The Bazar, or marketplace, is about two miles long and well supplied. The buildings of this city are mostly constructed after the Turkish manner. The whole country about it is so low, that it is prevented from being inundated by a dyke or bank extending between three and four miles along the coast, and built of large square stones so well cemented together that the sea cannot effect it, though the sea runs strongly against it at the extremity of the Persian gulf. Bassora is 210 miles S.W. of Ispahan, and 600 S.E. of Aleppo. N. lat. 30° 24'. E. long. 48° 39'.

BASSOS, or BAXOS, Cape, lies in the Indian sea, on the east coast of Ajan in Africa, in N. lat. 4° 12'. E. long. 47° 7'.

Bassos de Banhos, shoals in the Indian ocean, lying off the east coast of Zanguebar in Africa, in S. lat. 5°. E. long. 48° 8'.

Bassos de Chaga, or shoals of Chaga, are situated in the Indian ocean, in S. lat. 6° 42'. E. long. 68° 20'.

Bassos de India, shoals of India, are situated N. E. easterly from the cape of Good Hope, and are called in some charts Jews Rocks, between Madagascar island on the east and the coast of Africa on the west, about Sofala. S. lat. 22° 30'. E. long. 40° 41'.

BASSOUES, a town of France, in the department of the Gers, and chief place of a canton in the district of Mirande, 5 leagues W.S.W. of Auch.

BASSOVIA, in *Botany*. Lin. gen. Schreb. n. 348. Aubl. 85. Juss. 419. Crass. and Order, *pentandria monogynia*. Gen. Char. Cal. perianth one-leaved, permanent, five-parted; parts ovate, acute. Cor. one-petalled; tube very short; border five-cleft, spreading; clefts ovate, acute, larger than the calyx. Stam. filaments five, inserted into the tube of the corolla, and opposite to its clefts; anthers ovate. Pist. germ ovate, sitting on a glandule; style short; stigma thickish, obtuse. Per. berry ovate, knobbed. Seeds, very numerous, kidney-shaped, girt with a membrane, nestling in pulp.

Ess. Char. Cor. five-cleft, spreading, with a very short tube; berry ovate, knobbed, with many seeds.

Species. B. *sylvatica*. Aubl. Guian. 217. t. 85. Stems herbaceous, three or four feet high, branched; leaves alternate, ovate, acute, smooth, entire, on a petiole about an inch long; the largest 10 inches long and 4½ broad; flowers in axillary corymbs, green, and very small. A native of Guiana, in wet forests, flowering and fruiting in June. Martyn's Miller's Dict.

BASSUE, in *Geography*, a town of France, in the department of the Marne, and chief place of a canton in the district of Vitry la Françoisse, 6 miles N.N.E. of Vitry.

BASSUEL, PETER, in *Biography*, born in Paris in 1706, was early initiated in the knowledge of surgery, by attending the hospitals and the lectures of the principal teachers there. In 1730 he was admitted to practice; and the academy of surgery being instituted the following year, he was nominated by the king one of the first members. In 1744, he was chosen demonstrator royal in therapeutics. He took part in the dispute on a question then much agitated, Whether the heart was shortened in its systole, or contraction, to expel the blood from the ventricles? But his opinion was formed, Haller says, from theory only. His dissertation on the subject was published in one of the medical journals of the time. He died June 4th 1757. Haller. Bib. Chir. Eloy. Dict. Hist.

BASS-VIOL, in *Musie*. See **BASE-VIOL**.

BASSUM, in *Geography*, a town of Germany, in the circle of Westphalia, in the county of Hoya, with a noble abbey; 16 miles west of Hoya.

BASSURE SAND, begins at Ambleteuse, a little to the south of St. John's, on the coast of France, close to the shore, and stretches out S.W. by S. and S.W. by W.

BAST ISLAND, is situated on the coast of Norway, 5 leagues N.W. by W. from the Silters' island, which lies 4 leagues at W. by N. from Acker sound.

BASTA, GEORGE, Count, in *Biography*, an Epirote by descent, was born at La Rocca, a village near Tarentum; and devoting himself to the military profession, he was commander of an Epirote or Albanese regiment of horse, when the prince of Parma assumed the government of the Low Countries in 1579. Under this great general he perfected himself in the military art, and was preferred by him to the post of commissary-general of cavalry, and also employed in many important enterprises. The principal theatre on which his talents were exhibited, was the war in Transylvania and Hungary, where, in 1601, he gained a signal victory over Sigismund Battori, and took the town of Clausenburg. Having completed the ruin of Battori, he granted him peace on condition of his renouncing all rights over Transylvania. However, the severities exercised by Basta against the protestants of that country did great injury to the cause of the emperor; and the Imperialists, under the count Belgioio, were defeated. Although Basta, in 1605, could not prevent the Turks from taking Strigonium or Gran, he made a judicious arrangement before Comorra, which hindered their further advances. Having made a peace, he soon after died in 1607. Basta was the author of two professional works that are much esteemed: the "Maestro di campo generale" (Quarter master general), printed at Venice, in 1606; and "Governo della cavalleria leggiera" (Discipline of the Light Horse), Frankf. 1612. Gen. Dict.

BASTA, in *Ancient Geography*, a town of Italy, in Iapygia, on the eastern coast, at a small distance N. E. of the Salentine promontory.

BASTA, in *Geography*, a town of Egypt, 40 miles N. E. of Cairo, and 31 S. S. E. of Manfara.

BASTA, or *Bassow*, a place of trade on the coast of Africa, before which is a road with 20 to 23 fathoms of water, and tolerably good ground.

BASTA, in *Natural History*, a species of *SPONGIA*, found in the Indian sea, and called by Rumphius *basta marina*, *basta laut*. It is somewhat rigid, blackish, with undulated divisions; stem round. Pallas. Found adhering to stones, and is about the thickness of a finger. Gmelin, &c.

BASTAGARII, in *Antiquity*, a college or company at Rome, who carried the fiscal species out of the provinces to Rome or Constantinople. The directors of these were called *prepositi bastagarum*. The word is derived from *bastaga*, which properly imports the office of carriage or

conveyance; from *bastazeu*, *portare*, to carry. The denomination *bastagarii* has also been given to those who carry the images of saints at processions. Du-Cange.

BASTAL, in *Geography*, the name of a romantic and fertile vale of Switzerland, lying in the direct road from Basle to Soleure, through the midst of the Jura mountains.

BASTAN, a town of Asiatic Turkey, in the province of Natolia, 30 miles S.W. of Amasia.

BASTARD, THOMAS, in *Biography*, a clergyman and poet of the sixteenth century, was born at Blandford in Dorsetshire, and educated at Winchester school; whence he was removed to New College, Oxford, and chosen perpetual fellow in 1588: but indulging too much his talent for satire, he was expelled the college for a libel. He afterwards became chaplain to Thomas earl of Suffolk, lord-treasurer of England, and, by his interest, vicar of Bere-Regis, and rector of Hamer in his native county. He was a person of great natural endowments, and skilled in the learned languages, a celebrated poet, and, in his later years, an excellent preacher. Towards the close of his life, he was deranged and involved in debt; and being confined in prison at Dorchester, he died in an obscure and mean condition in 1618. He was thrice married: first, as he informs us in one of his epigrams, in his youth for love; again, in maturer age, for money; and a third time, in his old age, for a nurse. His poetical performances, which were admired in that age, were "Epigrams," and a Latin poem, entitled, "Magna Britannia," London 1605, 4to. He also published a collection of "Five Sermons;" and another of "Twelve Sermons," Lond. 1615, 4to. Biog. Brit.

BASTARD, in *Law*, a natural child, or one that is not only begotten, but born, out of lawful wedlock.

The word is of Saxon etymology, and is compounded of *baste*, vile or ignoble, and *stare*, or *stare*, original.

According to the civil and canon laws, a child doth not remain bastard, if the parents afterwards intermarry; but it is an indispensable condition of legitimacy, according to our law, that it shall be born after lawful wedlock. In this respect our law is far superior to the Roman; because marriage being principally designed for ascertaining some person to whom the protection, maintenance, and education of the children should belong, this end is better answered by legitimating all issue born after wedlock than by legitimating all issues of the same parties, even born before wedlock, so as wedlock afterwards ensues; in proof of which, Blackstone alleges the following arguments. 1. Because great uncertainty will generally attend the evidence, that the issue was really begotten by the same man; whereas, by confining it to the birth, and not to the begetting, our law has rendered it perfectly certain, what child is legitimate, and who is to take care of the child. 2. Because the Roman law, by which a child may be continued a bastard, or made legitimate, at the option of the father and mother, by a marriage "ex post facto," opens a door to many frauds and partialities which our law prevents. 3. Because by those laws a man may remain a bastard till forty years of age, and then become legitimate by the subsequent marriage of his parents; and thus the main end of marriage, or the protection of infants, is totally frustrated. 4. Because this rule of the Roman law admits of no limitations as to the time or number of bastards so to be legitimated; but a dozen of them may, 20 years after their birth, by the subsequent marriage of their parents, be admitted to all the privileges of legitimate children. This is plainly a great discouragement to the matrimonial state; to which one principal inducement is usually not only the desire of having children, but also the desire of procreating lawful heirs. Whereas our constitutions guard against this indecency, and at the same time afford sufficient allowance to the frailties of human

human nature. For if a child be begotten while the parents are single, and they will endeavour to make an early reparation for the offence by marrying within a few months after, our law is so indulgent as not to bastardize the child, if it be born, though not begotten, in lawful wedlock; for this is an incident that can happen but once, since all future children will be begotten, as well as born, within the rules of honour and of civil society. Upon reasons like these, Blackstone supposes the peers to have acted at the parliament of Merton, when they refused to enact that children born before marriage should be esteemed legitimate. Stat. 20 Hen. III. c. 9. See the introduction to the great charter, edit. Oxon. 1759, sub anno 1253.

Hence it appears, that all children born before matrimony are bastards by our law. But if a man marries a woman grossly big with child by another, and within three days after, she is delivered, the child is no bastard. 1 Danv. Abridg. 729. If a child is born within a day after marriage between parties of full age, if there be no apparent impossibility that the husband should be the father of it, the child is no bastard, but supposed to be the child of the husband. 1 Roll. Abr. 358. Moreover, all children born so long after the death of the husband, that by the usual course of gestation they could not be begotten by him, are bastards. But this being a matter of some uncertainty, the law is not exact as to a few days. It appears, upon the whole, that what is commonly considered as the usual period is 40 weeks or 280 days; but if the child be born some time after, it only affords presumption, not proof of illegitimacy. This uncertainty of the period of gestation has given occasion to a proceeding at common law where a widow is suspected to feign herself with child, in order to produce a supposititious heir to the estate; an attempt which the rigour of the Gothic constitutions esteemed equivalent to the most atrocious theft, and therefore punished with death. In this case, with us, the heir presumptive may have a writ "*de ventre inspiciendo*," to examine whether she be with child or not; and if she be, to keep her under proper restraint till delivered; which is entirely conformable to the practice of the civil law: but if the widow be, upon due examination, found not pregnant, the presumptive heir shall be admitted to the inheritance, though liable to lose it again on the birth of a child within forty weeks from the death of her husband. But if a man dies, and his widow soon after marries again, and a child is born within such a time, as that by the course of nature it might have been the child of either husband; in this case, he is said to be more than ordinary legitimate: for he may, when he arrives to years of discretion, choose which of the fathers he pleases. (Co. Litt. 3.) To prevent this among other inconveniences, the civil law ordained that no widow should marry "*infra annum luctus*;" a rule which obtained so early as the reign of Augustus, if not of Romulus: and the same constitution was probably transmitted to our early ancestors from the Romans, during their stay in this island; for we find it established under the Saxon and Danish governments. L. L. Ethelr. A. D. 1008. L. L. Canut. c. 71.

As bastards may be born before the coverture or marriage state is begun, or after it is determined, so also children born during wedlock may in some circumstances be bastards. As if the husband be out of the kingdom of England, or as, the law somewhat loosely phrases it, "*extra quatuor maria*," for above nine months, so that no access to his wife can be presumed, her issue during that period shall be bastards. (Co. Litt. 244.) But, generally, during the coverture access of the husband shall be presumed, unless the contrary be shewn; (Salk. 123. 3 P. Wms. 276. Stra. 295,) which is such a negative as can only be proved by shewing him to be elsewhere: for the general rule is, "*presumitur pro legi-*

timatione." There are some determinations by which it appears that the child of a married woman may be proved a bastard by other circumstantial evidence besides that of the husband's non-access. 4 Term. Rep. 251. 356.

In a divorce "*a mensa et thoro*," if the wife breeds children, they are bastards; for the law will presume the husband and wife conformable to the sentence of separation, unless access be proved; but in a voluntary separation, by agreement, the law will suppose access unless the negative be shewn. (Salk. 123.) So also if there be an apparent impossibility of procreation on the part of the husband, as if he be only eight years old, or the like, the issue of the wife shall be bastard. (Co. Litt. 244.) Likewise, in case of divorce in the spiritual court, "*a vinculo matrimonii*," all the issue born during the coverture are bastards; because such divorce is always upon some cause that rendered the marriage unlawful and null from the beginning. Co. Litt. 235.

If a man or woman marry a second wife or husband, the first being living, and have issue by such second wife or husband, the issue is a bastard. (Bott. 397. pl. 521.) Before the statute 2 & 3 Ed. VI. c. 21. one was adjudged a bastard "*quia filius sacerdotis*."

If a man hath issue, a son, by a woman before marriage, and afterwards marries the same woman, and hath issue, a second son, born after the marriage; the first of these is termed in law a "*bastard eigné*," and the second a "*mulier*," or "*mulier puisné*." By the common law, a "*bastard eigné*," is incapable of inheriting as if the father and mother had never married. However, there is in one case in which his issue was let into the succession, and that was by the consent of the lord and person legitimate; as if upon the death of the father the "*bastard eigné*" enters, and the "*mulier*" during his whole life never disturbs him, he cannot upon the death of the "*bastard eigné*" enter upon his issue. In this case the "*mulier puisné*," and all other heirs, are totally barred of their right. This indulgence, however, is shewn to no other kind of bastard; for if the mother was never married to the father, such bastard could have no colourable title at all. (Litt. sect. 399, 400. Co. Litt. 245.) To exclude the "*mulier*" from the inheritance, there must not only be an uninterrupted possession of the "*bastard eigné*" during his life, but a descent to his issue. Co. Litt. 244. 1 Rol. Abr. 624.

The duty of parents to their bastard children by our law, is principally that of maintenance. The method in which the English law provides maintenance for illegitimate children is as follows. When a woman is delivered, or declares herself with child, of a bastard, and will by oath before a justice of the peace charge any person as having got her with child, the justices shall cause such person to be apprehended, and commit him till he gives security, either to maintain the child, or appear at the next quarter sessions to dispute and try the fact. But if the woman dies or is married before delivery, or miscarries, or proves not to have been with child, the person shall be discharged; otherwise, the sessions, or two justices out of sessions, upon original application to them, may make an order for the keeping of the bastard, by charging the mother or the reputed father with the payment of money or other sustentation for that purpose; and if the party disobey such order, he or she may be committed to gaol, until they give security to perform it, or to appear at the sessions. The justices may commit the mother of a bastard, likely to become chargeable, to the house of correction for a year; or, for a second offence, till she give security for her good behaviour. And if such putative father, or lewd mother, run away from the parish, the overseers, by direction of two justices, may seize their rents, goods, and chattles, in order to bring up the said bastard child.

child. Yet such is the humanity of our laws, that no woman can be compulsively questioned concerning the father of her child, till one month after her delivery. Stat. 18, Eliz. c. 3. 7 Jac. I. c. 4. 3 Car. I. c. 4. 13, & 14 Car. II. c. 12. 6 Geo. II. c. 31.

As to the rights of a bastard, they are very few; being only such as he can acquire; for he can inherit nothing, being regarded as the son of nobody; and sometimes called "*filius nullius*," sometimes "*filius populi*." Fortesc. de L.L. c. 40. Yet he may gain a surname by reputation, though he has none by inheritance. Co. Litt. 3. Where a remainder is limited to the eldest son of Jane S. whether legitimate or illegitimate, and she hath issue, a bastard shall take this remainder; because he acquires the denomination of her issue by being born of her body. Noy. 35. All other children have their primary settlement in their father's parish; but a bastard in the parish where born, for he hath no father. Salk. 427. However, in case of fraud, as if a woman be sent either by order of justices, or comes to beg as a vagrant, to a parish to which she does not belong, and drops her bastard there, the bastard shall, in the first case, be settled in the parish from which she was illegally removed (Salk. 121); or, in the latter case, in the mother's own parish, if the mother be apprehended for her vagrancy. 17 Geo. II. c. 5. Bastards also born in any licensed hospital for pregnant women, are settled in the parish to which the mothers belong. 13 Geo. III. c. 82. When a parish becomes charged with the maintenance of a bastard, then, and not before, the authority of the church-wardens and overseers commences, (Say. 93); and they may act without an order from the justices. 3 Term Rep. C. P. 253. It seems, however, that until a bastard attain the age of seven years, it cannot be separated from its mother (Cald. 6.); but may be removed to the place of her settlement, while the age of nurture continues (Carth. 279); and must under these circumstances be maintained by the parish where it was born. Doug. 7.

The incapacity of a bastard consists principally in this, that he cannot be heir to any one: neither can he have heirs, but of his own body; for being "*nullius filius*," he is therefore a-kin to nobody, and has no ancestor from whom any inheritable blood can be derived. As a bastard has no legal ancestors, he can have no collateral kindred; and therefore if a bastard purchases land, and dies seized thereof without issue, and intestate, the land shall escheat to the lord of the fee. Co. Litt. 244. Finch. Law. 117.

By the Roman law, the mother inherited from her bastard child, and vice versa: but there was a great difference between bastards, "nothi," and those they called "*spurii*." The law did not own the latter, nor allow them sustenance because they were born in common and uncertain prostitution. "*Is non habet patrem, cui pater est populus*." The former sort, born in concubinage, which resembles marriage, inherited from their mothers, and had a right to demand sustenance of their natural fathers. They were looked upon as domestic creditors, that ought to be treated the more favourably, for being the innocent product of their parents' crimes. Solon would have it, that the parents should be deprived of their paternal authority over their bastards; because, as they were only parents for pleasure, that ought to be their only reward.

Anciently, in Rome, natural children were quite excluded from inheriting after their fathers ab intestato: but they might be appointed heirs in general. The emperors Arcadius and Honorius made a restriction; and when there were legitimate children, the bastards should only come in for a twelfth, to be shared with their mother. Justinian afterwards ordered, that they might come in for half, and succeed ab intestato for a sixth, when there were legitimates.

Bastards might be legitimated by subsequent marriage, or by the emperor's letters. The emperor Anastasius allowed fathers to legitimate their bastards by adoption alone: but this was abolished by Justin and Justinian, lest by this indulgence they should authorize concubinage. The pope has sometimes legitimated bastards. Nay, the holy see has on some occasions dispensed not only with illegitimates, but with the offspring of adultery, as to spiritual considerations, in allowing of their promotion to episcopacy.

Accordingly the civil law differs from ours in this point, and allows a bastard to succeed to an inheritance, if after its birth, the mother was married to the father (Nov. 89, c. 8); and also, if the father has no lawful wife or child, then, even if the concubine was never married to the father, yet she and her bastard son were admitted each to one twelfth of the inheritance (Ibid. c. 12.); and a bastard was likewise capable of succeeding to the whole of the mother's estate, although she was never married; the mother being sufficiently certain, though the father is not. But our law, in favour of marriage, is much less indulgent to bastards.

An attempt was once made to introduce the civil law here in this respect, by declaring children legitimated by a subsequent marriage; but it was rejected: and it was upon this occasion that the barons of England assembled in the parliament of Merton, A. D. 1272, made that famous answer, "*Nolumus leges Angliæ mutare*." 20 Hen. III. c. 9.

But though bastards are not looked upon as children to any civil purposes, yet the ties of nature hold as to maintenance, and many other intentions; as, particularly, that a man shall not marry his bastard sister or daughter. L. Raym. 68. Comb. 356.

A bastard was, in strictness of law, incapable of holy orders; and though that were dispensed with, yet he was utterly disqualified from holding any dignity in the church. Fortesc. c. 40. 5 Rep. 58. But this doctrine seems now obsolete; and there is a very ancient decision, that a felon should have benefit of clergy, though he were a bastard. Bro. Clergy 20. In all other respects, there is no distinction between a bastard and another man: whereas the civil law, which has been extolled for its equitable decisions, made bastards in some cases incapable even of a gift from their parents. Cod. 6. 57. 5. A bastard may even be made legitimate, and capable of inheriting, by the transcendent power of an act of parliament, and not otherwise (4 Inst. 36.); as was done in the case of John of Gaunt's bastard children, by a statute of Richard II.

Bastardy, with regard to the several modes of its trial, is distinguished into general and special bastardy. Till the statute of Merton already recited, the question whether born before or after marriage, was examined before the ecclesiastical judge, and his judgment was certified to the king or his justices, and the king's court either received or rejected it at pleasure. But after the solemn protest of the barons at Merton against the introduction of the civil and canon law in this respect, special bastardy has been always triable at common law; and general bastardy has alone been left to the judgment of the ecclesiastical judge, who in this case agrees with the temporal. (2 Inst. 29. Reeves's Hist. Eng. Law. 85. 201.) General bastardy, tried by the bishop, comprehends two things. 1. It should not be a bastardy made legitimate by a subsequent marriage. 2. That it should be a point collateral to the original cause of action. If the ordinary certify or try bastardy without a writ from the king's temporal courts, it is void; and the certificate null be under the seal of the ordinary. 1 Rol. Abr. 361, 362.

Special bastardy is two fold: 1st, Where the bastardy is the gist of the action, and the material part of the issue; 2dly, Where those are bastards by the common law that are "*muliers*" by the spiritual law. (Co. Litt. 134. 1 New Abr. 314. 1 Rol.

1 Rol. 367. Hob. 117.) If a man receives any temporal damages by being called a bastard, and brings his action in the temporal courts, and the defendant justifies that the plaintiff is a bastard, this must be tried at common law, and not by writ to the bishop. 1 Brownl. 1. Hob. 179. Godol. 479. Co. Ent. 29.

In an ancient MS. of the time of Edw. III. it is said that he who gets a bastard in the hundred of Middleton in Kent shall forfeit all his goods and chattels to the king. If a bastard be got under the umbrage of a certain oak in Knolwood in Staffordshire, belonging to the manor of Tersley-castle, no punishment can be inflicted; and neither the lord nor the bishop can take cognizance of it. Piott's Stafford. p. 279.

By the stat. 21 Jac. I. c. 27. a mother of a bastard child, concealing its death, must prove by one witness that the child was born dead; otherwise, such concealment shall be evidence of her having murdered it. But of late years it hath been usual, on trials for these offences, to require some sort of presumptive evidence that the child was born alive, before the other presumption be admitted, that because the death was concealed it was killed by the parent. If a woman be with child, and any one give her a potion to destroy the child, and it kills the woman, this is murder. If a woman great or quick with child takes, or any person gives her, any potion to cause abortion, or if a man strike her so as to kill the child, this is not murder nor manslaughter by the law of England; but the offender may be indicted for a misdemeanor at common law. But if the child be born alive, and afterwards die of the poison or bruises it received in the womb, it is murder on the part of such as administered or gave them. Thus also, if a man procure a woman with child to destroy her infant when born, and the child is born, and the woman in pursuance of that procurement kill the infant, that is murder in the mother, and the procurer is accessory. 1 Hal. P. C. 429, 430, 433. Blackst. Com. vol. i. p. 454, &c. vol. ii. p. 248. vol. iv. p. 65. Burn's Justice, vol. i. p. 217—271.

BASTARD, in respect of *Artillery*, is applied to those pieces which are of an unusual or illegitimate make or proportion. These are of two kinds, long and short, according as the defect is on the redundant or defective side.

The long bastards, again, are either common or uncommon. To the common kind belong the double culverin extraordinary, half culverin extraordinary, quarter culverin extraordinary, falcon extraordinary, &c.

The ordinary bastard culverin carries a ball of eight pounds. See CANNON.

BASTARD, in *Botany*, is applied to several species of plants: as bastard alkanet, for which see LITHOSPERMUM;—balm, see MELITTIS;—cabbage-tree, see GEOFFROYA;—cedar, see THEOBROMA *Guazuma*;—cress, see THLASPI;—feverfew, see PARTHENIUM;—flower-fence, see ADAMANTINA;—gentian, see SAROTHRRA;—hare's ear, see PHYLLIS;—hatchet-vetch, see BISERRULA;—hemp, see DATISCA;—hibiscus, see ACHANIA;—Jesuit's bark-tree, see IVA;—indigo, see AMORPHA;—knot-grass, see CORRIGIOLA;—lupine, see TRIFOLIUM *Lupinaster*;—orpine, see ANDRACHNE;—pimpernel, see CENTUNCULUS;—plantain, see HELICONIA *Bibai*, and CENTUNCULUS;—quince, see MESPILUS *Chamemespilus*;—rocket, see RESEDA;—saffron, see CARTHAMUS;—star of Bethlehem, see ALBUCA;—wood-flax, see THESIUM;—vetch, see PHACA.

BASTARD, in *Sea Language*, is used for a large sail of a galley, which will make way with a slack wind.

BASTARD is also used adjectively, or in composition with divers other words, to denote things of inferior or diminutive value. In this sense we meet with bastard coral, bastard alabaster, bastard amianthus, &c.

BASTARD *Scarlet* is a name given to red dyed with bale madder, as coming nearest to the bow-dye, or new scarlet.

BASTARDS are also an appellation given to a kind of faction or troop of banditti, who rose in Guienne about the beginning of the fourteenth century, and joining with some English parties, ravaged the country, and set fire to the city of Xaintes.

Mezeray supposes them to have consisted of the natural sons of the nobility of Guienne, who being excluded the right of inheriting from their fathers, put themselves at the head of robbers and plunderers, to maintain themselves.

BASTARDY is a defect of birth objected to one born out of wedlock.

Eustathius maintains, against the course of antiquity, that bastards among the Greeks were in equal favour with legitimate children as low as the Trojan war: others, however, have shewn that there never was a time when bastardy was not in disgrace. (See Homer. Il. 9, v. 281. Sophocl. Ajax, v. 1250. Euripid. Ion. v. 589.) In the time of William the conqueror, bastardy seems not to have implied any disgrace; for that monarch does not scruple to assume the appellation of bastard. His epistle to Alan, count of Bretagne, begins, "Ego Willielmus, cognomento bastardus." Du-Cange Gloss. Lat. t. i. p. 502.

BASTARDY, *Arms of*, in *Heraldry*, should be crossed with a bar, fillet, or travertine, from the left to the right. Bastards were not formerly allowed to carry the arms of their father, and therefore they invented arms for themselves; and this is still done by the natural sons of a king.

BASTARDY, *Right of*, *Droit de Batardise*, in the French *Law*, is a right, in virtue of which the effects of bastards dying intestate devolve to the king or the lord.

BASTARDY. *Trial of*. See BASTARD.

BASTARNÆ, in *Ancient Geography*, a people who at first inhabited that part of European Sarmatia that corresponded to a part of Poland and Prussia, towards the Vistula, and who afterwards approached the more southern parts, and established themselves to the left and right of the Tyas or Danaster. The era of their war with the Goths, and of their conquest of these territories, is not precisely ascertained. M. Freret refers it to the interval between the years 282 and 280 B. C. Tacitus says, they had houses; and hence it has been inferred that they were not Sarmatians, because they dwelt in huts. Livy considers them as Gauls, and Strabo presumes that they were a nation of Germans. They seem, however, to have inhabited the region that lay north of the Carpathian mountains, and to have gradually extended themselves towards Poland and the Borysthenes. Many learned persons have represented them as a colony left by the Gauls on the other side of the Carpathian mountains, when they made their progress, under the conduct of Brennus, from the east towards the west. M. de Peyssonel says, that they may be regarded as the founders of the Russians and Slavonians.

BASTATAL, in *Geography*, a small island on the eastern coast of the island of Sumatra. S. lat. 1°. E. long. 103° 30'.

BASTAVOE, a bay on the east side of Yell, one of the Shetland islands.

BASTELLICA, a town of the island of Corsica, 5 leagues E.N.E. of Ajaccio.

BASTERIA, in *Botany*. See CALYCANTHUS.

BASTERNA, in *Antiquity*, a kind of vehicle or chariot used by ancient Roman ladies.

Papias thinks, that *basterna* was first written for *vesterna*. Rosweild says, it should be *via sterna*, which he concludes from Isidore, who says, *basterna*, *via sterna*. But the word seems better derived from the Greek βαρυνω, *porto*, to carry: Salmassius

Salmasius observes, that the *basterna* succeeded the *ledica*, or litter; from which it differed very little, except that the litter was borne on the shoulders of slaves, and the *basterna* borne or drawn by beasts. Casaubon says it was borne by mules. F. Daniel, Mabillon, &c. assert it was drawn by oxen, to go the more gently; and Gregory de Tours gives an instance of its being drawn by wild bulls. The inside they called the *cavea*, or cage: it had soft cushions or beds, besides glasses on each side like our chariots. The mode of *basternas* passed from Italy into Gaul, and thence into other countries; and to this we owe our chariots, which, though we call them *currus*, yet have they no conformity to the ancient *currus*, but are in effect *basternas* improved. The *basterna* appears also to have been used in war, for the carrying of baggage.

BASTI, now **BAZA**, in *Ancient Geography*, a town of Spain, in *Bætica*, north-east of Acci, and near the mountains which separate *Bætica* from *Tarragonensis*.

BASTIA, in *Geography*, a sea port town of Albania, in Turkey in Europe, over against the island of Corfu, at the mouth of the river Calamu. N. lat. $39^{\circ} 40'$. E. long. $20^{\circ} 35'$.

BASTIA, a city and sea-port of Corsica, the capital of the island, or of the department of Golo, is situated on its north-east side, and commanded by a lofty mountain, in the centre of which the sea forms a small bay, defended by a mole. It is divided into two parts, called "Terra Nuova" and "Terra Vecchia;" in the former of which is a citadel, surrounded with fortifications. Its harbour, though good, is not large; and affords convenient anchorage for vessels of a small size, but is unfit for the reception of ships of war: and its commerce is inconsiderable. In 1730, Corsica revolted from Genoa; and in 1794, it was attacked by lord Hood, and captured by the British fleet and army. The number of inhabitants in its cantons is supposed to be about 10,997. N. lat. $42^{\circ} 35'$. E. long. $9^{\circ} 30'$.

BASTIA Marina (*Rumphius*), in *Natural History*, a kind of sponge, supposed to be the *Spongia ventilabra* of Gmelin.

BASTIDE, in *Topography*, an appellation given in the southern departments of France, to small country-houses, built by individuals of easy circumstances, in the vicinity of the towns.

BASTIDE de Montfort, La, in *Geography*, a town of France, in the department of the Tarn, and chief place of a canton in the district of Gaillac, 5 miles N. E. of Gaillac.

BASTIDE de Seron, La, a town of France, in the department of the Arriège, and chief place of a canton in the district of Foix; $4\frac{1}{2}$ leagues N. W. of Tarascon. The place contains 1764 and the canton 5712 inhabitants: the territory includes $157\frac{1}{2}$ kilometres and 12 communes.

BASTIDE, La, a town of France, in the department of the Lot, and chief place of a canton in the district of Gourdon. The place contains 1161 and the canton 5914 inhabitants: the territory includes $212\frac{1}{2}$ kilometres and 11 communes.

BASTIDE de Jourdans, La, a town of France, in the department of the mouths of the Rhone, and chief place of a canton in the district of Apt, 4 leagues S. E. of Apt.

BASTIDE d'Armagnac, La, a town of France, in the department of the Gers, and chief place of a canton in the district of Nogaro, $4\frac{3}{4}$ leagues N. N. W. of Nogaro.

BASTIDE Clerence, La, a town of France, in the department of the Lower Pyrenées, and chief place of a canton in the district of Baïonne. The place contains 2000 and the canton 6934 inhabitants: the territory includes 150 kilometres and 5 communes; 4 leagues W. of Orthez.

BASTILE denotes a small antique castle, fortified with turrets. Such was the *bastille* of Paris, which seems to have been the only castle that retained the name: it was begun to

be built in 1369, by order of Charles V. and finished in 1383, under the reign of his successor. Its chief use was for the custody of state prisoners.

Of the plan and structure of this edifice, which was for several ages appropriated to the clandestine purposes of unfeeling despotism, and which might be justly considered as the abode of human misery, and of the regulations by which it was governed, it is now needless to record any particulars: as it was assaulted and totally destroyed at an early period of the revolution in France, viz. on the 14th of July, in the year 1789. Those who are desirous of acquainting themselves with its history, will find their curiosity gratified in a volume entitled "The History of the Bastille, &c." published in 1790, 8vo. The most satisfactory information relating to the prisoner in the iron mask, who was confined in this wretched dungeon for many years, and concerning whom many conjectures have been made, is communicated to the public in a work entitled "Memoires du Marechal Duc de Richelieu," published at Paris in 1790, in 4 vols. 8vo. The secret is said to have been extorted from the regent by his daughter, who disclosed it to the duke de Richelieu. From the account given in this work it appears, that this unfortunate person was the twin-brother of Louis XIV. born eight hours after this monarch, and who was the unhappy victim of superstition and cruelty. His father, Louis XIII., being weak enough to give credit to a prediction of some impostors, that if the queen should be delivered of twins, the kingdom would be involved in civil war, ordered the birth of this prince to be kept a profound secret; and had him privately educated in the country as the illegitimate son of a nobleman: but on the accession of Louis XIV. the young man gave indications of having discovered his parentage, of which his brother being informed, ordered him to be imprisoned for life, and to wear a mask, in order to prevent his being recognized.

BASTIMENTOS, in *Geography*, small islands near the isthmus of Darien, at the mouth of the bay of Nombre de Dios. They form a good harbour; and one of them has an excellent spring. N. lat. $9^{\circ} 30'$. W. long. $79^{\circ} 45'$.

BASTINADO. See **BASTONADO**.

BASTION, in the *Modern Fortifications*, a huge mass of earth usually faced with fods, sometimes with brick, rarely with stone, standing out from a rampart, whereof it is a principal part; and answering to what in the ancient fortification was called *propugnaculum*, or a bulwark.

Bastions, some say, were first introduced by Zisca the Bohemian; others attribute the invention of them to Achmet Bashaw, in the year 1480, mentioning the fortification of Otranto as the first instance in which they were used. However, they were well known soon after the year 1500; for Tartalea gives a plan of Turin, which had been completely fortified for some time with four bastions, in his *Questi & Inventioni* diverse, published in 1546. The first bastions, such as those of Turin, and of Antwerp, which was fortified about the year 1540, were small, and removed at a great distance from each other: but they were made much larger, and brought nearer to each other in the citadel of Antwerp, erected under the direction of the duke d'Alva, about the year 1566.

A bastion consists of two faces and two flanks, and an opening towards the centre of the place called the **GORGE**.—The faces are the lines BC and CS (*Plate I. Fortificat. fig. 1.*) including the angle of the bastion. See **FACE**.—The flanks are the lines BA, SD. The union of the two faces makes the outmost or salient angle, called also the angle of the bastion, BCS.

The union of the two faces to the two flanks makes the side-angles called the *shoulders*, or *epaules* of the bastion, And

And the union of the two other ends of the flanks to the two curtains, the angles of the flanks of the bastion.

The foundation of the bastion, i. e. of a work consisting of flanks and faces, is that great rule in fortification, viz. that every part of a work must be seen and defended from some other part: mere angles therefore are not sufficient, but flanks and faces are indispensibly requisite.—Thus, if the bastion consists of flanks and faces, as *ABCS D*, *fig. 1.* all the points may be defended from the flanks; there being none, v. gr. in the face *BC*, but what may be defended from the opposite flank *EL*, nor any in the curtain *AE*, but may be defended from the adjacent flanks *BA* and *EL*; nor in any one flank *BA*, but may be defended from the other *EL*.

For the proportions of the faces, they are not to be less than 40 toises, nor more than 60; or differing little from 100 yards.

The flanks of bastions are better as they are longer, provided they stand at the same angle under the line of defence: hence the flank must stand at right angles to the line of defence. Indeed, in the ancient fortification, the flank is made perpendicular to the curtain, so as to have the angle out of the enemy's eye; but this is now provided for, by withdrawing the lower part of the flank two or three perches towards the capital line; which part, thus withdrawn, is better, if made concave, than rectilinear; and if double, with a ditch between, than if single.

The business of disposing the flanks of bastions makes the principal part of the art of fortification; it is that on which the defence principally depends, and which has introduced the various forms and modes of fortifying.

If the angle of the bastion be less than sixty degrees, it will be too small to give room for guns; and besides, so acute as to be easily beaten down by the enemies' guns: to which may be added, that it will either render the line of defence too long, or the flanks too short: it must therefore be more than sixty degrees; but whether or not it should be a right angle, some intermediate angle between sixty and ninety, or even whether or not it should exceed a right angle, is still disputed; though those are generally preferred, which are not much less than 90°, and not exceeding 120° or 130°. Hence it follows, that a triangle can never be fortified, because either some or all of the angles will be either sixty degrees, or less than sixty.

Bastions are of divers kinds, *solid, void, flat, cut, &c.*

BASTIONS, *solid*, are those that are filled up entirely, and have the earth equal to the height of the rampart, without any void space towards the centre.

BASTIONS, *void*, or *hollow*, are those surrounded with a rampart and parapet, only ranging round their flanks, and faces, so as to leave a void space towards the centre; where the ground is so low, that if the rampart be taken, no retrenchment can be made in the centre, but what will lie under the fire of the besieged.

BASTION, *flat*, is a bastion built on a right line in the middle of the curtain, when it is too long to be defended by the bastion at its extremes.

BASTION, *cut*, is that whose point is cut off, and in lieu thereof has a re-entering angle, or an angle inwards with two points outward: this is sometimes also called *bastion with a tenaille*; and is used either when, without such a contrivance, the angle would be too acute, or when water, or some other impediment, hinders the carrying on of the bastion to its full extent.

BASTION, *compofed*, is when the two sides of the interior polygon are very unequal, which makes the gorges also unequal.

BASTION, *regular*, is that which has its due proportion

of faces, flanks, and gorges; the faces being of an equal length, the flanks the same, and the two angles of the shoulder equal.

BASTION, *irregular*, is where this proportion and equality are not observed.

BASTION, *deformed*, is where the irregularity of the lines and angles makes the bastion out of shape: as when it wants one of its demi-gorges; one side of the interior polygon being too short.

BASTION, *demi*, is that which hath but one face, and one flank: called also an *epaulement*.

To fortify the angle of a place that is too acute, they cut off the point, and make two *demi-bastions*, which form a *tenaille*, or a re-entering angle. Their chief use is before a horn-work, or crown work.

BASTION, *double*, is that which, on the plane of the great bastion, has another bastion built higher, somewhat after the manner of a cavalier; leaving twelve or eighteen feet between the parapet of the lower, and the foot of the higher.

BASTION, *Capital of a*. See CAPITAL.

BASTION, *Gorge of a*. See GORGE.

BASTION, *Distance of the*. See DISTANCE.

BASTION, *Company in France*. See COMPANY.

BASTITANI, in *Ancient Geography*, a people of Bætica, in Spain. See BÆTICA, and BASTI.

BASTOGNE, in *Geography*, a city of the Netherlands, in the duchy of Luxemburg, near the forest of Ardennes, and since the revolution, a town of France, in the department of the Forêts, and chief place of a canton in the district of Neufchateau. The place contains 2354 and the canton 5886 inhabitants; the territory includes 255 kilometres and 15 communes. It is so populous, so well built, and has so much trade, that it is not unfrequently called "Paris in Ardennes." N. lat. 50° 6'. E. long. 6° 0'.

BASTON, ROBERT, in *Biography*, a poet of some note in the fourteenth century, and author of several works, was descended of a noble family, and born in Yorkshire, not far from Nottingham. In his youth he became a Carmelite monk, and afterwards prior of that order at Scarborough. He was likewise poet laureat and public orator at Oxford. In 1304, he accompanied king Edward I. in his expedition into Scotland, for the purpose of celebrating the king's victories over the Scots; but being taken prisoner, he was compelled to sing the successes of Robert Bruce, who then claimed the crown of Scotland. He died about the year 1310, and was buried at Nottingham. His poetry, though barbarous, was not contemptible for the age in which he lived. Biog. Brit. Gen. Dict.

BASTON, or BATOON, in *Architecture*, denotes a mould in the base of a column; otherwise called a *tore*.

BASTON, or BATOON, in *Heraldry*, a kind of bend which has only one fourth of the usual breadth. The baston does not go from side to side of the escutcheon, as the bend or scarf does, but is broken off short, in form of a truncheon. Its use in English coats of arms is a mark of bastardy: but French heralds introduce it in arms as a difference, a mark of consanguinity.

BASTON also signifies the earl marshal's staff.

BASTON, French, literally signifying a *staff*, and technically a *verge*, or *mace*, in *Law*, is used for one of the warden's of the Fleet's men, who attends the king's court with a red staff, for taking such to ward as are committed by the court, and likewise attends on such prisoners as are suffered to go at large by licence. Stats. 1 R. II. c. 12. 5 Eliz. c. 23. See TIPSTAFF.

BASTONADO, BASTONADE, or BASTINADO, the punishment of beating or drubbing a criminal with a stick.

The word is formed of the French *baston*, a *stick*, or *staff*.

The bastonade is a punishment used among the ancient Greeks, Romans, and Jews, and still obtains among the Turks.

The Romans called it *fustigatio*, *fusium admonitio*, or *fustibus cedi*, which differed from the *flagellatio*, as the former was done with a stick, the latter with a rod or scourge. The fustigation was a lighter punishment, and inflicted on freemen; the flagellation a severer, and reserved for slaves. It was also called *tympanum*, because the patient here was beat with sticks, like a drum.

The penalty is much in use in the East to this day. The method there practised is thus: the criminal being laid on his belly, his feet are raised, and tied to a stake, held fast by officers for the purpose: in which posture he is beaten by a cudgel on the soles of his feet, back, chin, &c. to the number of one or more hundred blows. Calmet. Dict. Bib. tom. i. p. 260.

For the method of inflicting this punishment at Algiers, see ALGIERS. Dr. Shaw (Trav. p. 253.) suggests that it was probably in this manner, that St. Paul was "thrice beaten with rods." 2 Cor. xi. 25. The Chouffes, whose office it is to inflict this punishment at Algiers, appear to be no other than so many Roman lictors armed with their fasces. The slightest of all the Chinese punishments is the bastinado, which is only used for chastising those who have been guilty of very trivial faults. The criminality of the offender determines the number of blows which he must receive; but the lowest number is twenty. The punishment in this case is considered merely as a simple paternal correction, without any infamy attached to it; and it is ordered by the emperor to be inflicted on his courtiers, who are afterwards received into favour and treated with respect. The baton, or "pan-tsee," used for this punishment, is a piece of bamboo, a little flattened, broad at the bottom, and polished at the upper extremity for the convenience of being more easily handled. Every mandarin may use it at pleasure in certain cases, either when any one forgets to salute him, or when he administers public justice. On such occasions he sits gravely behind a table, upon which is placed a bag filled with small sticks, while a number of petty officers stand around him, each furnished with some of these "pan-tsees," and waiting only for his signal to make use of them. The mandarin takes from the bag one of the little sticks which it contains, and throws it into the hall of audience. The culprit is then seized, and stretched out with his belly towards the ground; his breeches are pulled down to his heels, and an athletic domestic applies five smart blows of his "pan-tsee;" another succeeds, and bestows five more, if the mandarin draws another small baton from the bag, and thus, by gradation, until the judge is pleased to make no more signals. The criminal, who has undergone this chastisement, must then throw himself upon his knees before the judge, incline his body three times to the earth, and thank him for the care which he takes of his education. Grosier's China, vol. ii. p. 52, &c.

BASTONIER, or BATONIER, in the French Law, an ancient advocate, erected yearly according to seniority, to be the head or master of the community of advocates and attorneys. He is president of the board held for maintenance of the order, and discipline of the *palais*. To him also belongs the commission of the inferior judges, when put under interdict, so long as the interdiction lasts.

BASTONIER is also used for him who keeps the staff of a community, and carries or follows it in processions.

BASTOVA, in Geography, a town of European Turkey, in Albania, 18 miles south of Drazzo.

BASTWICK, JOHN, in Biography, M. D. born at

Writtle in Essex, in 1593, after passing through the usual school education, was sent to Emanuel college in Cambridge, where, however, he did not continue a sufficient time to take his degree; but with the view of qualifying himself for the practice of physic, he quitted England to visit the principal seminaries on the continent, where, at that time, the different branches of medicine were better taught than in his own country. At Padua he was admitted to the degree of doctor in medicine; but engaging early in theological disputes, and thence exciting the resentment of the clergy, he soon found himself involved in troubles from which, at a late period, he scarce escaped with his life. In 1624, and before he returned to England, he published at Leyden, "Elenchus Religionis Papisticæ, in quo probatur, neque Apostolicam, neque Catholicam, imo neque Romanam esse," 24to.; and soon after his return, "Flagellum Pontificis et Episcoporum Latianinus." Though he declared, in the preface to this work, that nothing in it was intended to affect such bishops as acknowledged their authority from kings and emperors, yet our English prelates, either suspecting that some things in his book were levelled at them, or perhaps not enduring that the conduct of ecclesiastics should be exposed with such freedom by a lay writer, and fearing if he was suffered to go on the same weapon might be turned against them, he was cited by them before the high-commission court, fined 1000l. and sentenced to be excommunicated, to be debarred the practice of physic, to have his books burnt, and to remain in prison until he made a recantation. After being confined two years in the Gatehouse, he published "Apologieticus ad Præsules Anglicos;" but that procuring no remission of his sentence, it was soon followed by "The New Litany," in which he taxed the bishops with having an inclination to popery, and exclaimed against the severity and injustice of the high-commission's proceedings against him. For publishing this work, he was sentenced, by the same court, to pay a fine of 5000l., to stand in the pillory in Palace-yard Westminster, and there lose his ears, and to suffer perpetual imprisonment in a remote part of the kingdom. The same sentence was, about the same time, in 1637, passed and executed upon Prynne and Burton. Bastwick was conveyed to Launceston castle in Cornwall, and thence removed to St. Mary's castle in the isle of Scilly, where no one was permitted to visit him. The house of commons, however, in 1640, ordered him, as well as the others, to be brought to London, whither they were attended by vast multitudes of people, with loud acclamations of joy. The proceedings against them were voted illegal, and they were ordered to be remunerated out of the revenue and estates of the archbishop of Canterbury, and the other lords of the commission who had condemned them. Bastwick was alive in 1648. The time of his death is not known. Gen. Biog. Dict.

BASVILLE, in Geography, a sea-port town in the island of Martinico.

BASZEU, a river of European Turkey, which runs into the Pruth, near Stephenowze, in Moldavia.

BAT, in Zoology. See VESPERTILIO.

BAT, Sea. See SEA BAT.

BAT, in Commerce, a small base silver coin, current in diverse parts of Germany and Switzerland, at different prices.

The bat or fladermouze, at Nuremberg, is equal to four croitzers; at Zurich, to $\frac{1}{3}$ of the French crown; at Basil, Schaffhausen, &c. to $\frac{1}{27}$; and at Bern and Friburg to $\frac{1}{36}$ of the same crown. These last are called short bats.

BATA, in Botany. See MUSA.

BATA, in Geography. See BATTA.

BATABANO, a town on the south side of the island of Cuba in the West Indies, seated near a large bay, opposite Pinos

Pinos isles, and about 50 miles south-west from the Havannah.

BATABLE LAND. See **BATTABLE**.

BATACALO, or **BATACOLO Bay**, in *Geography*, lies on the east coast of the island of Ceylon, in N. lat. $7^{\circ} 55'$. E. long. $81^{\circ} 3'$. It extends to the south between the main island and a narrow track of land on the east side of it, and is well sheltered from most winds. The Port town, so called, is on the west side of this bay, or gulf, 53 leagues N. E. of Columbo. The bay is about 20 leagues to the S. S. E. of Trincomale. Batacolo is a place of comparatively small importance; but the surrounding country, and the bold grotesque rocks which skirt its shores, have deservedly attracted particular attention.

BATACARANG POINT, lies on the east coast of the island of Sumatra.

BATALHA, a monastery in Portuguese Estremadura, about 60 miles to the north of Lisbon, founded by John I. at the close of the fourteenth century, in consequence of the great victory over the king of Castile, and reckoned one of the most noble monuments of what is called the Gothic style of architecture. It has been particularly described by Mr. James Murphy.

BATAN, a town of Asiatic Turkey, in the province of Natolia, 20 miles south of Kutair.

BATARDIERE, a place in a garden, prepared for the planting of fruit trees, which being transplanted thither from the nursery, are to be placed in espaliers, or elsewhere, to supply the place of dead trees.

BATATAS, in *Botany*. See **CONVOLVULUS**.

BATATAS. See **POTATO**.

BATATAS, in *Entomology*, a species of **ACARUS**, found on the potatoe in Surinam and some other parts of South America. It is rather rough and sanguineous; anterior legs as long as the body. Fabricius.

BATAVI, in *Ancient Geography*, are supposed to have been originally the same people with the Catti or Cattans, who dwelt beyond the Rhine; and being driven from their country by a domestic insurrection, they settled at the extreme borders of Gaul, in an island called "Insula Batavorum," formed by the mouths of the Rhine and the ocean. According to this description, the Batavians possessed South Holland, part of the country of Utrecht, and the island of Betaw in the dukedom of Guelderland. The early history of the Batavi is involved in considerable obscurity. It is certain, however, that about 54 years before the Christian æra they were distinguished by their valour, and attracted the attention of Cæsar, who formed an alliance with them. He encouraged them to serve in the Roman armies; and they appear to have fought with him against Pompey at Pharsalia, and to have assisted Augustus in the battle of Actium. They assisted Cæsar in his attacks upon the Gauls, and they every where routed and dispersed that ferocious and warlike people. The Batavian cavalry bore the highest reputation, and the infantry fought with the same order, discipline, and intrepidity in the marshes and waters as upon the firm land; and even the Romans dreaded their resentment. They became the body-guard of the emperors, who reposed equal confidence in their fidelity and courage; and they retained this honourable trust till they were dismissed by Galba, though with tokens of favour and esteem. In all important expeditions, in every dangerous enterprise, and where obstinate boldness was required, the Batavians were selected. They generally composed the forlorn hope of the Roman army, sustained the first shock of the enemy, and made the first attack with an impetuosity peculiar to themselves. They were not only honoured by the title of allies

to the empire, but distinguished by the appellation of the friends and brethren of the Romans; which denomination was particularly applicable to the inhabitants of Betaw, an island formed by the Rhine and Vahal or Waal. Their government seems to have been monarchical, and it is conjectured that Claudius Civilis was descended from their kings. But though the Romans indulged them in an exemption from tributes and taxes, it was not consistent with the views they had adopted of universal dominion to allow them the enjoyment of their liberty. They built towns, and made establishments in their territories; and this rude people, flattered by the luxury and the amusements which they introduced among them, did not immediately perceive the dangerous policy which directed them. They were soon, however, informed of the treachery of their allies, by the oppression and injustice which they began to exercise. When Vitellius and Otho disputed the empire, and the German nations attempted to recover their liberty, the Batavians followed their example. Alarmed for the interest and the rights of their nation, Julius Paulus and Claudius Civilis set themselves to oppose the practices of the Romans, and to emancipate themselves from their dominion. But Fonteius Capito, the Roman commander, considering them as rebels, made himself master of their persons; and having beheaded the former, he loaded the latter with chains, and sent him to Rome. The death of Nero, however, which happened about this time, delivered Civilis from the danger which threatened him; and the weak and impolitic Galba suffered him to return to his country, without inquiring into his crime, or into his merit. This illustrious chief then prepared to gratify his resentment, and to recover and vindicate the liberty and honour of his nation. He called an assembly of his community, and representing the evils of tyranny, inculcated a disdain of submission and servitude. His countrymen submitted themselves without reserve to his conduct; and uniting with the Frisii and the Coninesates, he declared war against the Romans. Gaining an accession of strength from the Tungrians, who deserted the Romans, and from some natives of Batavia, who served as rowers in the Roman fleet, he was enabled to defeat the Romans and put them to flight. He was afterwards joined by eight Batavian cohorts, who abandoned Vitellius, by whose orders they were marching to Rome, and also by some other German tribes; and thus aided and encouraged, he obtained some further success. But upon the arrival of Cerealis, the Roman general, he received a total overthrow, and was at length obliged to abandon his own island, whither he had retreated, to retire beyond the Rhine, and to submit to the Romans. A conference taking place between Cerealis and Civilis, the issue of it was an entire submission on one side, and an unreserved pardon on the other. The Batavians remained in the same condition in which they were before the war broke out; that is, exempt from all tributes, and only obliged to supply the Romans with troops when required. We know little more of the ancient history of the Batavians than that the fierce and warlike spirit of the people obliged the Romans to maintain strong garrisons on the banks of the Rhine; that they revolted against Constantine; that they performed signal services to Theodosius in Britain: and that, with the rest of the empire, they fell under the power of the Franks; and were governed by Charlemagne, and his descendants, until, upon the decline of that house, the great lords and officers of the crown, taking advantage of the weakness of the reigning princes, rendered their governments hereditary in their families. From the Batavi, the seven united provinces derived the name of Batavia, which since the French revolution has been recognized in the appellation of the

Batavian republic. Cæf. Com. l. vii. Tacit. Hift. l. v. l. vii. Sueton. in Galb.

BATAVIA CASTRA, a citadel of Vindeliçia, fo called from the cohors Batavia, in garrifon under the commander in Rhetia; now PASSAU, fituated in Bavaria, at the confluence of the Danube, Inn, and Ills.

BATAVIA, in *Geography*, the celebrated capital of the Dutch poffeffions in the Eaft Indies, and denominated the "Queen of the Eaft," on account of the beauty of its building, and its immense trade, is a fea-port town on the north coaft of the ifland of Java, fituated very near the fea, on a fertile plain, bearing evident marks of having been left or thrown up by the fea, in the kingdom of Jaccatra, upon the river of that name, which, running through the middle of the town, divides it into two parts. To the north of the city is the fea-fhore; behind it to the fouth, the land rifes with a gentle, and fcarcely perceptible, acclivity towards the mountains, which lie 15 or 16 Dutch miles, or leagues, inland; one of which, as being very high, bears the name of the Blue mountain. This city was founded in 1619 by the governor-general, John Peterfon Koen, who captured and deftroyed the town of Jaccatra, near the spot where the former town was fituated; and he gave it the name of Batavia, though it is faid he much wifhed to have called it "New Horn," from the place of his nativity, "Horn," in North Holland. Although it was then an inconfiderable place, with regard both to ftrengh and beauty, he declared it the capital of the Dutch fettlements in India; and his choice of the fituation was fo juft, and his plan fo well contrived, that it rofe with unparalleled rapidity to that degree of magnificence and importance which has rendered it both the admiration and terror of all the more eaftern nations of India. It ftill retains a very confiderable rank and influence; although, for the laft 50 years, it has much declined both as to opulence and population. The form of the city is an oblong fquare, $\frac{3}{4}$ of a mile long, and $\frac{1}{2}$ a mile broad, interfefted by the river already mentioned, which runs from north to fouth, and is croffed by three bridges. The breadth of the river, within the city, is about 160 or 180 feet; and paffing the caſtle and admiralty wharf, it difcharges itſelf into the fea. On both fides of its mouth are long piers of wood and brick-work, about 3,800 feet long, taken from the moat of the city: between which, on the weſt ſide, the veſſels belonging to the free merchants are laid up and repaired; but along the eaſt ſide, the paſſage lies open for the lighters, which go into and out of the city with the cargoes of the ſhips. Oppoſite to the outward point of the eaſtern pier is a horn-work, commonly called the "Water-ſort," conſtructed of a kind of coral rock, and having, mounted or difmounted, fourteen guns, and two howitzers. It conſiſts of a parapet, retained by a wall; but the parapet has been much neglected, and the wall is nearly deſtroyed by the conſtant working of the ſea. This fort is protected on the land ſide by a noxious ſwamp, and towards the ſea, on the north-weſt, by extenſive flats, over which even boats cannot paſs. The only good approach is that by the channel, which it fees and defends. On the weſt ſhore, about a quarter of a mile from the water fort, is a battery, mounting ſeven guns, bearing down the river; and oppoſite to this is a battery of fix guns, facing the river, and two to the eaſtward. Each diviſion of the city on either ſide of the river has two canals, running parallel with the longeſt ſides, and interfefted at right angles by croſs-canals. Theſe canals join the great canal, or river, at the diſtance of half a mile from the entrance; and below their junction is laid a boom of wood, armed with iron ſpikes. The city is encompassed by a wall of coral rock, ſerving as a facing to the rampart behind

it; and alſo by a moat, having ſeveral ſluices, into which water is conveyed from the river. Sir George Staunton ſays, that a part of the town-wall is built of lava, which is of a dark blue colour, and of a very hard denſe texture, emitting a metallic ſound, and very much reſembling ſome of the lava of Veſuvius. It is brought from the mountains in the centre of Java, where a crater is ſtill ſmoking. The rampart is defended by twenty or twenty-one baſtions, which, as well as the wall, are in a ruinous ſtate. Small projections, of various forms, are conſtructed at intervals of about 350 feet, each of which generally mounted three guns. At ſhort diſtances from the town, three or four ſmall ſtar-forts of earth are erected in particular paſſes, probably for defence againſt the inhabitants of the iſland. The caſtle or citadel of Batavia, which was formerly on the ſea-ſide, is now, by the continual increaſe of the mud-banks before it, diſtant from the ſea more than 100 roods, and is ſeated on the eaſt bank of the river. It covers about 200 roods of ground, and is a regular ſquare fortrefs, built of coral rock brought from ſome of the adjacent iſlands, compoſed of that material. It has neither ravelins nor outworks. Two guns are mounted on each flank, and two, or ſometimes three, on each face: neither "en barbette," nor "en embraſure;" but in a ſituation between both, having the diſadvantages of both without the advantages of either. The wall is of maſonry, about 24 feet high. It has no ditch, but a canal encompasses it at ſome diſtance. It has no cordon; and the length of the exterior ſide of the work is about 700 feet. Between the moat and the buildings within the fort, on the ſouth ſide, is a large area or eſplanade. In the centre of the buildings that look towards the city, is a great gate, and then a broad paſſage, with warehouſes on each ſide, leading to another eſplanade, on the north ſide, encloded between the ramparts and the buildings, which are appropriated to the uſe of the company. The government houſe, which forms the left wing of the buildings looking to the ſouth, is provided with numerous and convenient apartments, but uninhabited. In it is a large hall, in which the council of India generally aſſemble twice a week. Near this is a little church or chapel, called the caſtle church; and at a ſmall diſtance is a corps-de-garde, where a party of dragoons always mount guard. Over the caſtle-bridge is a ſpacious plain or ſquare, planted with tamarind trees, which afford an agreeable ſhade; and the entrance, into it from the city is over a bridge and through a large ſtately gate, mounted with a lofty cupola, from which ariſes an octagon turret with a large clock, the only public one at Batavia. On the left ſide of the gate is a large building, ſerving as a corps-de-garde, having in front a long gallery, reſting upon a row of pillars; where is uſually poſted a captain's guard of grenadiers. On the weſt ſide of the ſquare ſtand the company's artillery-houſe, and the diſpenſary or proviſion-magazine, both of which extend to the ſide of the river, ſo that the goods are taken in and out of the lighters with the greateſt eaſe. On the oppoſite ſide is the iron-magazine, and the graſs-plat or place of execution, which is an artificial ſquare eminence, upon which are a gallows and ſome poſts; and behind it is a ſmall building, with windows, opening towards the place of execution, where the counſellors of juſtice may behold the completion of their ſentences. Upon the plain are arranged pieces of iron and braſs artillery, and other warlike implements.

Batavia has five gates; and near to that on the north ſide, to the weſt of the river, is the admiralty wharf; and near this, the warehouſes for naval ſtores, and the workſhops of the carpenters, coopers, ſail-makers, and ſmiths, with other offices and houſes that relate to the ſhipping. In the ſouth-eaſt corner of the city, cloſe to the ramparts, lies the workmen's quarter,

quarter, called "Ambagtsk wartier," in which all the workmen and labourers employed by the company reside. Besides a great number of Europeans, there are more than a thousand slaves who belong to this quarter.

Besides the public buildings already mentioned, Batavia has a town-hall, which is well situated; two large and convenient hospitals, and several churches; three of which, within the city, are appropriated to the reformed religion, in which service is performed in the Dutch, Portuguese, and Malay languages; and one without the gates, called the outer Portuguese church. There is also a Lutheran church not far from the castle, provided with a fine organ and a very handsome pulpit. These churches are supplied every Sunday by twelve clergymen of the reformed religion, and three Lutheran ministers. One of these clergymen is deputed, once every year, or sometimes only once in two years, upon a visitation to the company's possessions on the west coast of Sumatra; and to the individuals thus employed, the visitation is rendered lucrative by the merchandise which they take with them for sale. The Chinese have also several temples, which are tolerated by government: but the exercise of the Roman Catholic religion is obstinately prohibited.

In the districts round Batavia, immediately subject to the Dutch, it is calculated, says Sir George Staunton, that near 50,000 Javanese families are settled, containing upon an average six persons to a family, or 300,000 persons in the whole. The city of Batavia, including the suburbs, contains near 8000 houses. Valentyn (cited in the *Mod. Un. Hist.*) states the number of houses in the city and suburbs at 4,770. Huyfers, a more recent Dutch writer, who was long resident at Batavia, and who published his account in 1778, estimates the number of houses in Batavia at 3,500; but he does not say whether he included the suburbs. The number and description of inhabitants in 1778, according to this writer, were as follows: viz. 468 European burghers, 5,582 native Christians, 4,873 Marlykers or manumitted slaves of all nations, 23,309 Chinese, 289 Amboynese, 278 Bandamese, 966 Moors, 254 Gentoos, 1,852 Malays, 324 Boutanners, 1,983 Macassers, 3,707 Bouginese, 104 Timorese, 189 Mantharese, 85 Sumbanwers, 13,073 Baliers, 33,408 Javans, and 20,072 slaves; making in all 110,816, exclusively of women and children, and of the company's servants. The company's establishment consisted, in 1776—1777, of 613 persons in civil, and 35 in ecclesiastical employments, 99 surgeons and assistants, 125 belonging to the artillery, 875 seamen and mariners, 1,571 foldiers, and 903 mechanics; in all, 4,221 Europeans, besides 703 natives in their service.

The houses at Batavia, belonging to the Dutch, are well built, chiefly of brick, clean and spacious, and their construction is, for the most part, well adapted to the climate. The doors and windows are wide and lofty; the ground-floors are covered with flags of marble, which being sprinkled frequently with water, give a pleasant coolness to the apartment; but when Sir George Staunton visited the place, a considerable proportion of the houses was untenanted; a circumstance which indicated a declining settlement. The houses of the Chinese are low, and crammed with people. Most of them dwell in the southern and western suburbs, which are called the Chinese "Campon." Before the revolt of the year 1740, they had the best quarter of the city allotted them, to the west of the great river; but when in that commotion all their houses were burnt to the ground, the whole quarter was converted into a "passar," or market, where at present all kinds of provisions are daily exposed to sale. Before the perpetration of this massacre, several thou-

sand Chinese adventurers resorted to Batavia, allured by the prosperity of their countrymen already settled there. The number of these colonists, together with the robberies and murders committed by them, excited a considerable degree of apprehension; which induced Van Imhof, who was at that time a member of the council, to propose, that those who could not prove that they were gaining an honest livelihood, should be seized and transported to Ceylon, and there employed in mining and other labour for the service of the company. The execution of this order produced a tumult and an insurrection; and thousands of the Chinese retired from the city, and collecting a strong force, ravaged the country and assaulted the capital. The civil and military inhabitants united in repelling them. But a fire taking place soon after among the Chinese buildings in the city, several of the owners were accused of opposing with arms the extinguishment of it, with a view, as it was said, of allowing the conflagration to spread through the whole town, that in the moment of confusion they might assassinate the Europeans, and become masters of the place. The alarm was such, that the Dutch government gave instant orders to put all the Chinese heads of families to death; and the sailors from the vessels in the road were brought ashore, and induced, for the sake of plunder, to share in executing the bloody edict. All the Chinese, without distinction, men, women, and children, were put to the sword; and the innocent and guilty were indiscriminately exterminated. Whence this barbarous order issued has been a subject of unsatisfactory investigation. The governor-general, Valckenier, and his brother-in-law Helvetius, were accused by the public voice, of directing the massacre; but their guilt was never proved. The deed itself was condemned by the directors of the company of Holland; and much apprehension being entertained that the fact would excite the indignation of the emperor of China, deputies were sent to him in the following year, to apologise for the measure on account of the necessity of the case. These deputies were agreeably surprised to find that the emperor calmly answered, that "he was little solicitous for the fate of unworthy subjects, who, in the pursuit of lucre, had quitted the country, and abandoned the tombs of their ancestors." The Chinese, however, are said to be now as numerous as ever in and about Batavia; and it is acknowledged by the Dutch that the settlement could scarcely subsist without their industry and ingenuity. The quarter of the suburbs which they occupy is crowded with shops containing all kinds of goods: those of their own manufacture, and such as they receive annually from China, or purchase from the European importations. The number of Chinese, who live both within and without the walls of the city, cannot be precisely determined; but it must be very considerable, as the company receives a poll-tax from them of more than 40,000 rix dollars. Every Chinese who has a profession is obliged to pay a monthly poll-tax of half a ducatoon, or 3s. sterling; but women, children, and those who have no trade, are exempted from this tax. They are under a chief of their own nation, called the Chinese captain, who lives within the walls; and has under him six lieutenants in different districts. A flag is hoisted at his door on the first or second day in every month, and the Chinese that are liable to the tax are then obliged to repair to him for the payment of it. Each house in Batavia pays annually an assessment of half a month's rent, which is expended in dragging and cleaning the canals, and in repairing the town-hall and other buildings belonging to the city. The churches are repaired out of the duties levied upon funerals. At Batavia a bank of circulation has been established for some

some years, which bank is united with the Lombard or bank for lending money on pledges. This bank is under the administration of a director (who is generally a counsellor of India), two commissaries, a cashier, and a book-keeper. Its capital is computed to amount to between two and three millions of rix-dollars, or between 435,000*l.* and 650,000*l.* sterling.

The suburbs of Batavia are remarkable on account of their considerable extent, uncommon pleasantness, and great population. They are inhabited by Indians of various nations, and by some Europeans; but the quarter of the Chinese is the most populous, and seems of itself a city. None of the streets of Batavia are paved; but along the sides of them near the houses are stone foot-paths, about three or four feet broad. The streets and canals are planted on each side with large trees, generally the "onophyllum cataphyllum," and "calaba," the "canarium commune," and others of a scarcer sort. The Dutch, who are so fond of gardens in Holland, have indulged that taste to a great extent at their houses in the environs of Batavia, which are every where interspersed with rivulets, by which the circumjacent rice plantations are inundated, and fertilized in the proper season. The country, though it be a fenny district, of which a gentleman upon the spot used the strong expression, "that the air was pestilential, and the water poisonous," is nevertheless every where so verdant, gay, and fertile, interspersed with such magnificent houses, gardens, avenues, canals, and drawbridges, and so formed in every respect to please, if health could be preserved in it, that a youth just coming from sea, and enraptured with the beauty of every object he saw around him, but mindful of the danger to which life was exposed, could not help exclaiming, "What an excellent habitation would it be for immortals!" There are five principal roads which lead from the city towards the country, and they are all planted with high and shady trees, and adorned with handsome houses and pleasant gardens.

As to the habits and mode of living of the inhabitants of Batavia, they very much depend on the views and dispositions with which they resort hither, on the situation which they occupy, and on the qualities of the climate. The native Javanese are in general too remote from civilization to have any wants that are not easily satisfied, in a warm and fertile climate. No attempt is made to enslave their persons; and they find the government of the Dutch less vexatious than that of others who divide some share of the sovereignty of the island with them. As for the Chinese, who are constantly resorting hither from China in the vessels called "junks," their views are similar to those which influence the natives of Holland, and they are alike actuated by the desire of accumulating wealth in a foreign land; both the one and the other were trained in their own country to habits of industry; but upon their arrival in Batavia, they are placed in different circumstances, and acquire different manners. The Chinese, having no prospect of advancement by favour and interest, apply with diligence to the occupation that is assigned them, and by exertion and economy meliorate their condition, without being able to gratify their ambition by the attainment of any public offices. In the city, they become retailers, clerks, and agents; and in the country, they are farmers, and the principal cultivators of the sugarcane. Thus they at length acquire fortunes, which they value by the time and labour required to earn them; and this gradual acquisition makes no change in their disposition or mode of life; their industry is not diminished, nor is their health impaired. The Dutch, on the contrary, who are sent out by the company to administer their affairs in Asia,

become soon sensible that they have the power, wealth, and possessions of the country at their disposal. Those who survive the depredations of the climate, mount by a quick gradation to offices, lucrative but not laborious. Their influence likewise enables them to speculate in trade with great advantage. The drudgery of business is readily undertaken by the Chinese, who, like the native Banians and Debasies in Calcutta and Madras, are employed as subordinate instruments; while their principals find it difficult, under such new circumstances, to retain their former habits, or to resist a propensity to indolence and voluptuousness, though often attended with the sacrifice of health, if not of life. Convivial pleasures, among others, are frequently pursued to excess. "The Chinese," says Stavorinus, "are like the Jews in Europe, very cunning in trade, both in the largest dealings, and in the most trifling pedlary. They are so desirous of money, that a Chinese will run three times from one end of the city to the other, if he has the prospect of gaining a single penny." He adds; "in doing business with them, the greatest care must be taken to avoid being cheated." In stature they are rather short than tall, and in colour not so brown as the Javanese. Their heads are shaved all round, except a bunch of hair on the middle of the crown, which is twisted with a ribbon that hangs down the back. Their dress consists of a long robe of nankeen or thin silk, with wide sleeves, and under it they wear drawers of the same, which cover the legs. In their houses they hang up in certain niches, images of their "jookstjes" or idols, painted on Chinese paper, before which they burn lamps and incense. This jookstje they consider as an evil spirit, and therefore they continually supplicate him not to do them any harm. In their adorations, they prostrate themselves before him, and express their reverence by striking their heads continually against the ground. They likewise consult their idol by a peculiar mode of divination, when they engage in any important undertaking. Notwithstanding this superstition, the Chinese are accused of gratifying their lusts, by the most detestable violations of the law of nature. Their tombs are magnificent and costly; and great numbers of them are to be seen about half an hour's walk from Batavia, on the road to Jaccatra. When a Chinese of any note dies, his death is formally announced to all the branches of the family. The body is washed, perfumed, and dressed in the best apparel of the deceased. The corpse is then seated in a chair; and his wives, children, and relations, fall down before it and weep. On the third day it is put into a coffin, and placed in one of the best apartments, hung with white linen, the colour appropriated by them to mourning. In the middle of the apartment is erected an altar, on which is placed the portrait of the deceased, with incense burning near it. On one side of the coffin stand the sons, dressed in white coarse linen exhibiting every sign of sorrow; while the mother and female relations are heard lamenting behind a curtain. On the day of burial, the whole family assembles, and the corpse is carried to the grave with much solemn pomp. Images of men and women, relations of the family (in the manner of the ancient Romans), and even of animals, together with wax tapers and incensories, are carried first in the procession. Then follow the priests with musical instruments; and after them the corpse upon a bier, attended by the sons of the deceased, clothed in white, and leaning upon crutches, as if disabled by grief from supporting themselves. The female relations are carried in chairs, hung with curtains of white silk, that conceal them from view; but their lamentations are distinctly heard; and other women are hired, who are trained to utter shrieks still louder and more piercing. Previously to the funeral, a table with fruits and other eatables

is laid before the corpse, and wax figures of servants placed on each side as attendants upon it. The Chinese visit the graves of their ancestors from time to time, strewing them with odoriferous flowers; and when they depart, they leave a few small pieces of silk or linen before the entrance, and sometimes boiled rice or other victuals which are speedily made away with at night.

The mode of living practised by the Europeans, either from Holland or any other nation, that reside at Batavia, is very nearly the same. In the morning at five o'clock, or when the day breaks, they rise; and the table is spread at an early hour. Besides tea, coffee, and chocolate, fish and flesh are served for breakfast; and when this is finished, Madeira, claret, gin, Dutch small beer, and English porter, are laid out in the portico before the door of the great hall, and pipes and tobacco are presented to every guest, with a bright brass jar for a spitting-dish. Those who have business appear at their proper stations at eight o'clock, and remain employed till between the hours of eleven and twelve. Their dinner hour is one o'clock; but immediately before dinner, two men slaves go round with Madeira wine, of which each takes a large glass. Then follow three female slaves, one with a silver jar, containing plain or rose water for washing; a second with a silver basin and low cover of the same metal, pierced with holes, to receive the water after it has been used; and the third with towels for wiping the hands. During dinner, a band of music plays at a little distance. The musicians are all slaves who have been instructed for this purpose. A considerable number of female slaves attend at table, which is covered with many dishes. Dinner is immediately followed by coffee. After drinking coffee, each person retires to a bed, consisting of a mattress, bolster, pillows, and chintz counterpane, but no sheets; and puts on his night-dress, a muslin cap, and loose long cotton gown. A bachelor is attended by a female slave, who fans him while he sleeps. About six they rise, dress, sleep, drink tea, take an airing in their carriages, and form parties for the evening. The morning meetings are composed generally of men, as the ladies seldom choose to appear till evening. "Married men," says Stavorinus, "seldom give themselves much concern about their wives, nor shew them much regard. They seldom converse with them, at least on useful subjects, and such as concern society, with which of course they are little acquainted. Few of these ladies are natives of Europe, but many are descended from Dutch settlers here; and they are educated with some care. The features and outlines of their faces are European; but the complexion, character, and mode of life, approach more to those of the native inhabitants of Java. A pale languor overspreads the countenance. In their own houses, they dress like their slaves, with a long red chequered cotton gown descending to the ankles, with large wide sleeves. They wear no head-dress, but plait their hair, and fasten it with a silver bodkin on the top of the head. The colour of their hair is almost universally black; they anoint it with the oil of the coconut, and adorn it with chaplets of flowers. When they go abroad, and particularly to their evening parties, they dress magnificently in gold and silver spangled muslin robes, with a profusion of jewels in their hair, which is worn without powder. They never attempt to mould or regulate their shape by any foreign idea of elegance, or any standard of fashion; and, therefore, exhibit a striking contrast to the Dutch ladies. Every native lady is constantly attended by a female slave, who sits at the feet of her mistress on the floor, holding her gold or silver box, the compartments of which contain areca-nut, cardamom seeds, pepper, tobacco, and slaked lime; all which mixed together in due proportions,

and rolled within a leaf of betel, constitute a masticatory of a pungent taste, that is in general use. In public assemblies, when the ladies are incommoded with heat, they retire to change their dress, and return, without ceremony, in a more light and loose attire. Their example is followed by the gentlemen, who appear in white jackets, sometimes adorned with diamond buttons. The elderly gentlemen lay aside their wigs, and put on night-caps. The members of the government, except on these occasions, appear abroad in crimson velvet; their carriages are distinguished by peculiar ornaments; and they receive homage from others not of their rank. One of the gates of the city is opened only to let them pass. The Indian women marry young, generally at twelve or thirteen years of age; they have seldom many children, and they are old women at thirty. They are remarkably fond of bathing and ablutions; and use for this purpose a large tub containing three hogheads of water, in which they immerse the whole body at least twice a week; and some do this in the morning, in some of the running streams out of the city. They manifest a most excessive jealousy both of their husbands and of their female slaves; and when they discover the slightest familiarity, punish the latter with a variety of tortures; and of the former they avenge themselves in kind. The coaches used at Batavia are small and light, and for keeping these a yearly tax is paid to the company. Services of a domestic or menial kind are chiefly performed at Batavia by slaves. Three thousand of both sexes are annually brought hither from the coast of Malabar, Bengal, Sumatra, and other parts; but in the greatest number from Celebes. Their treatment is in general mild and gentle, though some instances of barbarity and inhumanity occur. They are not forced to excessive labour, and they are allowed sufficient sustenance. However, many of the males, who had formerly, perhaps, led an independent life before they were made captives in war, have taken offence against their masters upon slight occasions, and wrecked their vengeance by assassination. To the apprehension of such an event is ascribed the preference given at Batavia to female slaves, for every use to which they can be applied; and therefore the number of those that is purchased far exceeds that of the other sex. The slaves that are determined on revenge, often swallow, for the purpose of acquiring artificial courage, an extraordinary dose of opium, and soon becoming frantic as well as desperate, they not only stab the objects of their hatred, but fall forth to attack in like manner every person they meet, till self-preservation renders it necessary to destroy them. They are said in that state to be "running a muck;" so called because, during their frenzy, they continually cry out, "amok! amok!" which signifies "kill! kill!" and their fury has been erroneously ascribed to opium, whereas in reality it is the effect of unruly passion. Instances of it are not more common among slaves than among free natives of the country, who in the anguish for losing their money, effects, and sometimes their families, at gaming, to which they are violently addicted, or under the urgency of some other passion or misfortune, have recourse to the same remedy, with the same fatal effects. A fondness for play, and also for opium, is not uncommon among the Chinese also at Batavia; but by habits of restraint and moderation they are prevented from falling into the same frantic excesses. The Chinese at Batavia are accustomed to keep gaming-houses, which are the means of seduction and ruin to the greatest part of the slaves in the city; and these pests of society are under the protection of the municipal government, the officers of which pay to the company, as a consideration for the profits accruing from them, a monthly contribution

contribution of 3,100 six dollars, or upwards of 8,000l. sterling per annum.

The chief government of Batavia, and of all the possessions of the Dutch East India company in Asia, is vested in the council of India, at the head of which is the governor-general, who resides at a superb mansion near Batavia, possessing unbounded power, assuming a state, and exacting tokens of respect much greater than any European monarch claims. The next in rank is the director-general, who is the eldest counsellor of India; and to him are entrusted the direction and controul of the trade of the company throughout all India, and to Europe. Next in order follow the five ordinary and nine extraordinary counsellors of India. To the servants of the company justice is administered by an assembly called the council of justice, independent of the council of India, and consisting of a president, eight ordinary members, and two adjutors, taken from the company's servants. The citizens and free merchants of India, who are not in the company's service, are amenable to a separate municipal court of justice, called the board of *scheepens* or aldermen, eight in number, with a president who is a member of the council of India. The punishments inflicted at Batavia are exceedingly severe, especially such as are inflicted upon the Indians; of these the chief, and the most terrible, is *IMPALEMENT*. For taking alive these slaves who are guilty of the acts of murder called "*mucks*," the officers of justice are provided with a pole ten or twelve feet in length, at the end of which is a kind of fork, made of two pieces of wood three feet long, which are furnished within with sharp iron spikes; this is held before the object whom they wish to apprehend, and in his frenzy he runs into it, and is thus taken. If he happen to be mortally wounded, he is immediately broken alive upon the wheel, without any form of trial, in the presence of two or three of the counsellors of justice.

The orphan-chamber at Batavia serves for the whole of the Dutch possessions in India; and the board consists of a president, who is a counsellor of India, and six regents, who are appointed by the council of India, with subordinate clerks. There are several other courts or boards; as the commissioners of dykes and sluices, those of bankruptcies, a court of common pleas, a board of controul over marriages, and several others.

The establishment of regular troops at Batavia, according to the report of captain Parish, cited by Sir George Staunton, consists of 1,200 Europeans, of whom 300 are artillery, and the rest infantry. But as this number cannot be maintained complete in this unhealthy climate, 500 natives were employed, and thus the establishment of European regulars was reduced to 700. Three hundred volunteers of the town are also formed into two companies, but not disciplined. The irregulars are very numerous, consisting of enrolled natives of Java, who have never been embodied, and of Chinese, whom the jealousy of the Dutch allows to be armed only with lances. This establishment appears too small for any effectual resistance. Although every man who settles at Batavia must take up arms in its defence, it is acknowledged by one of the counsellors of the Indies, that their chief dependence was on the *havoek* which the climate was likely to make amongst the enemy's forces. The chief protection to their ill-manned vessels lying in this port, is afforded by the fortified island of *ONRUST*, which is well situated to command the channel that forms the principal passage into the road.

The climate of Batavia is singularly unhealthy, and has proved the occasion of disease and of death to many of the Dutch settlers, and other Europeans who have transiently

visited this place. The city is situated in the midst of swamps and stagnated pools, whence proceeds every morning a collection of pestilential vapours, whenever the sea-breeze sets and blows over this morass. The meridian sun raises from the shallow and muddy canals which intersect the town, deleterious miasmata into the air; and the trees, with which the quays and streets are crowded, impede the course of the air, by which the putrid effluvia would in some degree be dissipated. Besides the noxious circumstances of a local kind peculiar to this place, the sudden transition from a cold northern region to the middle of the torrid zone, without the adoption of those habits that are requisite in the latter, must render the human frame more liable to be affected by any causes of disease. Hence it happens that preventive medicines are taken almost as regularly as food, and every body expects the returns of sickness, as we do the seasons of the year. There are few examples of strangers who remain long in Batavia without being attacked by fever, which is the general denomination in that place for every kind of illness. The disorder at first is commonly a tertian ague, which after two or three paroxysms becomes a double tertian, and then a continued remittent that frequently carries off the patient in a short time. The Peruvian bark is seldom prescribed in any stage of the disease, or it is given in such small quantities as to be productive of little benefit. The chief, or rather the sole medicine administered, is a solution of camphor in spirit of wine. It is supposed, that of the Europeans of all classes who come to settle in Batavia, not always half the number survive the year. The place resembles in that respect a field of battle, or a town besieged. The frequency of deaths renders familiar the mention of them; and little signs of emotion or surprise are manifested, on hearing that the companion of yesterday is to-day no more. When an acquaintance is said to be dead, the common reflection is, "Well, he owed me nothing;" or, "I must get my money of his executors." It appears by a calculation, that the company lose, in general, every year, full one-fifth of their servants. It is observed, however, that this climate is not so fatal to the female Europeans as to the other sex. They seldom expose themselves to the heat of the sun, make frequent use of the cold bath, and live more temperately than the men; and, for these reasons, they may suffer less from the insalubrity of the climate. In the lower town, on the north side, the mortality is greater, where uninhabited houses contract a foul infectious air, than in the other parts of the city that are more fully inhabited. On this account, people not only leave the lower town, but abandon the city altogether, and reside in gardens without the walls, and at as remote a distance as their employments will allow. This kind of migration increases from year to year, and will probably, in the lapse of time, produce the total abandonment and ruin of Batavia. The most tolerable season here is from March or April to November, when the rains begin, which last the rest of the year. The sea-breeze sets in about ten o'clock in the morning, and continues till four or five in the afternoon; it becomes then calm till seven or eight, when the land breeze commences, and continues at intervals till day-break, followed by a calm for the remaining hours of twenty-four. The heat of the weather at Batavia is not so excessive as in some other parts of the east. From July to November, Stavorinus observed, that his thermometer, which hung in the shade in the open air, stood generally between 84 and 90 degrees of Fahrenheit's scale, in the hottest part of the day; once indeed the mercury rose to 92°: in the morning, it seldom fell lower than 76°. The barometer scarcely ever varies from the mean height. Sir George Staunton,

who

who arrived at Batavia in March, informs us, that in the road, Fahrenheit's thermometer, during his continuance, was from 86 to 88 degrees; and in the town, from 88 to 92 degrees: but that its variations by no means corresponded to the sensations produced by the heat on the human frame; the latter being tempered by any motion of the air, which circumstance has little effect upon the thermometer. In the night, the thermometer, instead of sinking as it does in colder countries, sometimes 20°, keeps generally here within 4 or 5 of what it attains in the shade when the sun is at its highest elevation. The unhealthiness of the place, as Stavorinus justly observes, is owing not so much to the heat, as to the morasses by which the city is surrounded, and particularly to the mud which the sea throws up, and which it leaves, at low water, exposed to the sun. With care and attention on the part of the government, it is reasonable to imagine, that this evil might be greatly diminished, if not wholly removed. The general apprehension of the unhealthiness of Batavia for Europeans, deters most of those who can reside at home with any comfort, from seeking a settlement there, notwithstanding the temptation of fortunes to be quickly amassed in this place. From this circumstance it happens, that offices and professions are often necessarily entrusted with persons little qualified for occupying them. One of the clergymen, and the principal physician of the place, are said to have originally been barbers. The United Provinces furnish very few military recruits; the rest are chiefly Germans, many of whom are said to have been kidnapped into the service.

All goods which are carried into or out of Batavia, are subject to duties which are levied at the bar at the entrance of the city. These, as well as the other taxes and imposts, are annually farmed out, generally to Chinese. The whole of them amount together, upon an average, to 32,000 rix-dollars per month, or about 83,800*l.* sterling per annum. The important revenues arising from these import and export duties, &c. and the valuable productions which the country round it affords, the principal of which are pepper, rice, sugar, cotton, and indigo, might lead us to suppose, that Batavia, or rather the colony of Jaccatra, for that is the account in the books of the company, to which all that relates to Batavia is carried, would be adequate to its own support; yet this is far from being the case. Batavia is the metropolis of the Dutch East India possessions; it is the seat of their government; a large garrison is constantly maintained in it; most of the company's ships touch here, both outward and homeward bound; their cargoes are landed and shipped; all recruits are received, maintained, and paid here: in short, almost all the charges of the marine and military establishment of the company are carried to the account of Batavia, and of course a considerable balance appears every year against it. Formerly there used to be a considerable surplus after defraying all these charges; but in the year 1779, the charges exceeded the receipts by about 51,327*l.*

The coins current at Batavia are the following; viz. the milled Dutch gold ducat, the Japan gold coupangs, the Spanish dollar or piastre, the milled silver ducatoon (which is the current coin of the company throughout their possessions, except on the continent of India), the unmilled ducatoon, the milled Batavia rupee, other rupees, half and quarter rupees. The smaller coins are skillings, twopenny pieces, and doits. Of the skillings there are two sorts: the old, worth 5 shillings; and the new, worth 7½. The old twopenny pieces pass for 2 shillings; the new, for 2½: the doits are stamped with the mark of the East India company, and are equal to a farthing in value.

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The following table shews the value, in sterling money, of the above coins, at the sterling value of 11 francs per pound.

	f.	s.	d.
The old Japan gold coupang	24	0	—
The new ditto	14	8	—
The milled Dutch ducat	6	12	—
The silver milled ducatoon	4	0	—
The unmilled ditto	3	18	—
The Spanish dollar, from	3	3	—
to	3	6	—
The rix-dollar	2	8	—
The Batavia rupee	1	10	—
Other rupees, about	1	7	—

Most merchants' goods are estimated at Batavia by "picols" of 125 pounds; or according to Ricaud, 118½ pounds Amsterdam weight: and these picols are subdivided into 100 "cattis," each weighing 1¼ pound. Rice and other grain are measured by "coyangs," which differ in weight; but when received by the company at Java, they must weigh 3,500 pounds. They are shipped to Batavia for 3,400 pounds, and landed there for 3,300 pounds; for the out-factories, they are dispatched for 3,200 pounds; unloaded for 3,100 pounds, and delivered for consumption at the out-factories for 3,000 pounds: so that every coyang loses 500 pounds in weight. This deficiency is an allowance made to the company's servants who have the management of the rice. Sugar is taken by "canassers" of 3 picols, or 375 pounds neat; the gross weight being about 400 or 405 pounds. The "ganting" is a small rice measure of 13½ pounds. Every bag of coffee shipped from Batavia to Holland weighs 252, and a bale of cinnamon 80 pounds.

The bay and harbour of Batavia are excellently adapted to the commercial navigation that is carried on at this place. A circular range of fifteen islands protects the road from any heavy swell, and renders it a safe place of anchorage for ships; and it is large enough to contain all those that double the cape of Good Hope, as well as the Chinese junks and other trading vessels of the country. The names of the islands are, Onrust, de Kuiper, which are the innermost, and within sight of the city; Purmerend, Engels Onrust, Rotterdam, Schiedam, Middleburg, Amsterdam, Horn, Harlem, Edam, Enshuizen, Alkmaar, Leyden, and Vader Smit. The company make use of only four of these islands, viz. Onrust, de Kuiper or Cooper's isle, Purmerend, and Edam; which see. At the boom, which crosses the bay below the town, all vessels pay toll. The sea-breeze, which rises every morning at ten, serves to bring vessels within the bar, and a land-breeze at night carries them out. The observatory formerly erected at Batavia is now neglected; but the Society of Arts and Sciences, founded under the administration of the governor-general De Klerk, still subsists. The 1st volume of its Memoirs was printed at Batavia in 1779. S. lat. 6° 10'. E. long. 106° 51' 15". Stavorinus's Voyages, vol. i. and vol. iii. Staunton's Account of Lord Macartney's Embassy to China, vol. i. p. 235, &c. Mod. Un. Hist. vols. viii. and ix. See JAV.

BATAVIA, a settlement of America, in New York, at the head of Schoharie creek, about 39 miles from its mouth, and 38 south-west from Albany, and as far north-west of Esopus.

BATAVIA, a river of Asia, so called by the Dutch, situate in Carpentaria, on the coast of New Holland.

BATAVIAN REPUBLIC, an appellation given to the United Provinces, after the conquest of them by the French, the exclusion of the stadtholder, and the change of their form

of government. Towards the close of the year 1794, and the commencement of the following year, the French forces, favoured by the frost of winter, by the discontents that prevailed in the provinces, and the ineffectual support afforded to the Dutch by the British troops, took possession of their principal towns; and on the 27th of January 1795, the provisional representatives of the people of Holland assembled, and chose Pierre Paulus for their president. On this occasion, several decrees were immediately passed for the future regulation of the government, and for the deposition of the stadtholder from all his offices. Among these decrees were the following: viz. the sovereignty of the Dutch people, and the declaration of the rights of man:—the abolition of the stadtholdership; as also of the offices of admiral and captain-general of the United Provinces, with all their appendages:—the release of the citizens and inhabitants of Holland from their oaths to the old constitution:—the suppression of the college of the deputy council, and that of the chamber of accounts; and the establishment in their room of a committee of public safety, a committee of military affairs, and a committee of finance:—and the recall of the commission of the deputies to the assembly calling itself the States-general. It was also decreed, that the commissioners of the assembly of the provisional representation of Holland should immediately begin their sittings in the hall of the cédant States-general, in order to advance the general interests of the people. A treaty of peace and alliance was concluded between the French and Batavian republics, at the Hague, May 16, 1795; in which the French stipulated to restore immediately all the conquered places and countries that belonged to the seven United Provinces; the frontier towns of the generality, such as Maastricht, Venlo, Breda, Bergen-op-Zoom, with their territories, excepted. It was also stipulated that the French, as well as the Batavians, should enjoy, without paying any tolls, the free navigation of the Scheldt, the Rhine, and the Meuse, and all their branches as far as the sea; that the Batavians should pay to the French the expences of the war which the latter had been compelled to make against the former; that the French republic acknowledged the independence and sovereignty of the Batavian; that an alliance offensive and defensive should be established between both republics; and that neither the French nor Batavians should conclude peace, or make any other treaty, in which both parties did not participate.

In 1796, the national convention of the Batavian republic made some considerable alterations in matters relating to religion. It was determined, that all the inhabitants of the republic were free to exercise without molestation any mode of public worship whatever to which their opinions might lead them; that there should be no established religion in the republic; that the use of bells in convoking persons to public worship, should be prohibited; and that Jews should be allowed to become citizens of the republic, and empowered to purchase lands in the same manner as other citizens. On the 11th of January 1797, the new plan of the constitution was discussed; and it was decreed, that the Batavian people are one and indivisible; that the sovereignty appertains to the whole Batavian people; and that the Batavian people shall elect representatives to exercise its sovereignty. It was also resolved, that all citizens born and resident in the republic, and twenty-one years of age, should be invested with the right of voting; and also strangers, after having resided within the republic six years successively. It was also resolved, that the republic should be divided into eleven departments. Towards the close of the year 1797, the French directory issued their mandate for a revolution.

The execution of this mandate was intrusted with Charles Le Croix, and the plan of operations for accomplishing it was concerted with the Dutch general Daendels, who was an original mover, and principal agent in the revolution. Accordingly it was effected on the 22d of January 1798. This revolution gave birth to a new form of government in the Batavian republic, which was introduced and established by acts of violence. An assembly, formed by revolutionary despotism and military force, and assuming the name of the constituent assembly of the Batavian people, abolished those provincial divisions, and other administrations, that had been established under the convention; which was a constitution grounded on principles deemed more popular than those which formed the basis of that which was about to be presented when this revolution took place, and against which a formal protest had been previously made by forty members of the convention, when it was offered to the primary assemblies for their consideration. The people, wearied with continual agitations, and indeed incapable of effectual resistance, accepted this project formed on the model of the French constitution, as the best remedy against further convulsions; and thus Holland sunk for a while into the state of a dependent province, under the protection of Le Croix, the revolutionary delegate of the French directory. The principal articles that constituted the basis of this new government are the following: viz. —The abolition of the division into provinces:—Separation of church and state:—No corporation or society to have rules contrary to the laws of the state:—Exclusion from the right of voting of all the adherents of the Orange family:—The formation of a democratic representative government by means of a legislative body composed of two councils, and a provisional executive directory consisting of five members, having under it the agents of the executive power:—The formation of a new plan of finance, founded upon the relative means of the citizens:—The commissioners of the treasury are to be appointed by the executive power:—Those of the chamber of accounts by the legislative assembly:—The territory of the republic to be divided into a suitable number of departments; and accordingly, the nine provinces were divided into eight departments, the extent of which was measured by the population and the limits formed by the great rivers; these departments were again divided, each into ten circles; and each department was presumed to contain 235,000 inhabitants; and the general population of the republic was estimated at a million eight hundred and ninety-two thousand individuals:—A distinct division of three powers, the legislative, the executive, and the judiciary:—The right of individual petition to the citizens:—Revision of the constitution after the expiration of the fifth year:—The oath of hatred to the government of the stadtholder, federalism, aristocracy, and anarchy, to be taken by all the persons employed by the republic:—No power to have the right of interfering with the banks of circulation in the different towns of the republic:—Institutions for public instruction in arts and sciences:—And alliance with the French republic.

In the year 1801, a new constitution for the government of the Batavian republic, consisting of 108 articles, was introduced. This constitution abolishes the executive directory, and substitutes a state directory, consisting of twelve persons, one of whom goes out annually. The legislative body is to consist of 35 members. The territory of the republic is to be divided into eight departments, whose boundaries are to be the same with those of the old provinces. The allowance of the members of the legislative body is to be 4000 florins. They are to meet twice in the year, and

to sit from the 15th of April to the 1st of June, and from the 15th of October to the 15th of December. The government has the power of convoking them at pleasure. For further particulars, see *HOLLAND*, and *UNITED PROVINCES*. By the treaty of peace concluded at Amiens, March 27. 1802, the Batavian republic cedes and guarantees to his Britannic majesty, in full property and sovereignty, all the possessions and establishments in the island of Ceylon, which before the war belonged to the republic of the United Provinces, or to the Dutch East India company.

BATAVIENSIS, in *Entomology*, a species of *CRYPTOCEPHALUS*; the head, thorax, wing-cases, and legs of which are livid. Horn! Sch. Berl. Naturf. Inhabits Java.

BATAVODURUM, in *Ancient Geography*, a town of the Batavi, in the island called after their name. According to Tacitus, the Romans had a bridge in this place, and the post was defended by a Roman legion, when the Germans, who resorted to the succour of Cerealis, were desirous of penetrating into the island; and here they were repulsed after great slaughter, and at length obliged to throw themselves precipitately into the river. Some have supposed that this town was the same with the modern *Duerfede*; but others conjecture that it was not on the same side of the river.

BATAVORUM INSULA, the island of the Batavi, was formed by the Vahalís or Waal to the south, and a branch of the Rhine to the north. This last branch, and also the Vahalís, rejoin afterwards, and form the Mosa or Meuse. According to Tacitus, the Rhine was divided at its entrance into Batavia into two rivers: one of which retained its name, and pursued its course through Germany, till it discharged itself into the ocean; the other, washing the coast of Gaul, with a broader and more gentle stream, was called Vahalís, which on its joining the Mosa, assumed its name. From this account it seems that the island of the Batavians was bounded by the Ocean, the Rhine, and the Vahalís. Cæsar extends it to the Mosa; but Pliny's account coincides with that of Tacitus. It appears, however, that this island was of greater extent in the time of Tacitus than in that of Cæsar; as Drusus, the father of Germanicus, had by a new canal conveyed the waters of the Rhine into the ocean at a considerable distance to the north of the former mouth of that river. It is not certainly known who were the first inhabitants of this island. Some historians say, that they had been removed by the Cimbri and Teutones, when they invaded the Roman territories; and it is not improbable that the prospect of a more commodious establishment might induce them to abandon a country which was constantly exposed to the inundations of the water that encompassed it. The Batavi, when driven from their own country by the Catti, took possession of it, and became a very powerful people. A part of this country still bears the name of *Batarav*, formed from Batavi; and is probably the same with the ancient "*Insula Batavorum*." This name, however, is given only to the eastern part of the island, and is the same with that which has the river Leck to the north, and Vahal to the south, to the north of Nimeguen.

BATAVORUM Oppidum, *Batenbourg*, a town which seems to have been the *Batavodurum* of Ptolemy, but different from that of Tacitus. Ptolemy places it upon the Mosa, or Meuse; and the *Batavodurum* of Tacitus was more to the north upon the Rhine.

BATBERGEN, in *Geography*, a town of Germany, in the circle of Westphalia, and bishopric of Osnaburg.

BATCHAJOVE, a town of Asia, in Armenia, 90 miles south of Erivan.

BATCHELOR. See *BACHELOR*.

BATCHELOR's Buttons, in *Botany*. See *LYCHNIS*.

BATCHELOR's Pear. See *SOLANUM*.

BATCHELOR's River, in *Geography*. See *BACHELORS*.

BATCHURISCHKOI, a town of Russia, in the government of Archangel, on the east coast of the White Sea; 8 miles north of Archangel.

BATCOLE, or *BARKUL*, a sea-port on the coast of Malabar, in the peninsula of India, situate between Onore and Barcelore. The English had a factory here till 1670, when they were massacred by the natives. It was ceded to the British by the treaty of 1799. N. lat. 13° 58'. E. long. 74° 37'.

BATE, GEORGE, in *Biography*, born at Maid's Morton, in Buckinghamshire, in 1608, was sent to Oxford at the age of 14 years, where he soon distinguished himself by his diligence and application to study; and having made choice of medicine for his profession, he was admitted to practice as soon as he had taken his degree of bachelor in that line. In 1637 he was made doctor in medicine; and when Charles the First kept his court at Oxford, he was appointed his physician. Removing soon after to London, he was elected fellow of the college of physicians, and physician to the Charter-house; and conforming to the circumstances of the times, he soon obtained such favour with the ruling party in the state, that he was sent to Scotland, in 1651, in conjunction with Dr. Wright, to attend Oliver Cromwell, then confined there with an intermitting fever, and was appointed his first physician. This, however, did not prevent his being made physician to king Charles II. on his accession to the throne, and being elected fellow of the newly constituted Royal Society. These honours were procured him, Anthony Wood says, by a report industriously circulated by his friends, that he had hastened the death of the protector, by administering a deleterious medicine; a story, which, if believed, whatever reward it might otherwise have procured him, would never have placed him in a confidential post about the person of the sovereign. He died in 1668, and was buried in the chancel of All Saints church, at Kingston upon Thames, where a monument is erected to the memory of him and his wife, who died the year before. The only medical work in which he engaged, was in contributing a part towards a treatise "*De Rachitide*," published by Dr. Glisson in 1650. His prescriptions, collected by Shipton, an apothecary in London, were published some years after his death, under the title of "*Pharmacopœia Bateana*," and have passed through many editions. He published, in 1649, "*Elenchus motuum nupercorum in Anglia, simul ac juris regii et parliamentarii, brevis narratio*," 12mo. Paris. A second part of this work was printed at London, in 1661. In composing this, he was assisted by papers furnished by the chancellor Hyde. A third part appeared in 1676, written by Dr. Skinner. He is also said to be the author of the "*Royal Apology, &c.*" 1647. Biog. Brit.

BATE, in *Ancient Geography*, a village or canton of Greece, in Attica, belonging to the tribe of *Ægeides*, where resided Abro, the commentator of Callias, who wrote concerning feasts and sacrifices, and Amynomachus, to whom Euripus bequeathed his property. Steph. Byz.

BATS, or *Bait*, in *Geography*, one of the principal ports in a district of India, inhabited by a piratical tribe called Sangarians, on the south coast of the gulf of Cutch. The other port is *ARAMOY*.

BATEAH, a town of North America, in the province of Yucatan, 190 miles S.S.W. of Merida.

BATEAU, in *Navigation*, a particular kind of boat, very generally used upon the large rivers and lakes in Canada. Its bottom is perfectly flat, and each end very sharp and

and exactly similar. The sides are about four feet high; and for the convenience of the rowers, four or five benches are laid across, and sometimes more, according to the length of the bateau. It is a heavy and awkward vessel both for rowing and sailing; but it is preferred to a boat with a keel for two very obvious reasons: first, because it draws less water while it carries a larger burthen; and, secondly, because it is much safer in lakes or wide rivers, where storms are frequent. An oil-cloth awning may be thrown over the widest part of it, and supported by hoops similar to those of a waggon; and thus may be formed a very excellent cabin, which secures from the inclemency of the weather, and at the same time allows a view of the beauties of the scenery on each shore.

BATECUMBE, or **BADCOMBE**, **WILLIAM**, in *Biography*, an eminent mathematician, supposed by Pits (De Illust. Angl. Scriptor. An. 1420. n. 784.) to have flourished about the year 1420, in the reign of Henry V. He studied at Oxford, and made great proficiency in mathematics; which appears from his writings. It is not known where he died. He wrote "De Sphæræ concavæ fabrica et usu," "De Sphæra solida," "De Operatione Astrolabii," and "Conclusiones Sophiæ." Biog. Brit.

BATELEUR, in *Ornithology*, a name given by Snini and others to *FALCO ECAUDATUS* of Latham, &c.

BATELLO, **ST.** in *Geography*, a town of Italy, in the kingdom of Naples, and province of Calabria Ultra, three miles north of Reggio.

BATEMAN BAY, lies on the south side of point Upright, on the east coast of New Holland, in which are three or four small islands. The north point is in S. lat. 35° 35'.

BATEMAN'S Drops, in *Pharmacy*, are the anodyne balsam made with a weaker spirit, so that a larger dose can be taken; they are tinged with aniseed.

BATENBOURG, or **BATTENBURG**, in *Geography*, a town of the duchy of Gueldres, seated on the north side of the Meuse, nearly opposite to Ravestein. N. lat. 50° 55'. E. long. 5° 35'.

BATENI, in *Ancient Geography*, a people of Asia, placed by Pliny and Solinus towards the Oxus and Bactriana.

BATENITES, a sect of apostates from Mahometanism, dispersed over several parts of the East, who professed the same abominable principles with the Ismaelians and Karmatians. The word signifies Esoterics, or people of inward or hidden light or knowledge. Sale's Koran, p. 186.

BATENKETOS, in *Astronomy*, a star about the third magnitude, in the constellation of *CETUS*.

BATES, **WILLIAM**, in *Biography*, an eminent non-conformist divine, was born in 1625, and educated at Cambridge, where he took his degree of B. A. in 1647. He afterwards became a celebrated preacher among the presbyterians in London. Upon the restoration, he was appointed chaplain to Charles II.; and received a degree of doctor in divinity, by royal mandate from Cambridge. He was one of the commissioners at the Savoy conference for reviewing the liturgy, and one of the disputants on the side of the presbyterians against Dr. Pearson and other episcopals. He took the oath required of non-conformists by the five-mile act, and was concerned in several unavailing efforts for effecting a comprehension of the dissenters by certain alterations and concessions. Moderate in his temper, and accomplished as a scholar, he was a fit person to be employed for such purposes; and he was always treated with respect by the members of the establishment. He was also much regarded by king William, and queen Mary frequently perused

his writings. Dr. Bates, towards the close of his life, resided at Hackney, where he died in 1699. His works, consisting chiefly of sermons and discourses, were collected after his death, and published in one volume folio. Besides these, a posthumous volume appeared in 8vo, consisting of "Sermons on the everlasting Rest of the Saints." He likewise edited a volume of the lives of eminent persons, written in Latin, and entitled, "Vitæ selectorum aliquot Virorum, qui doctrinâ, dignitate, aut pietate inclaruere," Lond. 1681, 4to. The style of Dr. Bates has been commended for its elegance; and he appears to have read many books in polite literature, as well as in theology. Biog. Brit.

BATES, *Jeab*, Esq. late commissioner of customs, was born at Halifax, in Yorkshire, where he began his school education under the celebrated Dr. Ogden, with whom he remained till the doctor returned to reside at Cambridge. During this time he received the rudiments of music from Mr. Hartley, the organist of Rochdale. When Dr. Ogden quitted Halifax, Bates was removed to the school of Manchester, under Mr. Parnell; and it was there, as he has frequently told his friends, that the grand style of organ-playing, in which he so eminently excelled, was suggested to him by the performance of old Wainwright on the organ in the collegiate church. While he remained at Manchester, he had made such a proficiency in music as to be able frequently to officiate for his old master Hartley, when his avocations called him away from Rochdale.

Bates, on quitting that seminary, was removed to the foundation at Eton; but there his progress in music received a considerable check, and was in danger of being totally stopped; for it was contrary to the rules of that society for any of the boys on the foundation to be permitted the use of musical instruments. In this state of musical privation Bates remained some months, and had no other means of practising than by playing on imaginary keys on the table, which for a considerable time was his custom every day. At length, having by chance had an opportunity of touching the college organ, his talents for music were reported to Mr. George Graham, one of the assistant masters, who, having a harpsichord, invited him to his rooms; and finding what an extraordinary performer he was, obtained permission for him to pursue his musical studies, accommodated him with the use of his harpsichord, and procured him liberty to play on the college organ at his leisure hours.

When he went to Cambridge, the vacancies for King's college were so few, that he was in danger of being superannuated, and was actually entered at Christ's college, where, while he was a member, two of the university scholarships became vacant, and he declared himself a candidate. It proved on this occasion a fortunate circumstance, that he had not gone off to King's; for as Dr. Heath and Mr. Keate, both of King's college, and his seniors, were candidates, the custom of that college would not have permitted a junior to become a candidate. But though he was now a member of Christ's, that circumstance did not prevent his being a candidate for a university scholarship; the examination for which is considered as the most severe of any classical examination in the university of Cambridge. Some of the most distinguished under-graduates were at this time candidates; and after an examination of several days, Zouch of Trinity, and Bates, were elected.

This success established his literary character in the university as high as his musical had been before: and soon after, as the term of superannuation was expired, a vacancy happening at King's, he was admitted a scholar, and

in three years, fellow. The regularity of his conduct, during his scholarship, recommended him so much to provost Sumner, that he was appointed tutor to the college soon after his admission as fellow. While he was in this situation, among his private pupils he had not only students of his own college, but the present lord Bolton, and Mr. Coxe the traveller, both then scholars of King's, were his private pupils; as was the Hon. William Augustus Montagu of Trinity college, second son of the earl of Sandwich. This produced a connexion with that nobleman, which ended in his lordship's tempting him to resign his fellowship, and reside with him at the admiralty in the capacity of private secretary.

Few dilettanti musicians have ever acquired or deserved more fame for their knowledge in music, judgment, and experience in its effects, and abilities in conducting a complete orchestra and numerous band of fingers, than Mr. Bates, who, at the university of Cambridge, distinguished himself as a fine performer on the harpsichord, as well as a zealous votary of the works of Handel; and as long as he remained at college, he performed the part of a Coryphæus at all public and private concerts. It may perhaps not be thought unworthy of notice here, that at this time (about the middle of the last century), the university of Cambridge was in possession of four very extraordinary dilettanti musicians; Dr. Smith, master of Trinity college, for the theory of sound; the Rev. Thomas Twining, an admirable performer and leader on the violin, and an excellent judge of every species of music; the late worthy and ingenious Mr. Lobb of Peterhouse, the most correct and certain *Sight's* man on the harpsichord or organ with whose performance we have been acquainted; and Mr. Bates for his masterly performance on keyed instruments, and abilities in conducting a band. There being at this time no very able professor in the university, these gentlemen regulated and performed at all public and private concerts during their residence in college.

No one stood higher in character, or was more courted in society, while at Cambridge, by persons of all ages than Mr. Bates; in particular by the late Dr. Smith, the master of Trinity college, with whom he spent most of his evenings, and who, at his death, left him a legacy.

Before he quitted the university, an organ was built for the church of his native place, Halifax; and determining that it should be opened with eclat, he, for the first time that any oratorio had been performed north of Trent, attempted the *Messiah*. With the assistance of the Rev. Mr. Allott, of Kirkneaton, who had trained up the country people in his parish to sing choruses in a very superior style, and with the addition of Bates's own exertions, with the fingers of Halifax, the choruses were performed with a precision that astonished every one; and it was universally acknowledged, by the best judges, that the *Messiah* had never been so well performed. The first violin, on this occasion, was performed by the celebrated Dr. Herschel, the astronomer; and his profession being then music, he was immediately elected organist.

It was the success of this undertaking that inspired the late commissioner with the idea of rescuing the compositions of old masters from oblivion, by having them executed by a numerous and select band of vocal and instrumental performers; and after being settled in London as private secretary to lord Sandwich, he had an opportunity of communicating his plan to persons of the first distinction, and the establishment of the *Concert of Ancient Music* in Tottenham street was the consequence, being formed and executed entirely under Mr. Bates's direction: and as many of the works of Handel, which had not been performed for many years, and never so well as at this establishment, were revived, the

number of that truly great, and often sublime, composer's admirers was much increased.

His majesty, a constant and steady patron and protector of the works of Handel, soon after the establishment of this concert, graciously condescended to become a subscriber; and together with her majesty and the princesses, constantly to attend the several performances. The nobility and gentry, who were enrolled among the original subscribers to this respectable institution, have been likewise steady in their patronage and attendance. And it is now (1802) from the splendor and celebrity of its admirable performances, in higher public favour, than at any former period of its establishment.

After remaining some years with the earl of Sandwich at the admiralty, Mr. Bates was appointed commissioner of the victualling office; and soon after, he married his celebrated pupil, Miss Harrop, who had been educated under his eye from his first arrival in London; and whose seraphic voice, and disposition for music, he so highly cultivated, as to render her one of the most enchanting singers which this or perhaps any country ever produced.

The victualling office on Tower hill now became the resort of persons of the highest rank; and at his residence there, was planned that most stupendous musical performance, the COMMEMORATION OF HANDEL in Westminster abbey and the Pantheon, which was conducted by Mr. Bates in a manner never to be forgotten by those who had the happiness of being present. The great splendor and success of this COMMEMORATION will unite the name of commissioner Bates with the renown of HANDEL, as long as such a memorable event shall remain in the records of the musical art. And the performance of Mrs. Bates, particularly in the pathetic songs of Handel, has rendered it so difficult for her successor at the concert of ancient music, to satisfy the old subscribers in such songs as she used to perform there, that something will always seem wanting to complete their happiness.

Soon after the commemoration, Mr. Bates was promoted to a seat at the board of customs; but previously to his quitting the victualling office, having officially experienced the difficulties which the capital of the kingdom often labours under for want of flour, he projected the plan of the *Albion Mills*; on the success of which he was so sanguine, that he vested his whole fortune, and even that of his wife, in the capital stock of that company, to the amount of 10,000l. By the conflagration which happened to this building, he was completely ruined. His whole fortune was not only vested in the company, but his credit for a large part of the stock in hand, which was all consumed by the fire; so that he was totally bereaved of the means of making any provision for his family, and of guarding against the vicissitudes to which humanity is subject. He submitted to this event with dignity and fortitude; but the circumstance of having involved his wife in the ruin, and sacrificed her professional acquirements without her approbation, preyed so continually on his mind, as at length to produce a complaint in his chest, which finally proved fatal, and brought him to the grave, the 8th of June 1799, at the age of 59.

BATESON, THOMAS, an English Madrigalist of the beginning of the seventeenth century, not devoid of merit as a vocal composer. He was organist of the cathedral of Chester in 1600. Ant. Wood says, that he was a person esteemed very eminent in his profession, especially after the publication of his English madrigals to three, four, five, and six voices. About 1618, he became organist and master of the children of the cathedral church of the Blessed Trinity in Dublin; and in the university of that city, he obtained the degree of bachelor of music.

BAT-FOWLING, a method of catching birds in the night, by lighting some straw or torches near the place where they are at roost; for, upon beating them up, they fly to the flames, where being amazed they are easily caught in nets, or beat down with bushes fixed to the end of poles, &c.

BATGAN, or **B'HATGAN**, in *Geography*, a city of Hindostan, situate in the extensive plain of the kingdom of Nepal or Napaul, to the east of Lelit Pattan; and 10 miles south of Catmandu, the capital of Nepal. It contains about 12,000 families, extends towards the east to the distance of five or six days' journey, and borders upon another nation, also independent, called Ciratas, who profess no religion. In 1769, the king of Gorka took possession by force of the city of Batgan. See Father Giuseppe's account of the kingdom of Nepal in *Asiatic Researches*, vol. ii. p. 308. N. lat. 28°. E. long. 85° 12'.

BATH, a city of Somersetshire in England, is situated in N. lat. 51° 22' 30". W. long. 2° 21' 30", at the distance of 107 miles west from London, and 12 east of Bristol. This ancient and elegant city is singularly favoured by nature and art, whose joint co-operations have conspired to give it importance and celebrity. The beauty and peculiarity of its situation are perhaps unequalled by any town in England. Planted originally in the bottom of a deep and narrow valley, where its hot waters boil up, it continued for ages to be confined to the dimensions which the Romans had first marked out; and till within the last century, the ancient Roman walls (inclosing a space of about fifty acres) formed the boundaries of Bath. But the fashion and celebrity which it latterly obtained, induced many builders and speculators to extend the streets in all directions, by additional houses, which were instantly occupied upon completion. Built of the fine *oolite*, or granulated egg-like freestone, which forms the basis of the surrounding hills, the houses are remarkable for their exterior neatness and splendour; and being raised over the sides of the broad acclivity of Lansdown (which rises to the north) in irregular groups of streets, squares, parades, circuses, and crescents, they present to the eye an appearance equally singular, magnificent, and beautiful. Nothing, indeed, can be more picturesque than the views of this city from various stations on the surrounding eminences; where houses rise above houses in progressive order, and the more elevated seem to look down with proud superiority on the no less elegant and extensive structures below.

BATH, *Ancient History of*. Various names have been given to this city at different periods. Its British appellation was *Caer-Baddon*. In Latin, it was called *Aquæ Solis*, *Fontes Calidi*, *Achamannum*, *Thermæ*, *Badonia*, &c.; and in Saxon, *Æcemannes-ceapstæpe*, *Æcemannes-beþi*, *Leþæðun*, &c. Most of these names refer to its situation, and its springs or baths. The origin of this place as a settlement or town, is lost in the lapse of ages; and its early history is enveloped in legendary tales and monkish fables. The strange story of Bladud and his leprous pigs is discredited by all rational thinkers, though it formed a part of the creed of the Bath citizens till within the last fifty years. "But the present generation (observes Mr. Warner) are wiser and more prudent than their forefathers, and rather attentive to the value of the springs than their origin, have at length forgotten the antiquity of their discovery, in the agreeable contemplation of the large rents which they throw into the corporation chests."

That Bath was one of the principal, if not the most considerable, of the Roman stations in England, is satisfactorily proved by the many architectural and military antiquities which have been found within its precincts. It is probable that

if Bath was not originally built by the Romans, it was at least reduced under their power, and embellished by their arts, as early as the middle of the first century; when, in the reign of the emperor Claudius, according to Tacitus, about the year 44, the western and south-western parts of this island were completely subdued by Flavius Vespasian. Attracted by the medicinal and warm springs which they found here, and which afforded every means of indulging in that prime enjoyment of Roman luxury, the bath, the Roman soldiers fixed in this place one of their principal stations. "*Aquæ Solis*," the name by which they designated this delightful residence, was soon established as a colony; and of course became entitled to the privilege, which all the Roman colonies enjoyed, of minting its own money. It is to be conjectured also, that a military forge, or college of armourers, was erected here for the fabrication of legionary arms, under the authority of a Roman government. In the reign of Adrian, about A. D. 118, the first detachment of the second legion, which had been stationed here, was joined by a division of the sixth; and in that of Severus, a part of the twentieth legion, removed from Devana, or Chester, had its station in *Aquæ Solis*, which was then become the most capital city in Roman Britain, and the principal, if not the only, place in this part of the island, for preparing the legionary arms and ensigns. The form of the city then constructed, according to that usually affected by the Romans, approached to a parallelogram, swelling out on one side, so as to describe an outline somewhat pentagonal, and stretching in length, from east to west, about 400 yards, and 380 yards in the broadest part from north to south. The wall, which rose upon the outline of the settlement, appears, from subsequent discoveries, to have been twenty feet above ground in height, and in thickness sixteen feet at the base, and eight at the summit. It was strengthened with five towers, rising at the angles; and had four portæ, or entrances, facing the cardinal points, which were connected together by two grand streets, dividing the city into four parts, and intersecting each other at the centre.

The place thus fortified and strengthened for security, was next adorned with houses for the officers, temples, and those magnificent baths, the remains of which were discovered, in digging to a considerable depth, in the year 1755. These baths were seated near the centre of the city, betwixt the north and south gates, on the eastern side of the great fosse-road. The sudatories, tympanum, fluted columns, cornices, pilasters, and sculptured ornaments, found here, prove that the buildings were constructed from elegant designs, and of similar characters to some structures described by Pliny and Vitruvius. Many altars have also been found here bearing the inscriptions of *Deæ Sulini Minervæ*, *Deæ Sulinis*, &c. concerning which many conjectures have been adduced. Mr. Warner affirms the goddess Sulinis to be a local deity; Mr. Lysons asserts that the name is of Gothic origin; whilst Mr. Whitaker more appropriately and happily explains it to be the British characteristic appellation for Minerva as the tutelary goddess of medicine, deriving her influence immediately from the sun. This great dispenser of heat was denominated Sul in the Celtic language. The ancient baths occupied a space measuring 240 feet in length from east to west, and 120 feet at the broadest part from north to south. (These baths, and remaining fragments, have been particularly described and illustrated by governor Pownall and Mr. Warner, in publications expressly on the subject; and the fragments are represented and described by Mr. S. Lysons in a volume lately published.)

The Romans being established here, constructed four of their great military roads to communicate between this place

(*Aquæ*

(Aquæ Solis) and the stations of Durocorinium (Cirencester), Verulacio (Heddington), Ichalis (Ichester), and Abnæ (Aunbury). The conquering Romans having enjoyed the possession of Bath and England for nearly four centuries, at length left the whole island to the possession of the Britons, who were afterwards subjugated by the hardy Saxons. It was not till the year 577 that Aquæ Solis fell into the hands of these destroying conquerors, who, under the command of Ceaulin and Cutlwin, overcame Commail, Candidan, and Farinmail, the three British kings of Gloucester, Cirencester, and Bath, at a place called Dyrham, eight miles from the latter place, and took possession of their respective dominions. Bath now received the privileges of a Saxon burg; had its Gerefa or judiciary appointed to it, who presided in the monthly meeting of its citizens, called the burgemote or solemote; councils instituted for the regulation of the police, and administration of the laws within the burgh. Bath was afterwards taken by Offa, king of Mercia; and during the civil wars and Danish invasions which prevailed in the eighth century, it was torn to pieces and nearly exterminated as a town. During the brilliant reign of Athelstan, this place again rose to consequence; and a mint was established here by that monarch, who also gave several large donations of estates to Offa's abbey. King Edgar was crowned and inaugurated here, and testified his regard for the place by granting it several privileges. The inhabitants seem to have been fully sensible of the favours conferred on them by this monarch; and according to the statements of Leland they prayed for several centuries "in all their ceremonies, for the king's soule; and at Whitsuntide," he states, "there is a king elected every year of the townes men, in the joyful remembrance of king Edgar, and the privileges gyven to the town by him." During the Danish dominion in England, the mints of Bath continued to be worked, and several coins of Canute the Great, struck here, are still remaining in some select cabinets.

The Norman conquest had produced much general evil to the country; and Bath, with several other cities, experienced, in consequence of it, great deterioration. But this was partial and light, compared to the miseries which happened to it in Rufus's reign; when in the insurrection raised by Odo bishop of Bayeux, Geoffrey bishop of Constance, and Robert de Mowbray; the two latter took the place by assault, and, in the spirit of the times, delivered it over to plunder and burning.

Bath was indebted for its restoration to John de Villula; who purchased it of Rufus, in 1090, for 500 marks, and obtained permission to remove the pontifical seat from Wells hither. He rebuilt the city, erected a new monastery upon the ruins of the old one, and united the bishopric to this institution. Thus reinstated, Bath gradually increased its monastic possessions, in consequence of the munificence of monarchs and private persons; but the sweeping dissolution of Henry VIII. drove the monks from its monastery, when the abbey-house, with its lands, &c. was granted to private individuals.

The citizens of Bath returned members to the English parliament as early as the 26th of Edw. I. and writs were regularly sent them for the same purpose every time parliament was summoned to meet. But as these privileges were attended with heavy charges on the burgesses, who generally paid the expences of their members, the city was not represented during the 1st and 2d years of Edward II. It now sends two members, who are elected by the body corporate, consisting of thirty-one persons. The government of Bath was originally vested in a sheriff: and the first that appears to have borne this office was Ælfred, who

is said to have been a great benefactor to the city, and died A. D. 907. It had afterwards a provost or bailiff. Its first charters were confirmed by king Edward III., Richard II., Henry V., and Henry VI. Queen Elizabeth, in the 32d year of her reign, granted the city a new charter, declaring it to be a sole city of itself, and the citizens to be a body corporate and politic, by the name of mayor, aldermen, and citizens of the city of Bath. This charter was renewed in 1794, when two additional franchises were granted the citizens; and under that charter the corporation derive their authority, power, and rights.

The commerce of this city, abstracted from the expenditures of fashionable company, is inconsiderable, nor is there any manufactory deserving particular notice. Bath was formerly distinguished for its clothing trade; and at the time of the restoration, it is said, there were no less than sixty broad-cloth looms used in the parish of St. Michael.

The river Avon, which winds round the southern part of this city, was made navigable by an act of parliament in the 10th of queen Anne; and the first barge, laden with deals, pig-lead, and meal, was brought here December 15th 1727.

In the early part of the civil wars, this city was garrisoned for Charles I. and the sum of 7000*l.* is said to have been expended on its fortifications; notwithstanding which, it quickly surrendered to the enemy, and was made one of the principal posts for the parliament's forces. Sir William Waller lay here for a considerable time with his whole army, making sallies into the country, and inviting together all the disaffected from the neighbouring clothing towns and villages. But after the battle of Roundway-down, July 13, 1643, in which Waller was defeated, and the withdrawal of the garrison for the reinforcement of Bristol, the king's troops took possession of the city.

Having stated a few particulars relating to the early history of Bath, we proceed to a brief description of its principal public structures, and other prominent objects which characterise this fashionable place.

The Public Baths are four in number, besides two private baths. These are all constructed with particular attention to the convenience and accommodation of invalid bathers; and the laws and regulations are very equitable and fair. (For an analysis of the hot waters of Bath, and an account of their medicinal powers, vide Dr. Gibbs's Treatise on the Bath Waters.)

The King's Bath is supposed to be so denominated from some of the Saxon kings having made this city their residence. It is situated to the west of the abbey church, and forms a parallelogram, 65 feet 10 inches in length, and 40 feet 10 inches in breadth; the bottom of which is 12 feet below the surface of the ground. The spring or main source is from the centre, which is covered with a large leaden reservoir, to restrain its rapid motion, and to disperse the water more equally, both for bathing and drinking. There are also two commodious rooms with pipes, fire-places, and other conveniences for the bathers. This bath fills in nine hours.

The Queen's Bath, which receives its waters from the former, forms a square of about 25 feet in diameter. The Cross Bath forms a handsome termination to Bath-street, and is a very elegant building, constructed after a plan of Mr. Baldwin's; its shape is triangular. The Hot Bath is erected to the south-west of the latter, and is so called from the superior heat of its water; this also forms a parallelogram, and is perfectly convenient with respect to an open bath, private baths, dry pump, and dressing rooms. Certain regulations are prescribed respecting these baths and the persons belonging to them; as well as particular fees for every process of bathing, pumping, &c. Adjoining to the king's bath,

in Stall-street, are some new private baths, which were erected by Mr. Baldwin in 1788. These baths belong to the corporation. There are also the private baths, called the duke of Kingston's, or the abbey baths, belonging to lord Newark, and in the occupation of Mr. Sloper. See *BATH Water*.

BATH, Public Buildings. The Guildhall is a very handsome structure, built after a design of Mr. Baldwin, and contains a number of useful and convenient rooms for public business. In the common-council room, one of the most elegant of the kind in England, are portraits of the king and queen, the late prince and princess of Wales, and the late earls Chatham and Camden. The Pump-room was constructed, by the same architect, in the year 1796: its length is 85 feet, including the recesses at the ends; in breadth 46 feet, and 34 feet in height. The inside is set round with Corinthian three-quarter columns; and lighted by a range of large windows below, and of lesser ones above. Here is a marble statue of Richard Nash, Esq. the arbiter elegantiarum of Bath; a gentleman to whom this city is principally indebted for its fashionable celebrity. The pump is held under a beneficial lease from the corporation for three years, the rent being 800 guineas, exclusive of taxes; which, however, is sufficiently low to enable the lessee to lay up 1200*l.* or 1500*l.* during the term. Most of the elegance of street-building in Bath is owing to the late Mr. Wood; who commenced his operations with spirit, and conducted them with taste. To him the city is indebted for Queen-square; the northern side of which presents a chaste and neat range of structures, decorated with all the ornaments of the Corinthian order.

The Circus is of his designing; here the houses partake of the three orders, Doric, Ionic, and Corinthian, highly ornamented. To the grandeur of his designs, the North and South Parades bear ample testimony; as do several streets stretching to the northward of the old city, which strongly mark his judgment and execution. Subsequent architects have followed Mr. Wood's example, and hence arises a profusion of new squares, crescents, parades, and streets; thus increasing Bath to six times its original size; and the beauty of the city is equal to its extent.

The new assembly rooms are the most elegant of the kind in Europe; these were built by Mr. John Wood in 1771, at an expence of 20,000*l.* The ball-room is 105 feet 8 inches long, 42 feet 8 inches wide, and 42 feet 6 inches high; the other parts of the building are composed of the octagon room, the tea-room, and the card-room, all of equal beauty. The regulations to preserve order and decorum in these rooms are simple and satisfactory. The lower rooms, near the north parade, have a convenient suite of apartments appropriated to the elegance of the place; and here are to be seen the original regulations by Mr. Nash, which he wrote for the purpose of reducing politeness and urbanity to a system. A neat small theatre was erected in Orchard-street by the late John Palmer, esq. who obtained a patent for dramatic entertainments in 1768; and here plays are performed on Tuesdays, Thursdays, and Saturdays. Sydney gardens are laid out in a very pleasant and elegant style, for the purpose of evening promenades: where galas and public music and singing are given similar to the entertainments at Vauxhall gardens of London.

Hospitals, &c. Buildings and institutions of this nature form a striking feature of Bath; and no place in the realm, according to its size, exhibits so many foundations for the extirpation of disease and wretchedness, for the support of the poor, and the instruction of the ignorant. The general hospital, from

the munificence of its plan, is an institution open for all the sick poor in the united kingdom, who labour under diseases to which the hot waters of Bath particularly apply, with an exception to those persons inhabiting the city, who have the waters at their own houses for a small expence. Mr. Nash had the honour of suggesting the idea for its foundation, in 1715, and the first stone was laid in 1738. St. John's hospital, originally founded by Reginald Fitz Joselin in 1180, and the chapel attached to it, stand near the cross bath, and were built in 1728, upon the site of an old structure for the accommodation of six infirm men and women. St. Catharine's hospital, called also the Black alms and Bimberies, is another asylum for ten poor persons. Bellot's hospital entertains twelve poor men and women, who have each an apartment, the liberty of bathing, and a small weekly allowance. The Bath city Dispensary and Asylum, is equally open to the inhabitants and strangers in cases of physical and surgical emergency; and is a most excellent institution. The Casualty hospital is appropriated to paupers who have been injured by accidents. The Puerperal, or child-bed charity, is another benevolent institution, whose objects are explained by its name.

Bath has, besides these establishments, a public grammar school, charity and Sunday schools, with many humane and scientific societies. The principal of these are, the strangers' friend society, and the Bath and west of England society. The first is established and conducted on the most benevolent principles of universal philanthropy; and the only recommendation for relief, is a sufficient proof of evident distress. The second was established by Mr. Edmund Rack in 1777, for the encouragement of agriculture, arts, manufactures, and commerce; and from the judicious management of its founder, and late secretary Mr. W. Matthews, it has acquired some celebrity, and proved of extensive utility. The philosophical society was established in the year 1799, by some respectable literary characters at Bath, upon a plan somewhat similar to that at Manchester, for the promotion of science and the diffusion of knowledge.

Parishes. Bath is divided into the parishes of St. Peter and St. Paul, St. James, St. Michael, and Walcot. Bathwick, though connected by Pulteney bridge, and consisting of a great number of handsome houses, is out of the jurisdiction of the city. Each of these parishes has its church; and in that of Walcot are several chapels of ease. Of these the principal is the Abbey Church, which presents a noble specimen of English architecture. It is built in the form of a cross, from the centre of which rises a tower 162 feet high, ornamented with beautiful light perforated battlements. The length of the body from east to west, is 210 feet; from north to south, 126; and the breadth of the body and side aisles, 72 feet. The grand entrance at the west is through a noble arched doorway; and the chaste uniformity, proportion, and harmony in the structure of the interior of this stately building, powerfully arrests the attention of the beholder. The west window is of extreme richness, and the whole of this front displays a representation of allegorical carving, not usually met with. The roof, consisting of two parts, the nave and the choir, is equally remarkable; the ribs which compose its tracery being the only solid work, the intermediate spaces having been originally left open, and afterwards filled up with lath and plaster. The windows are all large, of admirable and nearly uniform construction; this has occasioned the church to be called "The Lantern of England." A profusion of marble monuments ornament, or rather crowd up, the inside; among which may be noticed those of bishop Montague, Quin, beau Nash, lady Miller, and sir William

William Draper. The vestry contains a small library, founded by bishop Lake. Oliver King, bishop of Bath and Wells, in the time of Henry VII. undertook this building which we have described; but by a neglect of his four successors, cardinals Adrian and Wolley, and bishops Clark and Knight, the undertaking was so dilapidated, that at the dissolution it was proffered to the citizens for 500 marks. They refusing the purchase, under an idea of offending the king, the glass, iron, bells, and lead were stripped from it, and sold at a foreign market. Thus it continued in a ruinous state till the reign of queen Elizabeth, when subscriptions were set on foot to restore it; and Thomas Bellot Esq. steward of her household, repaired the choir for divine service; bishop Montague, in the next reign, at the expence of 1000l. completely restored the whole to its former state; and with the assistance of several munificent noblemen and gentlemen, the abbey of Bath became again a consecrated temple to divine worship and a grand ornament to the city.

St. James's church was erected in 1768, and is a free-stone structure, with a square tower rising at the west end, containing eight musical bells. St. Michael's church was begun in 1734, and is injudiciously situated in the middle of a street. Walcot church, dedicated to St. Swithin, is a neat modern structure, rebuilt in 1780. In this parish are four chapels of ease, and a church for the use of the poor: of these, Christ's church was built by voluntary subscription for the use above mentioned; and the whole area is therefore appropriated solely to accommodate the poorer class of inhabitants. There are also in Bath other chapels and meeting-houses for divine service: the Octagon and Laura chapels are of the established religion. The Unitarians, Quakers, Baptists, Methodists, Moravians, and Roman Catholics have each a place for divine worship.

Bath is furnished with 438 lodging-houses, and 19 boarding-houses, where individuals and families are accommodated with every domestic convenience during the winter, which is the fashionable season. The shops of Bath are particularly splendid, and its libraries are numerous and respectable.

Civil Government. The judicial business of the city is transacted in the guild-hall, where quarter-sessions, a court of record, and a court of requests are held. The corporation consists of a mayor, ten aldermen, two sheriffs, and eighteen common-council men, besides town clerk, constables, &c. The principal markets are kept on Mondays and Saturdays.

For further particulars concerning the history and description of this city and its environs, see Warner's History of Bath, 4to. and the Bath Guides published at this place.

BATH Water. Bath has been long celebrated for its thermal waters. There are three principal sources of the water; called the King's bath, the Cross bath, and the Hot bath. The supply of water is abundant and invariable. The temperature of the hottest of these is uniformly 116°, when fresh drawn, and of the coldest 112°; and no variety of season appears in any degree to influence this temperature. By some accurate observations that were made on the heat of Bath and Bristol water, by Mr. Canton, it appears, that a Fahrenheit's thermometer held in the stream from the common pump of the king's bath after pumping about a quarter of an hour, was raised to 112°. The stream from the common pump of the hot bath raised it to 114½°. At the pump of the cross bath it stood at 110°; the heat of the shaded air at noon being 66°, and of common water exposed to it 61°. And Bristol water raised the thermometer to 76°, whilst in common water exposed to the shaded air it stood at 62°. Phil. Transf. vol. lvii. N° 22.

The analysis of Bath water has been the cause of much controversy among chemists, but it seems now to be well understood. To the taste it is neither brisk, nor acid, nor alkaline, nor saline, nor sulphureous, but simply hot and chalybeate; and it is truly remarkable that the chalybeate taste is entirely lost as soon as the water cools, before any sensible precipitation of the iron takes place. The actual quantity of the iron is so minute as never to have been estimated with any accuracy: probably a quarter of a grain in a gallon is an ample allowance, a quantity so small as only to be perceptible to the taste when fresh drawn and hot. Bath water contains no other ingredients of any importance. It is hard, and holds some calcareous earth in solution, and (as Dr. Gibbs has discovered) a portion of silicx. It is perfectly free from sulphur. A considerable quantity of azotic gas rises from the earth along with the water, and a certain portion is held by it in solution or rather weak affinity. Of carbonic acid it only contains about $\frac{1}{100}$ of its bulk.

The diseases for which the Bath water has been recommended are very numerous. It has long enjoyed a high celebrity in the cure or relief of gout, chiefly of the atonic kind; of rheumatism; paralysis, especially that partial palsy of the limbs induced by rheumatism; and diseases of the urinary organs. When drank fresh from the spring (the only time when it possesses any peculiar virtues), it sometimes raises the pulse, causes the face to flush, and heats the body very considerably; and hence there are many invalids who cannot bear its operation, or who must be gradually accustomed to it. This heating effect, however, is by no means constant or universal. It often produces a costive state of body, and generally keeps the skin pervious and easily perspirable. Its use as a hot, warm, or tepid bath, is such as extensive and probably important as when taken internally. It has been thought by many that the practice of drinking our Bath waters in Somersetshire is not very ancient, and that their ancient use was in bathing; but Dr. Friend endeavours to shew the internal use of those waters to have been very early. Dr. Guidot, in whose time this usage revived, and who has given us an historical narrative of these waters, goes no higher for their internal use than the latter end of the sixteenth century. But they appear to have been in use in the thirteenth century. Gilbert, surnamed Anglious, who, according to Bayle, lived in 1210, in the reign of king John, or more probably in that of Edward I. mentions a person cured of a leucoplegma attended with a swelling, &c. by the sulphureous baths: which Dr. Friend understands of the Bath waters; and that the cure was wrought by drinking, not bathing, which had been improper in such a case.

Dr. Mulgrave makes it probable, that they were resorted to in the time of Geta; there being still the remains of a statue erected to that general, in gratitude for some benefactions which he had conferred on the place. Some pretend that these waters were in use 800 years before Christ. Phil. Transf. N° 49. 346.

The two stated seasons for drinking the Bath waters are spring and fall, though they may be used whenever they are found necessary.

BATH, in *Geography*, a river of Africa, in the kingdom of Fez, which rises in mount Atlas; and joining the Suba or Sebu, flows into the ocean north of Mahmore.

BATH, a country of Virginia, in North America, about 60 miles long and 50 broad, bounded on the east by the country of Augusta; and noted for its medicinal springs, which are hot and cold, near the foot of Jackson's mountain.

BATH, a township of Lincoln county, in the district of Maine, in America, containing 949 inhabitants. It lies on

the west side of Kennebeck river, about 13 miles from Wiscasset, 60 N. E. from Portland, 32 from Hallowell, and 165 N. E. from Boston. N. lat. $43^{\circ} 49'$.

BATH, a thriving town, in Berkley county, in Virginia, seated at the foot of the warm-spring mountain. The springs in the vicinity of this town, though less efficacious than the warm springs in Bath county, draw upwards of 1000 people here, during summer, from various parts of the United States. The country in the environs is agreeably diversified with hills and valleys; the soil rich and well cultivated; 269 miles S. W. from Philadelphia.

BATH, a township of America, in Grafton county, New Hampshire, containing 493 inhabitants; and lying on the east bank of Connecticut river; 35 miles N. E. by N. from Dartmouth college, and 97 N. W. from Portsmouth.

BATH, or *Port Bath*, an ancient town in Hyde county, North Carolina, on the north side of Tar river, about 24 miles from Pamlico sound, 61 S. by W. from Edenton, and in the port of entry on Tar river. It contains about 12 houses, and is declining. N. lat. $35^{\circ} 31'$. W. long. $77^{\circ} 15'$.

BATH, a village in the county of Rensselaer, New York, pleasantly seated on the east bank of Hudson river, nearly opposite to the river of Albany, at the head of Sloop navigation. A mineral spring has been discovered in this place, and a commodious bathing-house has been erected, at a considerable expence, containing hot, cold, and shower-baths.

BATH, a thriving post-town in Steuben county, New York, containing about 50 houses, situate on the north bank of Conhocton creek, a northern head-water of Tioga river, 42 miles S. E. from Williamsburg, 120 from Niagara, and 221 west from Hudson city. N. lat. $42^{\circ} 15'$. W. long. $77^{\circ} 10'$.

BATH, a village in the eastern parish of St. Thomas, in the island of Jamaica. It owes its rise and name to a hot spring near it, which is said to be very efficacious in the cure of the dry belly-ache. The sulphureous water flows from a rocky mountain about a mile distant, and is so hot that the hand cannot be held in it.

BATH, *BALNEUM*, a convenient receptacle of water for persons to wash or plunge in, either for health or pleasure. Baths are either natural or artificial. Natural, again, are either hot or cold.

BATHS, *Natural*, hot and cold. See *Mineral Waters*.

BATHS, *Artificial or Medicated*. The very accurate imitations of most of the mineral waters for the purpose of drinking which are now met with, have induced some ingenious artists to extend the imitation to larger quantities of water sufficient for the purpose of bathing. The method of performing each will be explained under the article of *WATERS, Mineral*.

Of artificial baths some are aqueous, others vaporous, others dry, &c.

BATHS, *Aqueous*, are those prepared from common plants and other substances of emollient, resolvent, and nervous kinds. *Aqueous Baths* sometimes consist of milk and emollient herbs, with rose-water, &c. when the design is to humectate; at other times of bran and water, when the design is only to cleanse: sometimes again they are made of a decoction of roots and plants, with an addition of spirit of wine, when a person bathes for a great pain or tumor, &c.

In *Vapour Baths*, the fume or steam of some decoction is received upon the body to promote a perspiration. These are also by some called *Balnea Laconica*.

Vapour Baths are, when the patient is not plunged into what is prepared for the bath, but only receives its steam

upon those parts of his body which require it: as in some distempers of the fundament and womb, where the patient sits and receives the fumes of some proper fomentation, &c. Mr. James Playfair has published "A Method of constructing Vapour Baths," so as to render them of small expence, and of commodious use in private families. The principles on which this method is founded are, that in the vapour bath the water being applied, not in the state of steam, but of solution in air, a much less quantity of the heated fluid than that usually applied will suffice, provided the heat of the inclosed air can be maintained in a sufficient degree; and that dense substances, especially metallic ones, being the greatest conductors of heat, are to be avoided in the construction of the vessel containing the vapours, and the lightest and most non-conducting materials used instead of them. The whole apparatus for the vapour-bath is, therefore, reduced to a tin boiler, tin pipes wrapped in flannel, and a deal box, with a cotton cover, for the reception of the body and circulation of the vapour.

To these may be added the bagnio, where people are made to sweat by the heat of a room, and pouring on of hot water; after which they generally go into a hot bath, or bagnio. See *BATHING*.

BATHS, *Dry*, are these made of ashes, salt, sand, shreds of leather, and the like.

The ancients had divers ways of sweating by a dry heat; as by the means of a hot sand, stove rooms, or artificial bagnios, and certain natural hot steams of the earth, received under a proper arch, or hot-house, as we learn from Celsus. They had also another kind of bath by insolation, where the body was exposed to the sun for some time, in order to draw forth the superfluous moisture from the inward parts: and to this day it is a practice in some nations to cover the body over with horse dung, especially in chronic diseases, to digest and breathe out the humour that causes the distemper. In New England, they make a kind of stoves of turf, wherein the sick are shut up to bathe or sweat. Phil. Trans. N^o 384. p. 130. The same name is sometimes also given to another kind of baths, made of kindled coals, or burning spirit of wine; the patient being placed in a convenient close chair for the reception of the fume, which rises and provokes sweat in a plentiful manner: care is here taken to keep the head out, and to secure respiration.

This bath has been found very effectual in removing old obstinate pains in the limbs, and venereal complaints; and, it is said, will often complete a cure, left unperformed by salivation.

BATHS, *Metalline*, those made of water impregnated with the *scoria* of metals. The most common and useful of this kind are those prepared with the *scoria* of iron, which abound with the earthy, saline, and sulphureous substance of the metal; and these are of excellent service for strengthening and bracing up the part to which they are applied, and recovering weak and decayed limbs; stopping various kinds of bleeding; and restoring the menstrual and hæmorrhoidal flux, where obstructed; inasmuch that they may well be substituted for the natural iron baths.

Adjacent to the smelting huts where metals are run from their ore, are to be found large quantities of the slag of copper, antimony, and cobalt, which, abounding with sulphur, vitriolic salt, and an earthy principle, make serviceable baths for strengthening the lost tone of the fibres, and relaxing them when they are too stiff. These baths have likewise a deterfive and cleansing virtue; so that, with prudence and due regard to circumstances, they may be used on many occasions. The way of making these artificial baths is, either to take the slags as they come hot from the furnace,

nace, or else to heat them afresh, and throw them into hot water: which is afterwards to be used, either in the way of bath or fomentation occasionally. There are other artificial baths, prepared of alum and quicklime by boiling them together in fine rain-water. Such baths are highly serviceable in paralytic disorders and weakness of the limbs.

The *pepper bath*, or *peffer wasser* on the Alps, is one of the most celebrated in Europe, and has been the subject of particular treatises, besides what has been said of it occasionally by Scheuchzer and others. It was first discovered in the year 1240, and is of the periodical kind. The water breaks forth in a dreadful place, scarce accessible to the sun-beams, or indeed to men, unless of the greatest boldness, and such as are not in the least subject to dizziness. These baths have this singularity above all others, that they commonly break forth in May, and that with a sort of impetuosity, bringing with them beech leaves, crabs, or other wood-fruit; and that their course desists in September or October.

Scheuchzer professes himself of opinion, that these waters are not impregnated with any minerals; or, if they do contain any, that their virtues in curing distempers and preserving health, do not proceed from them. They are exceedingly clear, destitute of colour, taste, or smell. Phil. Trans. N^o 316. p. 151.

BATH, BALNEUM, in *Chemistry*. In many chemical processes it is of the utmost importance both for the security of the vessels, and the success of the operation, that the application of the necessary heat should be gradual and regulated. This is particularly the case in moist distillations, and in digestions at a moderate temperature, and wherever glass vessels are employed. Hence the contrivance of baths or intermedes between the burning fuel and the vessel containing the subject of the process, in which the vessels are immersed, and whereby they receive the heat in a regular gradual manner. As fluids heat with more uniformity than solids, they are preferable where only a heat a little inferior to the boiling point of the fluid is required; and they possess this important advantage, that the heat is so kept down by evaporation, that it can never rise beyond the known and given point of boiling. But where as much even as a low red heat is required, no fluid can be employed with any convenience, and recourse must be had to some incombustible solid reduced to powder. A great variety of baths were invented by the elder chemists, especially those who were engaged in alchemical pursuits, which were supposed to require long digestions in a very accurately regulated heat; but most of these are now laid aside, and only the following kind of baths are retained.

The *water Bath*, *Balneum Aquæ*, is of great use in the distillation of essential oils, of the aromatic part of vegetables, of the finer kinds of ardent spirits, in evaporating into dryness the solutions of vegetables employed in medicine whose virtue would be lost by any excess of heat, and in many other processes. The apparatus for this bath forms part of the improved ALEMBIC (which see, in *Plate III. fig. 13. A. of Chemistry*); but any vessel full of water, capable of being heated to boiling, and of containing a retort or other vessel, may be used as a water bath. As the utmost heat which any substance immersed in a boiling liquid can acquire thereby, falls short by a few degrees of the temperature of the liquid itself, the heat of a water bath cannot amount to 212°. This is considerably increased, however, by using a strong solution of sea-salt, or any other salt, instead of water; as the boiling point of saturated brine is much higher than that of mere water. This forms the ancient *Balneum Mariæ*, *Bath of Mary* (the *Virgin*, as some

have interpreted the term); but others with more plausibility write *Balneum Maris*, *sea-water*, or *brine-bath*.

Mercury, the fusible alloy of bismuth tin and lead, tin alone, and other metals, have been proposed for the purpose of baths, and now and then used, when a higher heat than the salt-water bath was required; but the metals are cumbersome by their weight, and expensive, mercury is dangerous to the by-stander from its evaporation, and they all have the inconvenience of requiring more pressure to be used than the mere weight of the substance which they are to heat, to enable it to be immersed in the melted metal.

Balneum Siccum. This whimsical term has been applied to the *vapour bath*, in which the vessel to be heated is enclosed in a kind of case filled only with the steam of boiling water. It is almost if not quite out of use for chemical purposes, but it forms a valuable implement for the kitchen.

Balneum Arenæ, *Sand bath*, of all kinds of chemical baths is that which is used the most extensively. In experimental furnaces, or smaller chemical operations, the vessel to contain the sand is of cast iron, very much in the form of an inverted round hat, of which the hollow part is supported by the projecting rim upon the sides of the furnace, and hangs down over the burning fuel, the flame of which plays round it and gradually heats the sand which it contains, together with every vessel buried therein. The sand should be of middling fineness, the finest as well as the very coarsest being separated by sifting; for by this means the heat is more gradually distributed. Those distillations, which at any part of the process require as much as a low red heat, are usually performed in sand baths, even in manufactures in the great way, as of aqua fortis. Sand, when thoroughly heated, continues hot for a very considerable length of time.

Bath is also used in another sense, to signify the fusion of metallic matters in certain operations: thus, in refining or cupelling, the metals are said to be *in bath* when they are melted.

BATHS, the name proper to such public or private edifices as are used for bathing.

The practice of bathing is found among all the nations of antiquity. The people of the East were ever accustomed to it, and have continued the habit to the present time; their methods being perfectly conformable to those of the Greeks and Romans. If we may credit Homer, Moschus, and Theocritus, the first ages of Greece knew no other baths than the rivers; and it was in them that the princesses Nausicaæ, Europe, and Helen bathed. Homer (say the French Encyclopedists) indicates, that in his time private baths of a regular form were in use. Telemachus and Pisistratus, they observe, were conducted to baths of uncommon neatness: the most beautiful slaves in the palace bathed them, perfumed them, and adorned them with the handsomest garments. But all this is an assumption which the text of their author by no means warrants. The passage alluded to is in the *Odyssey*, Book xv. l. 135.

Ξερύβασι δ' ἀμφιπόλοιο προχόρ' ἐπέχευσε Φειβασα
Καλλὴν χερσίν, ὑπὲρ ἀργυρέοιο λίβητος
Νίψασθαι.

And the lines which follow plainly show, it was nothing more than a common ablution previous to an entertainment. The *Λιβήτις* was a kind of vase occasionally placed upon a tripod.

The Romans, who for a long time bathed in the Tyber, borrowed the idea of artificial baths from the Greeks; their various habits of life and dress rendered such accommodations necessary; and, to make short of our relation, all the most splendid and fascinating luxuries of the emperors were

multiplied and brought together in the vast buildings of the *thermae*.

The *thermae*, those prodigious monuments of Roman magnificence, were formed in imitation of the Greek gymnasia. In both were assembled all the institutions favourable to health, all the exercises of the body, all that could give relaxation to the mind, or afford amusement to the people. Although the name of *thermae*, given by the Romans to these edifices, signifies a place destined to the use of warm-baths, yet the diversity of uses to which they were applied will not suffer us to comprise the whole in a single article. All that concerns the immediate use of the baths will be found here; but for other details, we shall refer to *THERMÆ*.

The most complete and beautiful baths were composed of six principal apartments.

The first was called the *apodyterium*, where the frequenters of the bath undressed; it was furnished with tables to receive the garments of the bathers, and guards named *capsarii* to take care of them. This room was also called by the Romans the *spoliatorium*. All the baths were not furnished with an apodyterium. Lucian says, that in those which were without it, the *frigidarium* was used for the same purpose. The apodyterium is found neither in the gymnasium of Vitruvius, nor in the palæstra described by Lucian. It is very probable, there was no such apartment in the Greek gymnasia, and that the frigidarium supplied its place. Pliny is the only author who mentions it, when describing the baths of his country-house.

The second apartment was the cold-bath; named *Λουτρον* by the Greeks, and *frigidarium* by the Romans. This room was usually exposed to the north, and served, as we have just related, the purpose of an apodyterium to such baths as were without one; of course it was then the first apartment. The marquis Galiani imagined that the frigidarium and tepidarium were the same; but ancient paintings prove the contrary.

The third room was the *tepidarium*. Its principal use was, by the temperate air it contained, to prevent any bad effects that might be occasioned by passing too suddenly from the warm to the cold apartment. In the paintings of the baths of Titus, this apartment is found between the frigidarium and the *concamerata sudatio*. The tepidarium, according to historians, joined the frigidarium to the warm bath; and it is for that reason that Pliny calls it *cella media*, the middle room. Galen gives it the same name, and imagines it acquired this appellation not only on account of its situation in the centre, but from its temperature; for, says he, this chamber was as many degrees colder than the third or warm bath, as it was warmer than the first or frigidarium. The frigidarium and tepidarium, however, were more frequented for the benefit of the air than of their water.

The fourth chamber was that which contained the stove; and was called *laconicum*, from the name of the oven which warmed it. According to Galen it inclosed a dry heat; and he advises persons of a warm temperature not to enter it, but rather to use the warm bath, where the water absorbed by the pores would hinder the heat from being attended by any bad consequences. The laconicum also had its name, as having been originally derived from Laconia. Martial says to one of his friends (lib. 6. ep. 42.):

Ritus si tibi placeant tibi laconum,

Contentus potes arido vapore

Cruda virgine Martiâque mergi.

Dion informs us, that they who perspired in the laconicum anointed themselves with oil, and then entered the cold bath; nevertheless in its origin the laconicum was only used by old

men and valetudinarians. This room, agreeably to Vitruvius, as well as to the ancient paintings of the baths of Titus, joined the tepidarium, and communicated to it a more temperate heat. A sort of furnace was usually suspended at one corner of the room, of a circular form, terminating in a small cupola, open at the top; which, as Vitruvius says, served to regulate the degree of heat which the bathers wished to give the room. It seems beyond a doubt that the *laconicum* itself was nothing more than a kind of furnace; and the mistake it has occasioned owe their rise to the room in which it was placed having taken its name from it. In the paintings of Titus's baths, it is called the *concamerata sudatio*; but Vitruvius furnishes us with a proper distinction, when he says (l. v. c. 10.), "laconicum sudationesque sunt conjungendæ tepidario;" and explains himself more fully in the next chapter, where he reckons the stove as a chamber of the palæstra. There should in one of its corners, he says, be placed the laconicum, and in another the warm bath. "Concamerata sudatio longitudine duplex quàm latitudine quæ habeat in versoris ex unâ parte laconium ex adverso laconici caldam lavationem." It should perhaps have been before observed, that according to Vitruvius, the laconicum had niches which were called *sudationes*, where those who used the dry baths seated themselves, as we see in ancient paintings.

The fifth apartment was the *balneum*, or warm bath, called *thermolousia*, and was the most resorted to. Its size was proportioned to the number of those who bathed in it at once. Its breadth was a third less than its height, without including the gallery, called *schola*; which was carried round it, and terminated near the basin with a little wall for the bathers to lean against. This gallery was sufficiently large to contain those who waited for their turns to bathe. The middle of the room was occupied by a basin called *piscina*, or by a bathing place which had the name of *alveum*, as we see in the *balneum* of ancient paintings. The bath was placed immediately below the only window by which the light was admitted, that it might not be darkened by the shadows of those who were walking in the gallery.

The sixth room was the *eleothesium* or *unctuarium*. Here were preserved the oils and perfumes used both in entering and quitting the bath; and it was so constructed as to receive a considerable degree of warmth from the hypocaust.

The hypocaust was a sort of subterranean furnace, which Vitruvius calls *suspensuræ*; the bottom forming an inclined plane, by a gradual descent from the opening where the wood for heating it was thrown in; by which means the heat was increased, and the apartments warmed more expeditiously. It extended under the greater part of the rooms we have mentioned.

Beside these rooms particularly destined to the use of the bath, there were several others intended for the exercises previously taken. Such were the *spheristerium*, the *conislerium*, the *corycea*, the *studium*, the *ephebeum*, and others: all forming part of the gymnasia; but which were not always appendages of the baths, particularly those of private persons. Private baths, however, differed greatly in construction from those we have mentioned. Each possessor followed his own caprice, either in changing the rooms of which they were composed, or making the same chamber serve for different purposes. The description the younger Pliny has left us of his bath at Laurentinum, is a proof of this. In this building there was neither apodyterium nor tepidarium; and the arrangements of its other parts was very different from that of the public baths. You first entered a spacious frigidarium; where contiguous to the walls, and opposite

to each other, were placed two baths sufficiently extensive to swim in. Near this chamber was the unctuarium: you then entered the hypocaust, the propyæum, and two other apartments neat but not magnificent: you afterwards came to an hot bath, from which the sea was discovered; and farther on was the *spheristerium*, exposed to the afternoon sun. In his house in Tuscany, on entering the bath, we first find a great apodyterium, a spacious and agreeable chamber for undressing. This conducted to the frigidarium; which was darkened, and contained a bath of an appropriate size. When it was not found sufficiently spacious, there was in the open air a vast basin, which might be used for the same purpose. Not far from the frigidarium was a chamber exposed to the sun sufficiently warm, but less so than the fove; this was the tepidarium. This room had three partitions, each having a different degree of heat. The two first were entirely exposed to the sun; and though the last had not all the heat of the former, it was equally light. Above the apodyterium was the *spheristerium*, or place of exercise for different games. Although Pliny does not inform us how the bathers employed themselves after having undressed and anointed, it is highly probable they went up to the *spheristerium* and exercised, descended by another staircase into the fove, and afterwards returned to the apodyterium; not forgetting in their way to visit the tepidarium and frigidarium.

The following description, according to the Hippias of Lucian, gives another idea of the baths of the ancients, with the various apartments they contained.

"Having passed the great vestibule, to which was an easy ascent, you entered a spacious hall for the use of the domestics who attended their masters. On the left were the chambers, where they who quitted the bath retired; which were the handsomest and most agreeable of all. Farther on was another hall destined for persons of consideration. After this apartment, on each side were galleries, where the bathers changed their dresses. The centre, which was both elevated and well-lighted, contained three baths of cold water, ornamented with Laconian marble; and had likewise two statues of the same material, the one of Hygeia, and the other of Esculapius. On leaving this part of the baths by a long vaulted passage, the building became insensibly warmer, although the heat was far from disagreeable: this passage led to a light apartment where the oils and essences were preserved, which on the right hand had a communication with the palæstra; and the door-posts of which were covered with Phrygian marble. The apartment contiguous to this, as Lucian informs us, was more beautiful in its decorations than any we have mentioned; its very floor was composed of the marble already spoken of. It was of a size sufficiently large for the bathers to walk in, and was furnished with seats. After this apartment you entered a sort of gallery heated; of sufficient length to admit the exercises of the course. It was incrustated with Numidian marble; and led to a handsome well-lighted apartment, painted with purple, where were three warm baths. To leave it, it was not necessary you should go back by the way you entered, but across a warm chamber where the heat gradually diminished. All the chambers were lighted from the top; and Hippias shewed great judgment, in constructing the apartments which contained the cold bath so as to face the north. In regard to those which required a greater degree of heat, he exposed them to the south, the south-east, and west."

It appears from this description, that the bath of Hippias had no apodyterium; there were only at each end of the frigidarium, which contained the three baths of cold water, tables on which the dresses were placed. The bathers

entered a warm passage which conducted to the unctuarium, whence having anointed themselves they gained the *spheristerium*, the largest and handsomest apartment of the whole. When the exercises were finished, they passed into the hot bath by a gallery where there was sufficient heat to preserve the perspiration first excited in the *spheristerium*: so that when the bathers first entered the warm bath, the difference they found was scarcely perceptible; since the warmth of the water was pretty nearly the same with that of the body. After having used the bath, they returned by a shorter way, and crossed an apartment where the heat diminished in proportion as they approached the frigidarium where their dresses had been left.

The following is the description which Vitruvius has left us of the *Grecian* baths. Having described the different apartments of the gymnasium, he says: "On the right of the ephebeum is built the coryceum, or the room for shaving, dressing, &c.: near which should be the conisterium, where the land for the wrestlers is preserved; and at the corner of the peristyleum, the louttron, or cold bath. On the left of the ephebeum, the cleothesium, or apartment for the essences and oils: near which is constructed the frigidarium; whence a passage should conduct the bathers to the propyæum near the fove in the corner of the portico. Adjoining, on one side the frigidarium, is built the vaulted chamber for perspiration, which is always made twice as long as wide; and at one of its angles, usually that opposite the warm bath, the laconicum."

The disposition of each of the apartments we have mentioned varied still more in the thermæ of the Romans, although their plans evince uniformity to a certain extent. As the Romans had two peristyles in their thermæ, it seems right to conclude they had a double order of baths. Varro proves incontrovertibly, that the women bathed in different apartments from the men; for, in speaking of the public baths of Rome, he says: "Item primum balneum nomen et Græcum introit in urbem: ubi bina essent conjuncta ædificia lavandi causâ; unum ubi viri, alterum ubi mulieres lavarentur." What Martial and St. Cyprian relate of the baths, where the men and women bathed indiscriminately, does not confute this passage; since writers attribute those indecencies to none but women of infamous character:

"Cum te lucernâ balneator extinctâ
Admittat inter bustuanias mœchas."

This separation is conspicuous in the baths of Caracalla; a great part of which was surrounded by a vestibule which encompassed the principal buildings of the thermæ. This part was divided into fifty vaulted halls separated from, but perfectly resembling each other. One of these yet remains entire, and sufficiently indicates how the others were disposed. It is approached by a small vestibule. The room in which the bath was placed, was thirty-one feet in length by fifteen feet three inches wide; the basin was of masonry, with a border of larger stones extending eighteen inches from the edge of the hollow. The cavity between the sides was twelve feet wide by fifteen long. It was descended to in front by seven or eight steps extending the width of the bath; four above the brink, and three or four went to the bottom of the basin: and the whole was lighted by a small opening at the top. A thousand persons could bathe in this part of the thermæ at once.

When the water flowed into these baths, it seems to have been only lukewarm, as it was brought from the hot baths of the great thermæ; of which these, as we have already mentioned, formed only the outer circle. The water was conveyed from these baths, by pipes, into a great piscina,

or pool, destined for the use of those who wished to exercise themselves in swimming.

In front, on the right and left, were other baths for people of superior consequence. In the room of batons they had large bathing vessels, which were of copper, porphyry, granite, or basalt. They also contained seats of marble or porphyry; of which we yet see a great number at Rome. Olympiodorus assures us, that the baths of Caracalla had no less than sixteen hundred.

The grand hall was a rotunda, 111 feet diameter; which is believed to have been called *cella solæaris*, or the hall of sandals, of which Spartianus speaks in these terms: "Cellam solæarem architecti negant posse ulla imitatione quâ facta est fieri." It seems to have had its name from the bars of copper and bronze which, according to some, formed its pavement, and to others its ceiling; bearing some resemblance to the fastening of the sandals among the ancient Romans. It had also large plates of bronze or copper, which covered and ornamented the piers of the windows and other parts of the rotunda. It contained a number of vessels in which the warm bath was taken.

Of all that relates to the baths, nothing has so embarrassed the learned as the manner in which hot water was supplied to all the receptacles for bathing which have been found. For if we suppose, and it may be done without exaggeration, that each bath in the thermæ of Dioclesian was capable of containing six bathers, 1800 persons might have bathed at once. But as no vestige remains, sufficient to favour our conjectures as to the manner in which the water passed into these vessels, we must content ourselves with what Vitruvius has said upon it.—Baccius has treated this subject better than any of the moderns. He imagines the water was conveyed from reservoirs outside the thermæ, and that machines were used for raising it to that height, which, agreeably to his examination of Dioclesian's baths, seemed requisite. He was also induced to conclude, that the water was heated outside the thermæ, from the number of pipes which he saw underneath the area of the building; where there had never been any alteration, and which were all surrounded by other pipes from the hypocaust. But this supposition appeared to Baccius himself so replete with difficulties, that he pushed his researches on this matter no farther.

The two figures of the water towers or reservoirs for the baths of Caracalla, engraved by Piranesi, will suffice to explain how easily the Romans heated the largest body of water their thermæ could contain.

The water tower of Caracalla received its supply from the aqueduct of Antoninus, part of which passed by the Appian way.

It appears from the plan of this reservoir, that it had, immediately above the hypocaust, twenty-eight vaulted chambers; that these chambers formed two ranges of fourteen each; and that they had a communication one with the other. Above these were twenty-eight other chambers, which were connected with each other in like manner, though only one of them communicated with the chambers below. Above all these was a spacious reservoir, not very deep, but which extended the whole length of the water tower; in this, the water received considerable warmth from the heat of the sun, before it passed into the chambers. This reservoir did not receive its water directly from the aqueduct, but from an intermediate cistern. Whenever it appeared necessary to draw off the water of the lower chambers to fill the bathing places, the water of the reservoir became useless, and would have overflowed but for an opening on one side of the cistern, by which it escaped with-

out going into the baths. During all this time the water of the reservoirs was tranquil. The cistern answered two purposes; it prevented any agitation in the water of the reservoir, and carried off that which was of no use. When the twenty-eight vaulted chambers, immediately above the hypocaust, began to heat, the warmth they acquired was quickly augmented; as there was only one of them which communicated with the exterior air.

The strength of the walls and vault was quite sufficient to resist the rarefaction of air within the water, and of consequence to hinder its evaporation from producing danger. It was necessary that it should have pipes to give the water a sufficient heat for the usage of the bath. When the hour of bathing came, the warm water was let into the bathing places from the lower chambers; where it ran with incredible swiftness, and rose to a perpendicular height equal to the surface of the reservoir of the water tower.

To hinder the water from cooling as it passed through the subterranean pipes, they were inclosed in others which came from the entrance of the hypocaust, forming a sort of double tunnel, and acquiring a considerable degree of heat before the water entered them.

Each chamber was within the walls 49 feet long, 27 wide, and about 30 high. The number of square feet on the surface of the lower chamber amounted to 38,500. If we allow for the medium height 30 feet, the quantity of water contained in the lower chambers amounted to 1,143,450 cubic feet.

The ancients do not inform us how they discovered the method of heating such large volumes of water. We are therefore in the dark whether it was an invention of the Romans, or whether they brought it with them from the East. It is reasonable, however, to suppose, that such methods could be of no use before the construction of the thermæ at Rome, and of course could not be older than the time of Augustus; in whose reign, Dion Cassius informs us, Mæcenæ built a warm bath capable of admitting persons to swim in.

This method, or one very similar, was used in all the baths of Rome. That described by Vitruvius was insufficient to furnish water for these vast buildings, which Ammianus Marcellinus compares to provinces (*lavacra in modum provinciarum extracta*); though it was undoubtedly the case in private baths. They heated the water of the bath, says Vitruvius, by means of three vessels of copper, so disposed that the water flowed from one to the other. One was called *caldarium*, another *tepidarium*, and the third *frigidarium*. The marquis Galiani observes, that it is no easy matter to give a precise idea of the situation of these vases above the furnace. Cæsariano and Caporali have engraved one above the other, or rather one within the other, placing the *frigidarium* above the *tepidarium*, and that above the *caldarium*, which was placed immediately above the furnace. But the great difficulty is, that in this arrangement the heat, by the ascension of the flame, ought to warm the upper vase, or *frigidarium*. Perrault, on the contrary, places the three vases on a level; and he imagines that syphons carried the water of one vase into another: but how, without a piston, or some such expedient, the water could be raised so as to re-descend, he has not explained.

The ancient paintings of Titus's baths place these vases upon three steps, in such a manner that the bottom of the water of one vessel shall be upon a level with the aperture of the other; so that it is easy to comprehend how the water was conveyed. But the marquis Galiani believes, that this disposition is not altogether agreeable to the truth; and that it was adopted by the painter, only to afford a more clear idea how the water was transferred.

I believe,

I believe, he says, that the three vases were upon a kind of level: the caldarium immediately above the furnace; the tepidarium a little backward, so as to receive a reverberation of the heat more than the fire itself; and the frigidarium upon a mally pedestal, so that the warmth could not reach it. From the caldarium to the baths was a pipe, which, by means of a cock, supplied any quantity of water that was requisite. Another pipe carried the water of the reservoir to the frigidarium, and kept it at the same level. All the figures which Vitruvius has given of this process, seem to require that an attendant should overlook this transfusion of the water: but that author himself tells us, that the operation was performed without assistance: *ita collocanda ut ex tepidario in caldarium quantum aquæ caldæ exierit influat de frigidario in tepidarium ad eundem modum.*

They had also other means of heating the water of the baths. We construct, says Seneca, a species of vases high and narrow, in the form of dragons and other fanciful shapes, in which we place pipes of native copper, of a spiral form, through which the water passes till it acquires a sufficient degree of heat. In the same degree as the cold water enters the pipes, the warm passes out; so that all the water which runs through, acquires the same temperature. Seneca explains the advantage of this process, and informs us the tube through which the water passes having no communication with the fire, the vapours are not mixed with smoke; *nec trahit vaporem evaporatio, quia clausa pertrahitur.*

The parallel which Seneca has given in his letters between the baths of Scipio Africanus and those of his own time, is highly interesting, and will probably elucidate much that has been already written on the subject.

"Scipio's bath," he says, "was small and somewhat dark, agreeable to the ancient custom; for our ancestors thought that a bath could not be warm enough unless it was close. It was therefore a great pleasure to me to compare the manners of Scipio with our own. In this little nook did Scipio (the dread of Carthage, and to whom Rome was indebted for having once taken it) use to bathe his body when fatigued with rustic labours. Under this low and fordid roof he stood, and disdained not to tread so vile and mean a floor. But who is there in our time who would condescend to bathe in this way? A man thinks himself poor and mean, unless the walls are decorated with large and precious embossments; unless Alexandrian marble is pointed and inlaid with Numidian rough cast; unless a rich and curiously variegated plaistering be spread upon them in picturesque; unless the roof is covered with glass-work; unless the Thasian stone, once reckoned a scarce and curious ornament, even in some temples, now compasses about the pools in which we bathe our bodies when enfeebled with fatigue at some trifling sport: in short, unless the water is conveyed by a silver spout. I am speaking as yet of common stoves; but what shall I say when I come to speak of our freedmen? What noble statues! What vast pillars supporting nothing; but placed there for mere ornament, and the vain ostentation of expence! What large and far-sounding cascades! We are arrived to such a pitch of delicacy and extravagance, that we cannot tread but upon the most precious marbles.

"In Scipio's bath there are some chinks, rather than windows, cut out of the stone wall to let in the light without hindering the strength of the building. But now we call the baths moth-houses and dungeons, if they are not so contrived as to admit the whole day's sun through the most spacious windows, whereby men are tanned as well as washed; and from the bathing vessels have a prospect both of the meadows and the sea. So that these baths, which, at their first con-

struction, called together a vast concourse of people, and filled them with admiration, are now rejected as poor antiquated things; while luxury is daily presenting some novelty that must at last prove its own ruin. Formerly there were but few baths, and those not ornamented with any costly decorations; for to what purpose is it to adorn a common room, open to any one that paid his farthing, and which was built not for pleasure but for use? It was not customary to have the water sprinkled or poured in upon the bathers; nor did it always run fresh, as from a warm spring; nor did they think it material, how clear the water was wherein they were to wash off their filth."

From this letter of Seneca, we perceive to what a pitch of magnificence luxury had carried the edifices destined for the baths. And nothing gives a stronger confirmation to the account, than the fragments of those buildings which have reached our own time. The greater part exhibits to us the most precious furniture. The hall of the bath, discovered a few years since at Otricoli, has preserved the reliques of the rarest marbles; its pavement was formed of the same wonderful kind of mosaic, which at this day ornaments the rotunda of the Vatican museum. In the baths of Titus, the marble coating is carried to the height of about ten feet, where, to preserve the paintings from the dashing of the water, the walls were covered. It appears that in these baths one division of the rooms, especially those which were destined for the warm baths, had no openings to admit the light; at least none have been found. When it became fashionable to frequent the baths by night, it was necessary the place should be lighted by lamps and candelabra; the introduction of which contributed very much to the decoration of the apartments. The most magnificent we have seen at Rome, have been found in the Thermæ: their light was reflected by masses of crystal, suspended from the roof or fixed against the walls, so as to produce the most effulgent light.

The use of glass in the decoration of the baths, commenced about the time of Pliny, who calls it a modern invention; *novitium et hoc inventum.* It did not exist, as far as has been discovered, in Agrippa's time; whose baths were covered with ornamented clay or stucco, called *albarium opus.*

Having thus brought the history of the Roman baths to a conclusion, it will not be irrelevant to add a brief notice of the principal ruins of them which remain, taken chronologically.

The better half of Paulus Æmilius's baths is nearly perfect.

Those of Livia, on the Palatine hill, and under the ruins of the imperial palace, still shew two small apartments entire, decorated with stucco, painting, and gilding.

The magnificent ruins of the baths of Titus, Caracalla, and Dioclesian, still shew the entire plans: sufficient remains of the walls to determine the sections and elevations with tolerable certainty; and of the construction of the conduits and stoves, enough to give the most satisfactory information.

There are some remains, but very incomplete, of the baths of Constantine, in the gardens of prince Colonna.

All the rest of the ancient baths, in or about Rome, are nearly or entirely destroyed; and it is to be remarked, that the baths of Titus, Caracalla, and Dioclesian, are entirely stripped of their magnificent columns and fine marbles, excepting the great hall of Dioclesian's baths, which was converted into a church by Michael Angelo, and its granite columns of single stones, each forty feet in height, preserved.

That

That the Romans, who enjoyed dominion in our island near four hundred years, had their baths, is evident from the frequent ruins of them which are found; and some instances occur where the builders had undoubtedly the thermæ of their parent country in view. At Hovingham in the north Riding of Yorkshire, 1745, a Roman bath was discovered, which had its fudaria and vaporarium (Camden, ed. 1789, iii. 85.); and ten years after, in taking down the abbey house at Bath, to build a new set of baths called the duke of Kingston's, the workmen found remains of very noble Roman baths and fudatories, whose springs and drains were made use of for the present baths. The plan and elevation of them were engraved by Mr. Gough. (Ibid. i. 79.)

Nor while mentioning the ancient baths in England, must we forget one instance where a magnificent building of the kind occurs among the monastic conveniences of the middle ages. Hugh, the sacrist of the monastery of Bury, we are told, early in the twelfth century finished the anam hospitum and balnearium of his house; and Sampson, who was elected abbot in 1182, appears to have completed the latter edifice upon a scale, for those times, peculiarly grand. (Aquaductum et aquam per rivulos derivatam et lavatoria opere mirifico et magnitudine miranda consummavit.) See Leland, Itin. vol. iv. App.

But it must be owned, that in spite of all the advantages derived from the habitual use of baths with respect to health and cleanliness, the moderns have till lately very much neglected to employ them; though from this censure we must except the Orientals and the Turks, among whom the practice of the bath has been more easily preserved, on account of its connection with religious worship. Their manner of bathing is very similar to that of the ancients; they have still vast edifices for the purpose, which are heated by means of pipes, and receive light from the top: and though the use of the strigyl (see ARCHITECTURE, Plate III.) may not have been preserved, proper frictions for the excitement of perspiration are still used; and the instruments adopted by the ancients are replaced by rough cloths and flannels. The rich among them have private baths, in the construction of which they are expensive, and devote to them the most considerable part of their mansions.

Among the modern Europeans, the practice of bathing, generally speaking, has returned to the same condition it was in when Homer described it in the earlier ages of Greece. It is in the river, during the heat of summer, that the multitude bathe; and that more for pleasure than on any other account: without once reflecting on the accidents which are likely to result from the crudity of the water, the intemperance of the air, or the action of the sun, to which they are frequently exposed.

At Florence, on the bank of the Arno, public baths were constructed by the late duke, with such accommodations as seemed most appropriate for general use: adjoining which there are other baths belonging to private persons; and gardens of promenade.

What are called public baths at Paris, are far from uniting these advantages; they are no other than large boats, called *tones*, covered with a cloth, with small ladders attached by cords, to facilitate the purposes of bathing. The French have also private baths for hire, similar to those in England; and many of their larger mansions are furnished either with domestic baths of the larger kind, or bathing vessels formed of metal.

Those which are called natural baths, are usually buildings constructed nigh the sources of mineral waters; such as the baths of Puzzuoli, Baix, and St. Germano, near Naples:

Pisa, in Tuscany; Bourbon and Vichi, in France; Buxton, Bath, and Harrowgate, in England.

Of the engravings which accompany this article, *Plate I.* exhibits the plan of the baths of Caracalla; of the references in which we give the following explanation.

1. The great square, surrounded by a portico, for the exercises of the stadium.
2. Those parts of the porticos which served for entrance to the vestibules of the palæstra.
3. The cella solearis of the palæstra; the gates of which were furnished with lattice work of bronze.
4. Vestibules of the great hall.
5. The great hall, furnished with the xystum.
6. Other vestibules belonging to the lateral apartments of the palæstra.
7. Others narrower than those already mentioned, leading to the same apartments.
8. Halls, open at the top, whose sides were ornamented with basso-relievos in marble. A fragment of one of the last of these was lately in the possession of cardinal Albani.
9. Anti rooms belonging to the xysta.
10. Common entrances to the same.
11. Openings to give the xysta light.
12. A spacious xystum in the middle of the palæstra, for the exercises of the athleteæ.
13. Apartments in which the athleteæ anointed themselves and left their vestments, with staircases ascending to the upper part of the cella solearis.
14. Receptacles for the rain-water from the roofs of the porticos (*fig. 19.*), which was conveyed by pipes to the lower baths.
15. Other uncovered receptacles, for the same purpose, formed in the side walls.
16. The portico, whence passing through the xystum you reached the great bath: it was exposed to the S. W. and was sometimes warmed by the sun, and at other times by furnaces.
17. Chambers or baths belonging to the wrestlers, and other combatants, of the theatre and xystum.
18. The cistern of water in the centre.
19. Porticos, ornamented by niches, with magnificent fountains; serving as a shelter for the populace from the rain and sun.
20. Double portico before the theatre.
21. Seats for the spectators at the games; in front of which, upon occasion, the stage, and scenes for theatrical representation, were erected.
22. Open spaces between the porticos and the great hall or saloon.
23. Uncovered halls.
24. The athenæum.
25. Open space in front of philosophic walks.
26. The philosophic walks.
27. Quarters for the prætorian guard.
28. The great exedræ, for trials of strength.
29. Apartments appertaining to the exedræ, subdivided into smaller ones for the accommodation of the officers and exercisers in the different games.
30. Apartments for the scenes, and other theatrical apparatus.
31. Openings with iron gratings, for the admission of light to the lower story.
32. Staircases from the lower to the upper story.
33. Vestibules of the upper story.
34. Other staircases of ascent to the porticos.

Lower Story.

35. Quarters of the prætorian bands; with porticos in front.

36. Piscinæ, or pools of cold water.
37. Porticos erected at a later period, by Alexander Severus.
38. Cold bath with fountains in the centre.
39. Walks for public accommodation.
40. Magnificent fountains.
41. Walls surrounding the summit of the hill on which the baths of Caracalla were erected.
42. Open space around the reservoirs of water.
43. The aqueduct of Antoninus, which supplied the baths.
44. Intermediate reservoir, into which the water of the aqueduct was discharged.
45. The opening by which the water was conducted to the warm baths.
46. The reservoir.
47. Walls of the city, anterior to those of Aurelian, which were enlarged by Caracalla, for the extension of the thermæ.
48. The fountains mentioned in *fig.* 38.
49. Porta Capena in the city wall.
50. Porta Terentina.
51. The Appian way.

Plate II. exhibits a painting from the baths of Titus, on a brown ground, representing three slight temples: in the centre one a statue, supposed to be Apollo, with a priest on either side; and above each of the lateral temples a bas-relief, representing the sacrifices of Bacchus. The smaller figures in Arabesque.

Here may be remarked, that in strict contradiction to all that is asserted by the French writers, the paintings of the ancients, whether Greek or Roman, are in bad perspective.

Plate III. contains a section of the baths of Caracalla, from Piranesi; with Montfaucon's idea of explaining the relative situation of the different apartments in the Roman thermæ.

BATH, in *Jewish Antiquity*, is the name of a liquid measure, containing the tenth part of an omer.

Some distinguish five kinds of baths: viz. the greater bath, containing 80 pounds of water, or, according to Josephus, 1440 Roman ounces; the second bath, containing 100 ounces; the third, 66 $\frac{2}{3}$ ounces; the fourth, containing 25 ounces; and the fifth 6 $\frac{2}{3}$ ounces of water. Beveryn. *Synec. de Mens.* p. ii. p. 127.

Some have estimated the sacred bath at half as much again as the common bath; but there is no sufficient reason for this distinction. Calmet.

BATH, *Knights of the*. This order was instituted in England at the coronation of Henry IV. in 1339, and revived by Geo. I. by his letters patent, bearing date at Westminster, the 18th of May in the 11th year of his reign, 1725, in the following words:

"George, by the grace of God, of Great Britain, France, and Ireland, king, defender of the faith, &c., to all to whom these presents shall come greeting. Whereas our royal predecessors, upon divers wise and honourable considerations, have, on occasion of certain august solemnities, conferred with great state, upon their royal issue male, the princes of the blood royal, several of their nobility, principal officers, and other persons distinguished by their birth, quality, and personal merit, that degree of knighthood which hath been denominated the knighthood of the bath; we, being moved by the same considerations, do hereby declare our royal intention not only to re-establish and support the said honour of knighthood in its former lustre and dignity, but to erect the same into a regular military order; and, accordingly, of

our especial grace, certain knowledge, and mere motion, and by virtue of our royal prerogative, being the fountain of honour, we have instituted, erected, constituted, and created, and by these our letters patent, do institute, erect, constitute, and create a military order of knighthood, to be and be called for ever hereafter by the name and title of "The Order of the Bath," whereof we, our heirs and successors, kings of this realm, for ever shall be sovereigns; which said order shall consist of a great master, to continue during the pleasure of us, our heirs or successors, and thirty-six companions, to be from time to time nominated and appointed by us, our heirs and successors, wherein a succession shall be always regularly continued; which said order shall be governed by statutes and ordinances, to be from time to time made, ordained, altered and abrogated, by us, our heirs and successors, at our and their pleasure. And to the end that such statutes may be legally established, we, following the example of our royal predecessor, king Edward the Third, of glorious memory, founder of the most noble order of the garter, who gave sanction to the statutes of that order, by affixing to them the seal which had been by his command made and appointed for the same order, do hereby direct and appoint, that a seal shall be immediately engraven, having upon one side the representation of our royal person on horseback in armour, the shield azure, three imperial crowns, or the arms usually ascribed to the renowned king Arthur, with this circumscription, "Sigillum Honoratissimi Ordinis Militaris de Balneo;" and on the reverse, the same arms empalming our royal arms: and our royal will and pleasure is, that the said seal shall for ever hereafter be the seal of the said order of the bath; and that the statutes to be perpetually and inviolably observed within the said order, shall be established and sealed by and with the same seal: and we do hereby for us, our heirs and successors, declare and ordain, that the said statutes so to be given by us, our heirs or successors, to which the said seal shall be affixed, shall be of the same force and validity as if the same statutes, and every article of them, had been verbatim recited in these our letters patents, and had been passed under the great seal of this our realm. And further, we do hereby ordain, constitute, nominate, and appoint our right trusty and right entirely beloved cousin John duke of Montagu to be the first great master of the said order, to hold the said office during our pleasure, with such powers, privileges, and emoluments, and subject to such regulations as shall be for that purpose appointed in the statutes to be established by us, our heirs or successors, as aforesaid. And whereas it is absolutely necessary, for the dignity and service of this order, that there should be officers peculiarly appropriated thereto, we do by these presents, for us, our heirs and successors, will and ordain, that there shall be for ever hereafter a dean, genealogist, king of arms, register, secretary, usher, and messenger, of and belonging to the said order, whose respective duties, privileges, emoluments, and perquisites shall be particularly expressed and declared in the said statutes; and we do hereby for us, our heirs and successors, constitute, create, and appoint the dean of the collegiate church of St. Peter's Westminster, for the time being, to be for ever hereafter dean of the said order, and do for us, our heirs and successors, give and grant full power and authority to the great master of the said order, for the time being, to constitute, nominate, and appoint, under the seal hereby appointed for the said order, a genealogist, king of arms, register, secretary, usher, and messenger of the said order; and from time to time to fill up the places of such officers upon vacancies, according to such rules and directions, as shall for that purpose be laid down and expressed in the said statutes to be given as aforesaid. And to the end that the

respective fees to be paid to the several officers of the said order of the bath by such persons as shall be nominated unto and accept the honour of a companion of the said order, may be certain and fixed, we do by these presents, for us, our heirs and successors, will and declare that all such fees shall be especially and particularly ascertained and established in and by the statutes to be given and ordained to and for the said order, by us, our heirs or successors, under the seal hereby appointed for the said order, and shall be of the like force and effect as if the same had been particularly expressed and set forth in these our letters patents: and, lastly, we do hereby, for us, our heirs and successors, grant that these our letters patents, or the enrolment or exemplification thereof, shall be in and by all things good, firm, valid, sufficient, and effectual in the law, according to the true intent and meaning thereof; any omission, imperfection, defect, matter, cause, or thing whatsoever to the contrary thereof in anywise notwithstanding. In witness whereof we have caused these our letters to be made patents.

Witness ourself at Westminster, the eighteenth day of May, in the eleventh year of our reign."

The badge, cognizance, or ensign of this order, is a rose, thistle, and shamrock, issuant from a sceptre between three imperial crowns, surrounded with the motto of the order; viz. "Tria juncta in uno;" the whole of pure gold; chased and pierced, and is worn by the knight elect, pendant from a red ribbon across the right shoulder. The collar is of gold, weighing thirty ounces troy weight, and is composed of nine imperial crowns, and eight roses, thistles, and shamrocks, issuing from a sceptre, enamelled in their proper colours, tied or linked together with seventeen gold knots, enamelled white, having the badge of the order pendant thereto. The star consists of three imperial crowns of gold, surrounded by the motto upon a circle of red, with rays issuant from the centre silver, forming a star, and is embroidered on the left side of the upper garment. The installation dress of a knight of the bath is a furcoat of white sattin, with a mantle of crimson sattin lined with white, tied at the neck with a cordon of silk crimson and gold with gold tassels, and on the left shoulder is embroidered the star of the order; a white silk hat, adorned with a standing plume of white ostrich feathers, white leather boots, edged and heeled, crimson and gold spurs, a sword in a white leather scabbard, with cross hilts gold. The knights receive the order by investiture in the king's closet, or, if abroad, by warrant. The ceremony of investiture is as follows. The dean, the knights, and the officers of the order attend in the privy-chamber in their mantles and collars, and proceed from thence, after the levee, into the sovereign's presence, making the usual reverence, in the following order; gentleman usher of the order in his mantle, chain, and badge; bearing the scarlet rod; register and secretary of the order in their mantles, chains, and badges; bath king of arms in his mantle, chain, and badge, bearing the sceptre of bath, carrying the ribbon and badge of the order on a crimson velvet cushion; the genealogist in his mantle, chain, and badge; the knights of the order with their mantles, collars, and badges; the dean of the order in his mantle, chain, and badge; the first knight and principal companion, acting as great master. Then by his majesty's command the intended knight is introduced between the two junior knights of the order, preceded by the gentleman usher of the order, with reverences as before. The sword of state is then delivered to the sovereign by the second knight of the order in seniority, and the intended knight is knighted therewith. Then the principal knight companion presents the ribbon and badge to the sovereign, and his majesty puts it over the new

knight's right shoulder, who, being thus invested, has the honour to kiss the king's hand. The procession then returns to the privy-chamber in the order above-mentioned. After the investiture, the knight wears only the ribbon and badge; as he cannot wear either the collar or star before his being installed, without a letter of dispensation, which is only granted to those on foreign service. On the revival of the order, king George the First allowed the chapel of king Henry the Seventh in Westminsterabbey to be the chapel of the order, and ordained that each knight's banner, which shall be placed over his stall, shall be two yards in length, and one yard three quarters in breadth, fringed about with red and white silk; and that, in the lowest margin, the name and title of the knight shall be inscribed with letters of gold upon a black ground; and that the crest, helmet, and sword shall likewise be affixed to the stall, together with an escutcheon of his arms and supporters, enamelled within a circle gules, having thereon the motto of the order in letters of gold, and his name and title in like manner as the knights of the garter are in St. George's chapel, Windsor; the arms also of his three esquires are enamelled on one plate, with their names and title affixed thereto, and placed under the knight. At an installation of the order, each knight is allowed three esquires, who must be by the statutes "gentlemen of blood, bearing coat armour;" they precede their knight in the procession, having for their dress a crimson silk waistcoat with sleeves, breeches, stockings, and shoes with roses, the whole of which are silk, of the same colour, with a furcoat of white silk, lined and edged with crimson, having a hood of the same affixed thereto, and on the right shoulder of the furcoat the plain escutcheon of the order, "azure, three imperial crowns or;" a black silk hat or coif; for which service each esquire "shall, during the term of his life, enjoy all rights, liberties, privileges, exemptions, and advantages which the esquires of the sovereign's body, or the gentlemen of the privy-chamber do lawfully enjoy, or are entitled unto by virtue of any grant, prescription, or custom whatsoever; and the eldest son of every of these esquires shall have and use the addition and title of esquire in all acts, proceedings, and pleadings: provided that all these esquires to be entitled to these privileges, shall have certificates of their qualifications before their respective admission, and likewise an exemplificate of their actual performing the duties upon the creation of any knight or knights of the bath, attested by the great master under the seal of the order." An esquire of the order is allowed to hunt and fish in the king's royalty, and is exempt not only from serving the office of high sheriff, but any parochial office. To prevent any abuses in the claiming these privileges and exemptions, the following notification was inserted in the gazette, previous to the installation of the order in 1803, when twenty-two knights were installed, attended by their esquires, sixty-six in number.

"It is hereby notified, that no exemplificate will be issued to any esquire, from his royal highness the duke of York, after the ensuing installation, until it shall be certified to his royal highness by the genealogist, that the pedigree and coat armour of the several knights and their respective esquires have been entered in the genealogical books of the order, in obedience to the said statutes.

Given at the Horse-guards, this 13th day of May 1803; Frederick, acting as great master of the said most honourable military order of the bath."

The dress of the officers of the order is as follows: viz. the mantle and cordon of the dean are the same as the knights; he wears a gold chain, with the badge of the order, but no collar. The genealogist, king of arms, registrar, secretary, and usher's is a white sattin mantle or robe lined with crimson, having

having on the right shoulder the badge of the order tied about the neck with a cordon, the same as the knight's; under it is a furcoat like the esquire's, with a gold chain about their necks, to which is pendant an escutcheon of gold thereon enamelled the badge of the order; except that on collar days, the badge is worn pendant to a red ribbon. The office of genealogist is a distinct office of record for the pedigrees and coat armour of the knights of the order and their esquires, which are entered in a regular series from the year 1399 to the present time. The office of genealogist has, from the revival, been successively filled by John Anstis, esq., John Suffield Browne, esq. and George Naylor, esq., York herald, its present possessor.

The order of the bath doth not appear to have been of greater antiquity, in this kingdom, than the reign of Henry IV. who, on the day of his coronation, conferred that dignity upon forty six esquires, who had watched all night before, and had *batbed* themselves; yet this degree of knighthood may justly boast of a much earlier antiquity. The learned William Camden, and Jean du Tillet suppose it to have been practised by the old Franks, or inhabitants of Lower Germany; with whom Mr. Anstis (who was genealogist of the order on its revival) is of opinion, the Saxons, who invaded England, had the same common descent; and who, upon their settlement in England, introduced the same method of knighthood. Du Tillet further remarks, that those ancient Franks, when they conferred knighthood, observed many solemn rites. Before they performed vigils, they bathed, to signify that such as were admitted to this degree should be of a pure mind and honest intentions; be willing to conflict with any dangers or difficulties in the cause of virtue; take care, both in their words and actions, to follow the maxims of prudence; and, on all occasions, religiously observe the motto of the order, "Tria juncta in uno;" which implied a true belief of the Trinity: which rites and conditions, according to his testimony, still continued to be practised in England; and from the practice of these, gentlemen were denominated knights of the bath. Mr. Anstis, with his usual precision and clearness, hath fully proved that William the Conqueror, and the succeeding kings of England, conferred this degree of knighthood as well in Normandy as in England. We have a very particular detail of the ceremonies that were used in creating knights of the bath at the coronation of king Henry V.; and our historians and records amply vouch that from that time till the reign of king Charles II. inclusive, it was the usual practice to create knights of the bath at, or previous to, the coronation of our kings, the creation of princes of Wales, and at the celebration of their nuptials, and those of others of the royal family. King Charles II. previous to his coronation, created no less than sixty-eight knights of the bath; from which time no knights of that degree were created, until the revival by George I. in 1725.

BATH Metal is a preparation of copper with zinc, which gives a more beautiful colour than the calamine used in the preparation of the common brass.

BATH Kol, in *Jewish Antiquity*, a species of revelation by a voice or echo from heaven.

The word signifies, in the Hebrew original, *daughter voice*, or *daughter of a voice*; for it may be interpreted both ways. It seems to have been thus called with respect to the oracular voice delivered from the mercy-seat, when God was consulted by urim and thummim; this latter was the grand and primary voice of revelation; the former of secondary dignity, and inferior to it as the daughter to the mother.

The Jewish writers speak of three kinds of revelation

among them; the first by urim and thummim, which obtained from the erecting of the tabernacle to the building of the temple; the second by the spirit of prophecy, which prevailed from the beginning of the world to the death of Malachi; the third, the *bath kol*, or *filia vocis*, which took place when the spirit of prophecy wholly ceased in Israel; and was, says Grotius, the sole oracle which remained during the time of the second temple.

This bath kol, says Dr. Prideaux, was no such voice from heaven, as the Jewish, and particularly the Talmudical, writers pretend; but only a fantastical mode of divination of their own invention, resembling the "Sortes Virgilianæ" among the heathens. (See SORTES.) Prid. Comm. pt. 2. b. 5. vol. 3. p. 463. Godw. Moses and Aaron, hb. 4. c. 8. Lightfoot's Works, tom. i. p. 485. Grot. in John, xii. 28.

Davizius has a dissertation on the iniquity and imposture of the bath kol: "De filia vocis nefanda, divina æmula."

BATHA, in *Ancient Geography*, the ruins of an ancient city of Africa, in the kingdom of Algiers, about two leagues south of Oran, which was destroyed in the wars that raged between the African powers, about the beginning of the seventh century, it has been remarkable, in more modern times, for a little chapel, erected in memory of a marabout, who lived among these ruins, and by the presents he received for his hospitality to travellers, became rich enough to maintain 500 disciples, whose employment it was to go through a long litany of all the divine attributes, by the help of their beads at certain hours of the day; but the sect has of late declined and is almost extinct.

BATHA, a town of Ethiopia, near Egypt. Pliny.

BATHA, *Bach*, or *Bachia*, in *Geography*, a town of Hungary, situate near the Danube, and capital of a county of the same name. It was formerly the see of a bishop, now united to Colocza; 20 leagues south of Buda. N. lat. 46° 40'. E. long. 20° 40'.

BATHA, a town of Ethiopia, on the confines of the country called by the Arabs Berbera, and more commonly Zanguebar.

BATHA, a name sometimes given to the isle of Bas; which see.

BATHASECA, a town of Lower Hungary, in the county of Tolna, on the Sarwitz.

BATHENAS, in *Ancient Geography*, a town of Syria, between Cyrrhus and Edeffa. Anton. Itin.

BATHGATE, or **BATHGET**, in *Geography*, a market town in the county of Linlithgow, in Scotland. There are three fairs held annually in Bathget: second Wednesday in April, first Wednesday after Whitsunday, O. S. fourth Wednesday in June, third Wednesday in July, third Wednesday in August, N. S. and first Wednesday after Martinmas. The circumjacent country is rather hilly, yet by no means destitute of agricultural improvement; the soil of late is made to yield abundant crops; and rural economy advances daily. In a morass, about a quarter of a mile from Bathget, some slight traces of the principal residence of Wailer, high steward of Scotland, (the founder of the royal house of Stuart,) are still discernible. The mansion, and lands thereto belonging, were the dowry bestowed on the high steward's wife, lady Margery, by her father, king Robert the Bruce, in A. D. 1316.

BATHING, the act of using or applying a bath; that is of immersing the body, or part of it in water, or other fluid. See BATH.

Bathing, on a religious account, is more properly called ABLUTION, or BAPTISM.

Bathing is a practice of antiquity. The Greeks, as early as the heroic age, are said to have bathed themselves in the

sea, in rivers, &c. We even find mention in Homer of hot baths in the Trojan times; but these seem to have been very rare, and only used on extraordinary occasions. Athenæus speaks of hot baths as unusual even in his age. In reality, public baths appear to have been discouraged, and even prohibited, by the ancient Greeks, who were contented to wash themselves at home in a sort of bathing tubs. Pott. Archæol. tom. i. lib. iv. c. 19. The method of bathing among the ancient Greeks, was by heating water in a large vessel with three feet, and thence pouring it on the head and shoulders of the person seated in a tub for that purpose, who, at coming out, was anointed with oil. Burret, in Hist. Acad. Infer. tom. i. p. 117.

The Romans were also long before they came into the use of baths; the very name of which, *therma*, shews they borrowed it from the Greeks. As the ancient Romans were chiefly employed in agriculture, their custom was, every evening, after work, to wash their arms and legs, that they might fit down to supper with more decency; for it is to be observed, the use of linen was then unknown, and the people of that age went with their arms and legs bare, and consequently exposed to dust and filth. But this was not all; for every ninth day, when they repaired to the city, either to the *nundina*, or to attend at the assemblies of the people, they bathed all over in the Tyber, or some other river which happened to be nearest to them. This seems to have been all the bathing known till the time of Pompey, when the custom began of bathing every day. Mercurial. de Art. Gymn. lib. i. c. 10. Mem. Acad. Infer. tom. ii. p. 414.

The Celtic nations were not without the use of bathing; the ancient Germans bathed every day; in winter in warm water, and in summer in cold. This is what Tacitus seems to suggest, "*statim e somno—lavantur, sæpius calida, aut apud quos plurimum hiems occupat.*" De Mor. Ger. cap. 22.

Bathing, among the ancients, made a part of diet, and was used as familiarly as eating, or sleep; and cold bathing was in high esteem among their physicians for the cure of diseases; as appears from Strabo, Pliny, Hippocrates, and Oribasius; whence occur frequent exhortations to washing in the sea, and plunging into cold water. The first instance of cold bathing, as a medicine, is Melampus's bathing the daughter of the king of Argos; and the first instance of warm bathing is the use of it by Medea, who was said to boil people alive, because Pelias king of Thessaly died in a warm bath under her hands. The cold bath was successfully used by Antonius Musa, for the recovery of Augustus: but after the death of Marcellus, who was thought to have fallen a sacrifice to the improper use of it, the practice sunk into neglect. It was again revived towards the close of the reign of Nero, by a physician of Marseilles named Charmis; but it was afterward disused during the ignorance of the succeeding ages. Among the Turks, bathing forms a part of diet and luxury, and in every town and even village there is a public bath for those who have not the convenience of private baths attached to their own houses. Baron de Tott (Mémoires) gives us the following account of the construction of the private baths. Two small chambers, built with brick and faced with marble or plaster, communicate with each other, and each of them is enlightened by a small cupola cut in chequers. This little edifice is commonly joined to the house by a small room, in which those who bathe undress; double doors, folding over and lifted with felt, shut in the first and second part of the stove. A wood fire is kept in a subterranean vault, the entrance into which is from without. This fire-place is under the farthestmost chamber, and heats a caldron immediately beneath the marble floor, which serves

as a cieling to the vault. Pipes, placed within the walls, proceed from the inside of the caldron, and go out at the cupola, for the purpose of evaporating the water, which is kept continually boiling. Other tubes, communicating with a reservoir, are likewise contained within the brick-work, and furnish the inside with cold water, by means of cocks placed at the side of those which yield the warm water. Small seats of smooth wood are made to fit on, and drains cut in the marble to carry off the water which is thrown down. These private baths, always heated twenty-four hours before they are used, by being thus constructed, possess such a degree of heat, that persons who undress in the exterior chamber, and put on high sandals of wood to preserve the feet from being burnt by the marble floor, cannot enter the first room with safety till they have stopped a moment between the two doors to let the lungs dilate; after which they cannot enter the second stove, under which the heat is most active, without similar precaution. A sudden perspiration rushing through all the pores, is felt immediately as they are entered; but the violence of this heat does not prevent the women from staying in these baths five or six hours, and returning to them very frequently. The following description of the public bath, and the method of using it, is abstracted from the account given of the baths at Carro, by Savary, Travels, vol. i. p. 146, &c. The first apartment, or undressing chamber, is a lofty and spacious hall, which rises in the form of a rotunda, and is open at the top for admitting a free circulation of the air. A spacious estrade, or raised floor, covered with a carpet, and divided into compartments, goes round it, on which the person who bathes lays his clothes. In the middle of the building, a jet d'eau spouts up from a basin, and agreeably entertains the eye. When you are undressed, you tie a napkin round your loins, put on a pair of sandals, and then enter a narrow passage, where you begin to feel the heat. The door being shut, at the distance of twenty paces, you open a second door, and proceed along a passage, which forms a right angle with the former; here the heat increases. Those who are afraid of suddenly exposing themselves to a stronger degree of it, stop in a marble hall, in the way to the bath, properly so called. The bath itself is a spacious and vaulted apartment, paved and lined with marble, around which are four closets. The vapour incessantly rising from a fountain and cistern of hot water, mixes itself with the burning perfumes, when perfumes are desired by the persons who bathe. The bathers extended on a cloth that is spread out, and with the head supported by a small cushion, stretch themselves freely in every posture, whilst they are enveloped by a cloud of odoriferous vapours, which penetrate into all their pores. After reposing there for some time, till a gentle moisture is perceived over the whole body, a servant presses you gently, turns you over, and when the limbs are become supple and flexible, he makes all the joints crack without any difficulty. He masses, *i. e.* delicately touches, and seems to knead the flesh, without making you feel the smallest pain. When this operation is finished, he puts on a glove covered with a piece of coarse stuff, and rubs you for a long time; and during this operation, he detaches from the body, running with sweat, a scurf or sort of small scales, and removes even the imperceptible filth that stops the pores. The skin becomes soft and smooth like satin. He then conducts you into a closet, pours a lather of perfumed soap upon your head and then withdraws. The closet is furnished with a cistern and two cocks, one for cold and the other for hot water. After having washed in this apartment, the servant brings a depilatory pomatum, composed of a mineral called "*ruima*," which is of a deep brown, and which the Egyptians burn lightly, knead with water, and mix with half the quantity

quantity of flaked lime. This greyish paste, applied to the hair, makes it fall off in a little time; and it is generally used both by men and women in Egypt. After being well washed and purified, you are wrapped up in hot linen, and conducted through the windings that lead to the outer apartment: and by this gradual transition from heat to cold, or by stopping for some time in the hall next the stove, no inconvenience arises from the use of the bath. On arriving at the estrade, you find a bed prepared for you, and as soon as you are laid down, a child presses every part of your body with its delicate fingers in order to dry you thoroughly. Here you change linen a second time, and the child gently grates the callosity of your feet with pumice stone. He then brings you a pipe and Mocha coffee.

By these baths, says Savary, the use of which the ancients strongly recommended, and which are still the delight of the Egyptians, they prevent or dispel rheumatisms, catarrhs, and such cutaneous disorders as are produced by want of perspiration. Thus the blood is made to circulate with freedom, the whole body acquires a suppleness and lightness, and the spirits gain a vivacity and flow, which are not experienced in an equal degree, by those who do not pay so much attention to external cleanliness. The women are particularly fond of these baths, and frequent them at least once a week. After undergoing the usual preparations, they wash their bodies, and more especially their heads, with rose water. Here the female head dressers form their long black hair into tresses, to which they apply costly essences, instead of powder and pomatum. Here they blacken the edges of their eye-lids, and lengthen their eye-brows with "cohel," or a preparation of tin burnt with gall-nuts. Here also they stun their finger and toe nails with "henne," (See *ALCANNA*), which gives them a golden colour. The linen and clothing which they use are passed through the sweet steam of the wood of aloes. The days, appropriated to the use of the bath, are festivals for the Egyptian women; and on this occasion they pay great attention to the ornaments of their dress, as well as to the cleanliness of their persons.

Baths similar to that above described, though differing in size, are constructed in all the principal towns of Egypt. The necessity of cleanliness in the eastern climates, where perspiration is so copious, has rendered baths indispensable: the comfort they produce, preserves the use of them; and Mahomet, who knew their utility, has re-enforced the practice of ablution and bathing by express precept.

Mr. Tooke (View of the Russian Empire, vol. ii. p. 7, &c.) informs us, that the common Russians, in general, use but few medicines; supplying their place, in all cases by the sweating bath, a practice universal among them, and which has a decided influence on the whole physical state of the people. The use of the bath, that venerable relic of the manners of the ancient world, as this ingenious writer denominates it, is now almost entirely confined to the Oriental nations, where it ministers both to health and to luxury, and is perpetuated by religion. In Europe it has been gradually declining for several centuries, though it was here also in some sort interwoven with religion, the holy water of the Roman catholic church being a slight remnant of it.

Russia and Hungary are at present the only countries in this quarter of the world, where it is still the custom to bathe after the manner of the ancients. In Russia, particularly, the bath forms so essential a part of the system of living, that it is used by people of every age, and in all circumstances, by infants, by lying-in women, in almost all sicknesses, before and after a journey, after hard work, &c. The bath is a necessary of life so indispensable to the common people, that they frequent it as often as possible, well or ill, and without

any particular occasion, once a week at least. Persons of middle station in good circumstances, and the great, usually construct vapour baths, after the Russian fashion, in their own houses, though in these classes the practice is declining under the increasing influence of foreign manners. Baths have been common in Russia from time immemorial. They are described by Nestor so long ago as the 11th century, precisely in their present form. Among the ancients the baths were public buildings under the immediate cognizance of the government. The invention of them was owing to cleanliness and convenience; but in process of time all the graces of architecture were lavished upon them; and at length luxury and voluptuousness so perverted them from their primitive purposes that they became offensive and shocking to the moralists of antiquity. Alexander was astonished at the magnificence of the baths in Persia. At Rome, under the emperors, there were once 870 of these edifices, such, with respect to magnificence and taste, as might pass for masterpieces of art; and in after ages they were demolished by the Goths, or converted by bishops into churches. In our days, however, Hungary is the only country that can still exhibit baths, equal in magnificence to those of the ancient Romans. In Russia, on the contrary, they are always of that simple construction, which indicates their primitive and most essential destination. Here the public baths, called public because they are under the care of the police, and let out to common people on the crown's account, usually consist of mean wooden houses, situate, whenever it is possible, by the side of a running stream. In the bath-room is a large vaulted oven, which, when heated, makes the paving stones lying upon it red-hot; and adjoining to the oven is a kettle fixed in masonry, for the purpose of holding boiling water. Round about the walls are three or four rows of benches, one above another, like the seats of a scaffold. The room has little light, but here and there are apertures for letting the vapour escape; the cold water that is wanted being let in by small channels. Some baths have an anti-chamber for dressing and undressing; but in most of them this is done in the open court-yard, which on that account has a boarded fence, and is provided with benches of planks. In those parts of the country where wood is scarce, they sometimes consist of wretched caverns, commonly dug in the earth close to the bank of some river. In the houses of wealthy individuals, and in the palaces of the great, they are constructed in the same manner, but with superior elegance and convenience. The heat in the bath room is usually from 32° to 40° of Reaumur; and this is much increased by throwing water every five minutes on the glowing hot stones in the chamber of the oven. Thus the heat often rises, especially on the uppermost bench, to 44° of the thermometer. The persons that bathe lie quite naked, on one of the benches where they perspire more or less in proportion to the heat of the humid atmosphere in which they are enveloped. For promoting perspiration, and more completely opening the pores, they are first rubbed, and then gently flagellated with leafy bunches of birch. After remaining for some time in this state, they come down from the sweating bench, and wash their bodies with warm or cold water, and at last plunge over head in a large tub of water.

Many persons throw themselves immediately from the bath-room into the adjoining river, or roll themselves in the snow in a frost of ten or more degrees.

The Russian baths are, therefore "sweating baths;" not the Roman tepidaria or caldaria of a moderate warmth, but very violent sweating baths, which to a person unhabituated to the practice, bring on a real, though a gentle and almost voluptuous swoon. They are "vapour-baths," not

water nor yet dry sweating-baths; differing in this respect from all the baths of antiquity, as well as from those of the modern Orientals; and in this consists their essential excellence, that they are beneficial in such a variety of cases, where hot-water baths would be useless or even pernicious. They are further "salutary baths," as they promote cleanliness, assist the perspiration, render the skin soft and smooth, &c. and not voluptuous baths like those of the Greeks and Romans. All the inventions of effeminacy and luxury are entirely obviated; and of anointing after the use of the bath, indispensable in those, the Russian is wholly ignorant. Instead of this sudden transition from heat to a rigorous frost hardens his body, and adapts it to all the severities of climate, and to every vicissitude of weather, a transition of which seems to us unnatural or dangerous, merely from the prejudices of a soft and effeminate age.

Mr. Tooke adds, that without doubt, the Russians owe their longevity, their robust state of health, their little disposition to certain mortal diseases, and their happy and cheerful temper, mostly to these baths, though climate, aliment, and habits of living likewise contribute their share.

The great lord chancellor Bacon, and other sagacious observers of nature, and of mankind, have lamented, and certainly not without cause, that the practice of bathing has fallen into disuse among the modern nations of Europe, and anxiously wish that it might again revive in all our towns and villages. In fact, when we consider, says Mr. Tooke, that the old physicians so early introduced into their practice this remedy of nature's own invention, and employed it with such great success; when we recollect that Rome for 500 years had no physicians but only baths, and that to this day a multitude of nations cure almost all their maladies merely by baths; we cannot avoid regarding the dismission of them as the epocha of a grand revolution, which has been wrought in the physical state of the human race, in one quarter of the world. The natural perspiration, the most important of all excretions, must naturally go on better in a body constantly kept soft by bathing. Many impurities that privily lay in us the train to tedious and dangerous distempers are removed in time, before they poison the blood and juices. All exanthematic diseases are abated by bathing, and consequently the small pox; and if this dreadful disorder be actually less fatal in Russia than in other countries, this phenomenon need not be attributed to any other cause besides vapour baths.

BATHING, *medicinally considered*, ranks among the most efficacious means by which diseases are prevented or cured. Its effects vary according to the variation of temperature, and according to the qualities of the liquid medium employed; that is, according as the bath consists either of common water, or of water containing salt or other mineral ingredients (see MINERAL WATERS), or of water impregnated with the virtues of aromatic or other herbs. These last, which go under the name of *medicated baths*, are seldom used; and when they are we are inclined to believe that it is to the watery medium, rather than to such impregnations, that their beneficial operation is to be ascribed.

Under the present head, we shall confine ourselves to the consideration of the effects produced by bathing, so far as they depend upon a diminution or increase of temperature above or below the natural standard of the human body.

Baths of different degrees of temperature, corresponding to the familiar terms, *cold*, *temperate*, and *hot*, are suited to different and opposite states of the body. The manner of using them is also different; the time of immersion or staying in them varying according to the difference of temperature,

and according to the required quantum of impression or effect, as will be particularly noticed in treating of each.—And, first, of the

COLD BATH, by which is understood water of a temperature from 65 to 33 of Fahrenheit. The general effects produced in a healthy person by immersion into an ordinary cold bath (that is, water of the temperature of 48 or 50) are, according to the accurate statement of Dr. Saunders, as follow: "First, there is a general sensation of cold, forming that sudden shock to the whole system which is one of the most important effects of the cold bath. This is almost immediately succeeded by an equally universal sense of warmth, which increases rapidly to a certain point, so as to cause the surrounding water, though actually cold, to feel of a comfortable warmth; and this feeling is sooner produced, and continues longer, in proportion as the person is in full health, and naturally possesses a vigorous circulation. By degrees, however, if the body continues immersed, it becomes chilled; violent shivering comes on; the extremities grow numb and pale; sometimes sickness takes place; and, at last, the animal powers are exhausted by cold and fatigue. In this process the most remarkable effects are those which occur first, and are directly consequent to the shock of immersion; and these require particular attention in a medical view, as it is only to the production of these that the cold bathing should be suffered to proceed. The sensations of returning warmth which take place directly after the cold of the first immersion, constitute what has been called the *reaction of the system*; and this is certainly a proper and characteristic term, as it imports an action produced in the body itself, to resist an external impression. Reaction in this place seems to be a peculiar effort of the living power, and to be excited in a degree proportionate to the force of that power, and to the intensity of the cause which called it into action. It implies not merely an increase of the production of animal heat, but, superadded to this, a sudden effort within the body, and the whole arterial system, to overcome an impression on the extremities as sudden and powerful. Hence it is that a mere abstraction of heat, by a cold medium will not produce that which is precisely meant by reaction, except the external cold be applied suddenly, and to a large surface. These two conditions are fulfilled by sudden immersion into cold water. The superior power of conducting heat which water possesses over air, is also a circumstance that is always to be kept in mind in applying cold externally. This is particularly shewn where a person continues long in this cold medium beyond the first effects of reaction. On account of the high conducting power of water, the body must be constantly employed in producing an unusual quantity of heat; and this appears to be a great effort in the constitution, which, if carried too far, goes directly to destroy the animal powers." Thus three effects are produced by immersion in cold water; viz. an instantaneous and powerful shock, a sudden abstraction of heat from the surface of the body, and that exertion of the vital energies to counteract the shock and restore the lost quantity of animal heat, which is termed reaction. It is easy to perceive that when the body is placed under such circumstances for a few seconds, a considerable impression must be made, first upon the sentient system, i. e. the brain, and its ramifications, the nerves; and, secondly, upon the sanguiferous and absorbent systems: and that such impression may be rendered subservient to the prevention and cure of various diseases. Accordingly, the cold bath is a principal remedy, first in many convulsive affections, and in maniacal attacks; and secondly, in certain forms and conditions of fever.

B A T H I N G.

1. In the convulsions to which children are so liable, Dr. Currie of Liverpool (whose observations on the subject of cold bathing cannot be too often quoted) has found this application a most useful remedy, whether the convulsions originated in worms, or other causes. In early infancy, however, he remarks, that he has used it with caution, sometimes tempering the water when the weather was cold, and sometimes pouring it upon the patient, rather than immersing the patient in it; making the application of the cold water in this way sudden and transient, so as to secure reaction, and avoiding the remedy entirely in all cases where the vital energy seemed much exhausted. He further remarks, that the chief benefit derived from the cold bath in convulsive diseases, depends on its being used in the paroxysm of convulsion. It not only shortens the duration or abates the violence of the existing paroxysm, but has a remote good effect in retarding or wholly preventing its return. In that convulsive disorder termed *chorea St. Viti*, the cold bath, though strongly recommended by most practitioners, has not succeeded with this author; and he candidly acknowledges, that his experience of its effects in epileptic fits is as yet too limited to enable him to form any satisfactory conclusion. The late Dr. Heberden, whose experience in these affections was considerable, had no great opinion of it. Against *tetanus*, whether idiopathic or arising from local injury, this remedy has been employed with the most decided good effect, particularly in the tropical climates; nor has it proved less beneficial in maniacal paroxysms. See Dr. Currie's work hereafter quoted.

2. In certain forms and conditions of fever. In these cases, cold bathing, whether by immersion or affusion, is of eminent service when properly applied; as, by abstracting the preternatural degree of heat, it rids the body of an exhausting stimulus and irritation, and thereby abates the frequency of the pulse, the delirium, and other febrile symptoms. It may be resorted to in most fevers, (some of the exanthematous fevers excepted) where the skin is hot and dry; but it is especially adapted to the *typhus*, or common contagious fever of this country, the ardent fevers of the hot climates, and the yellow fever of the West Indies, &c.—“The safest and most advantageous time (says Dr. Currie) for using the aspersion or affusion of cold water, is when the exacerbation is at its height, or immediately after its declination is begun; and this has led me almost always to direct it to be employed from six to nine o'clock in the evening; but it may be safely used at any time of the day, when there is no sense of chilliness present, when the heat of the surface is steadily above what is natural, and when there is no general or profuse perspiration.” It is of the utmost importance that medical practitioners be careful not to apply this remedy during the cold fit of fever, when it would extinguish life; nor to apply it when the heat of the body is less than natural, or even only equal to the natural heat; nor when the fever-patient is in a state of perspiration. Cold bathing has also been tried in the *scarlatina*; but in this species of eruptive fever as well as in measles, the application of cold water to the surface of the body is, in our opinion, by no means advisable. Another caution we would subjoin with regard even to fevers that are not eruptive; viz. that when they are complicated (as often happens in this climate) with pneumonic inflammation, cold ablution is inadmissible.

Cold bathing has often been recommended in certain glandular diseases, and particularly in scrophula. Accurate observation, however, has proved, that in these cases it is generally hurtful; and that for such complaints, a temperate bath, whether of fresh or salt water, is preferable.

Having thus described the general effects of cold bathing, as well as its particular application to certain states of disease; we have only further to add a few words respecting the manner of using it. In the case of *immersion*, the time of staying should in general not exceed a minute or two, where the degree of cold is below 60; but in the summer and autumnal seasons, immersion in rivers, and especially in the sea, may be continued as long as is pleasant to the feelings of the bathers; provided the body is at the same time exercised in swimming. Much mischief, however, is frequently done by staying in too long.

It has been commonly supposed, that if a person has made himself warm with walking or any other exercise, he must wait till he becomes cooled before he should plunge into the cold water. Dr. Currie, however, has shown that this is an erroneous idea, and that in the earlier stages of exercise, before profuse perspiration has dissipated the heat, and fatigue debilitated the living power, nothing is more safe, according to his experience, than the cold bath. This is so true, that he has for some years constantly directed infirm persons to use such a degree of exercise before immersion as may produce some increased action of the vascular system, with some increase of heat; and thus secure a force of reaction under the shock, which otherwise might not always take place. The popular opinion, that it is safest to go perfectly cool into the water, is founded (he observes) on erroneous notions, and sometimes productive of injurious consequences. Thus, persons heated and beginning to perspire, often think it necessary to wait on the edge of the bath until they are perfectly cooled; and then plunging into the water, feel a sudden chilliness that is alarming and dangerous. In such cases, the injury is generally imputed to going into the water too warm, whereas in truth it arises from going in too cold.

Besides immersion, there are other modes of cold bathing; such as *affusion*, which consists in suddenly pouring upon the body a sufficient quantity of cold water from buckets or other vessels. This mode of applying cold water produces a very considerable shock, and consequent reaction. It is this mode of cold bathing that has been resorted to with advantage in the contagious fevers of this climate, and in the yellow fever of the West Indies. What is termed the shower-bath is only another mode of affusion.

As cold bathing is a remedy which is successfully employed for the cure of various disorders, so is it a preservative against others, and particularly against febrile infection. When used by persons in health, it increases the tone of the muscular fibres, strengthens the digestive organs, and by diminishing the sensibility of the whole system, and particularly of the skin, renders the body less susceptible of atmospheric impressions from cold, wet, and sudden changes of temperature; thus contributing to the production of what is termed a robust or athletic constitution. A temperate bath (i. e. from 70° to 85°, or more) is applicable to the same cases as the cold bath, and may be used in the same manner. It is preferable in many cases where the shock of the ordinary cold bath is too great.

If after going into the cold bath a person feels dull or chilly, or complains of head-ach, or tightness across the chest, it is a proof that it disagrees, and it should accordingly be discontinued. It should further be remarked, that this remedy is not suited to those who have a tendency to consumption, nor to such as are constitutionally liable to bowel complaints. The best seasons of the year for cold-bathing are the summer and autumn.

We now proceed to the consideration of

WARM BATHING: a remedy not less efficacious than the former in diseases of an opposite nature; but concerning

concerning the operation of which, wrong notions have till very lately been entertained by the generality of medical writers and medical practitioners. It has been imagined that the warm bath relaxes (a figurative expression) and weakens, whereas it produces a contrary effect; unless indeed the temperature be so high, or the time of immersion continued so long, as to bring on that degree of debility which is accompanied with deliquium. But this arises only from an abuse of hot bathing, and is even then the consequence of an excess of stimulation. So far is immersion of the body in water heated to 96° from having a lowering or weakening operation, that when duly regulated it is found to raise the spirits, to mend the pulse and appetite, and to refresh and invigorate the whole frame. Hence the benefit derived from it after great fatigue; in old age; in atonic gout, accompanied with stiffness and pallid swellings of the joints; in paralysis; in chlorosis; in diseases arising from a certain torpor of the lymphatic and glandular system, such as scrophula, leprosy, and other chronic eruptions, &c. In cases of predisposition to phthisis, it abates the frequency of the pulse, and tends to retard at least, if it does not wholly prevent, the pulmonary affection. In consequence of its soothing and agreeable impression upon the surface of the body, it produces very beneficial effects in certain disordered states of the alimentary canal, originating in diminished action; and it affords the best and speediest relief in a great variety of painful disorders, whether connected with local inflammation or not; such as chronic rheumatism, certain forms of lues venerea, nephritis, calculus vesicæ, colic, enteritis, &c.

The time of immersion should be varied according to the temperature of the water, and the feelings of the patient. In a bath of 96°, a person may remain fifteen, twenty, or thirty minutes, or even longer; but in one of 98 or 100, it will seldom be proper, and indeed there are few persons that can bear, to remain beyond ten minutes, and in the generality of cases not so long. Patients labouring under chronic rheumatism and palsy bear the high degrees of temperature best. When sweating is desired (which will seldom happen, except in cases of local inflammation), the warm bath should be used in an evening, and the patient should immediately afterwards be put into a warm bed, and remain there until late the next morning; but in all other cases, where sweating is not required, or in which it would be hurtful, the best time for using the warm bath will be in the forenoon, about two hours after breakfast. In these cases, the bathers should not retire to bed, nor confine themselves within doors, but go about as usual; unless the weather should be particularly damp or inclement. Hot bathing, like cold bathing, is applied topically by pumping on the diseased part, as will be described when we come to treat on mineral waters. Sometimes steam is applied to the body instead of warm water. See VAPOUR BATH.

Among the works on cold and warm bathing, the following are those which seem most entitled to notice: viz. "Floyer on Cold Bathing," 1709. It should be remarked, however, that this author writes without method on this subject; that he is too indiscriminate in his praises of the cold bath, and that he recommends it in some diseases of debility to which warm bathing is better adapted. "Macard über die Natur und den Gebrauch der Bäder." Hanover, 1793. Currie's "Medical Reports on the Effects of Water, cold and warm," 1797. And the 6th chapter of Dr. Saunders's "Treatise on Mineral Waters," 1800.

BATHING a *bauck* or *saloon*, is, when being weaned from her ramage fooleries, and also hired, rewarded, and thoroughly reclaimed, she is offered some water to bathe her-

self in, a bason, where she may stand up to the thighs, choosing a temperate clear day for that purpose. By the use of bathing she gains strength, with a sharp appetite, and so grows bold.

BATHING, among the Cophts and Ethiopians, denotes the day of Christ's baptism, reputed the 6th of January; when, from an opinion of an extraordinary sanctity in the waters on that day, they not only, by ancient custom, baptized their catechumens, but were re-baptized themselves. The water of this day they carry home to keep; and Chrysostom assures us, that it had been often known to remain sweet and uncorrupted for two or three years. Orat. 74.

BATHING Tub. In the Roman baths there are two kinds of bathing-tubs; the one fixed, and the other moveable. Among the latter, some were contrived on purpose to be suspended in the air; whereby, to the pleasure of bathing was added that of being swung or rocked by the motion given to the bathing-tub. Burette, in Hist. Acad. Inscript. tom. i. p. 122.

BATHINUS, in *Ancient Geography*, a river of Pannonia, near which the young men of the country assembled, laid down their arms, and threw themselves at the feet of the victorious Romans.

BATHIS, BATIUM, a river of Asia, in the territory of Colchis, which ran from the east to the west, and discharged itself into the Euxine sea, 6 leagues south of the mouth of the Phasis.

BATHIS, in *Entomology*, a species of PAPILIO (Pleb. rur.) that inhabits Surinam. The wings are two-tailed, with a black ocellar spot: beneath brown, fasciated with white; anal angle rufous. Fabricius.

BATHMONSTER, in *Geography*, a town of Hungary, separated by the Danube from BATHA.

BATHOS, in *Ancient Geography*, a town of the Peloponnesus, in Arcadia, near the river Alpheus, according to Pausanias; who adds, that they celebrated every third year the mysteries of the greater goddesses in this place.

BATHRACUS, a port of Africa, in Marmarica. Ptolemy.

BATHRITITES, the name of a nome of Egypt, whence, according to Eusebius, king Vaphres sent succour to king Solomon.

BATHRUM, a name given by ancient surgeons to a kind of stool or bench proper for the reduction of dislocated bones. This is called βαθρον ἰατροπαιον, or the *Hippocratic stool*. Its description and use are represented at large by Schulterus, Arm. Chir. p. i.

BATHURST, RALPH, in *Biography*, born at Howthorpe, a small hamlet belonging to the parish of Theddingworth in Northamptonshire, in the year 1620, received the rudiments of his education at the free-school in the city of Coventry; where his progress in the Latin and Greek languages was so rapid and extensive, that he was sent to Oxford, and entered in Gloucester Hall (now Worcester College), October the 10th, 1634, being then only fourteen years of age. He was however soon removed to Trinity College, where his father had been educated, and of which two of his brothers, George and Edward, were then members. Proceeding in his studies, he was elected scholar of the college, June 5th, 1637. In January following he took his degree of Bachelor of Arts; and in the year 1640, he was appointed Fellow of the College. In 1641, he proceeded Master of Arts; and in 1644, was ordained priest by the bishop of Oxford; his inclination, his biographer says, disposing him to theological studies. Finding, however, from the troubles that then and for many years after assailed the country

country, little prospect of advancing himself in that line, he applied to the study of medicine, which, in a letter to a friend some years after, he called "his refuge in bad times, and not his primitive design." But as his mind was vigorous, he soon acquired considerable eminence in this profession; being assisted in his endeavours by Dr. Thomas Willis, with whom he kept up an intimate connection until death deprived him of that valuable friend. In 1654, he took the accumulated degrees of Bachelor and Doctor in Medicine; but he had before so far signalized himself, as to obtain the appointment of physician to the sick and wounded of the navy, which office he performed to the satisfaction of the commanders of the ships, and of the admiralty. Quitting this situation, he returned and settled in Oxford; and, with his friend Dr. Willis, attended Abingdon market regularly every Monday, to give advice to such patients as applied. He was an associate with Mr. Boyle, Dr. Seth Ward, Christopher Wren, and various other persons, who met every week at the rooms of Dr. Wilkins, to discuss philosophical subjects; which meetings led to the formation of the Royal Society in London, in 1662. A committee or branch of the society continued their meetings at Oxford for several years after, of which Dr. Bathurst was elected president in 1688. On the restoration of king Charles the Second, he quitted the practice of medicine, and resumed his theological studies. In 1663, he was made chaplain to the king; and the year following, president of the college, which was nearly rebuilt under his direction. The expence of the building was furnished in part by the college, part by subscriptions solicited by the doctor, and no small portion of it from his own fortune. About the same time he married the widow of Dr. John Palmer, warden of All Souls College; but had no children by her. In 1670, he was installed dean of Wells. This advancement was procured him by the duke of Devonshire, to whose notice he had recommended himself by an elegant copy of Latin verses to Mr. Hobbes, on his Treatise of Human Nature, which was printed with the volume. In 1673 he was made chancellor of the university, and was re-elected to that office the two following years, by which means he had opportunity of reforming many abuses which had crept into the institution, and of establishing many useful regulations which still continue to be observed. As he had contributed largely in rebuilding and beautifying his own college, and was the first in introducing Grecian architecture in Oxford, he now set about restoring St. Mary's church, which had suffered much during the protectorate. He subscribed 300*l.* towards paving the choir with marble, and erecting an organ there. In 1691, he was nominated by king William and queen Mary, bishop of Bristol, with liberty to keep his deanery and headship of the college; but had the resolution to decline this noble offer, lest it should detain him, he said, too long from the university, and be the means of retarding the improvements he was making there, both in discipline and in the buildings. In the mean while his fame for proficiency in letters became so extended, that he corresponded with most of the first literary characters in the kingdom, who frequently submitted their works to his inspection and criticism before they were published. He was particularly instrumental in advancing Derham, the celebrated author of the "*Astro.*" and "*Physico-Theology.*" from obscurity and indigence; recommending him to the bishop of Salisbury, through whose means he was raised to an eminent station in the church. As he was a strict disciplinarian, and regularly attended his duty both in the university and at his deanery, he had little leisure for undertaking any extensive works; accordingly, excepting his "*Prælectiones*

tres de Respiratione," we have only his "*Orations*" before the university, on his being appointed vice-chancellor, on laying down his office, and on a few other subjects; with some short poems. These however have been sufficient to establish his character as an elegant Latin scholar. He was very abstemious in his diet, and regular in taking exercise; and had the happiness of enjoying an almost uninterrupted state of good health until he was upwards of fourscore years of age, when his sight began to fail, and at length he became blind. Walking one day in his garden, the only amusement that remained to him after the failure of his sight, he had the misfortune to break his thigh bone, by what accident it is not said; which occasioned him excessive torture, and after languishing a few days, he died in 1704. His property, which was considerable, he had directed by his will to be disposed of in the manner he had expended a large part of his income in his lifetime; in donations towards improving his college; in books and medals to different libraries; in donations to the cathedral at Wells, and to the servants of the cathedral and of his own college. The remainder was left among his relations, who were numerous. His directions concerning his funeral, as being singular, and marking somewhat the disposition of the man, we shall transcribe.—"Concerning the place and manner of my funeral (he says) I am not at all solicitous, but shall leave it to the discretion of my executor; except it shall please God to give me leisure and opportunity of ordering it at the time of my death, as occasion may then require: only I shall always desire, that it may be performed with all convenient frugality and privacy; and that my mouth and nostrils may be firmly closed up with a plaster of diachylon, and my whole head wrapped in cere-cloth; and that I be buried without any cover to my coffin, only with a black pall of woollen stuff loosely nailed on, and hanging loose down." See Life of Ralph Bathurst, by T. Warton.

BATHURST, ALLEN, earl Bathurst, a nobleman not more distinguished by the elevation of his rank, than by his abilities and integrity as a statesman, and by the elegance of his taste and the variety of his accomplishments as a polite scholar, was the son of sir Benjamin Bathurst, descended from an ancient family of Lüneburg, residing at a place called "*Batters*;" and settled in England in the time of the Saxons, at a place called "*Batters Hurst*," or Batters Grove, in Suffex, whence the name; and born in Westminster, in the year 1684. At the age of 15 years, he was entered in Trinity College, Oxford, where he enjoyed peculiar advantages for improvement under his uncle, dean Bathurst, who was then president. Having availed himself in an eminent degree of these advantages, he commenced his political career as a senator in 1705, being chosen representative for the borough of Cirencester in Gloucestershire, which he served in two parliaments. Under this character he distinguished himself in the debates that related to the union of the two kingdoms, and vigorously supported this measure. He likewise concurred in the opposition planned by his two friends, Mr. Harley and Mr. St. John, against the duke of Marlborough and his adherents; and by his spirit and eloquence he was of great service to his party. At the same time he was duly sensible of the merit of those from whom he differed in political principles; and by his conduct toward lord Somers, both in and out of office, he preserved his lordship's esteem and friendship. In his opposition to the whig ministry, he appears to have acted from the conviction of his own mind; for after their dismissal, he accepted no place under government, though his abilities and activity entitled him to notice, and his connection with the principal Tories of that period might naturally have led him to expect some honour-

able and lucrative preferment. However, his merit was recompensed in 1711, by advancement to the dignity of a peer of Great Britain, under the title of lord Bathurst, baron Bathurst of Battlesden in the county of Bedford. Upon the accession of king George I. the political friends of his lordship were in disgrace, and some of them were actually exposed to the prosecution of government; and yet his attachment to them remained firm and unchangeable. He even avowed his disapprobation of the treatment they suffered, which he considered as severe and vindictive; and on this occasion he is said to have observed, in strong and poignant terms, "that the king of a faction was only the sovereign of half his subjects." His zeal in defence of his friends was manifested by his joining in the protests against the attainder of lord Bolingbroke and the duke of Ormond; and by his opposing the prosecution, and concurring in the unanimous acquittal, of lord Oxford. In 1716, he opposed the septennial bill; and united with thirty peers in entering his reasons for dissenting from it, as a violation of the constitution. From the commencement of the year 1718, he took an active and distinguished part, for the space of twenty-five years, in every matter of importance that came before the upper house of parliament, and he steadily opposed the measures of the court, and the administration of sir Robert Walpole. Lord Bathurst was a zealous advocate for bishop Atterbury; and distinguished himself, in 1723, on the third reading of the bill for inflicting pains and penalties on that ingenious and celebrated prelate. In 1727, he opened the debate on the king's speech, and strenuously opposed a war with Spain, which then threatened the country. "What (said he) can we get by the war, if it be a successful one? I'll say it in one word, nothing. What can we lose, if it be unprosperous? I'll say it in one word, in a syllable, all." In the year 1731, he supported the bill against permitting pensioners to sit in the house of commons; he moved an address to the king for discharging the 12,000 Hessian troops in the pay of Great Britain; and in the next parliament, he very ably resisted the undue taxation of the poor, on the bill for the revival of the salt-duty. On another occasion he displayed his parliamentary talents, by the support of the earl of Oxford's motion for reducing the number of forces to 12,000 effective men, and vindicated the expedience and usefulness of a national militia, as the most proper and constitutional mode of defence in a free country. In a subsequent debate on the mutiny bill, his lordship declared himself, with great eloquence and spirit, against a large standing army, and in favour of a national militia. Among other things, he particularly urged the importance of all men in the kingdom, or at least all freeholders, farmers, and substantial merchants and tradesmen, providing themselves with arms, and training themselves to military discipline. He likewise declared his utter disapprobation of the method that had been adopted of alienating the sinking fund, and applying it to other objects besides the payment of the public debts. Lord Bathurst was uniform and active in opposing the measures of sir Robert Walpole's administration, particularly with regard to the transactions that regarded the Spanish depredations, and the convention with Spain, and the subsequent conduct of the war with that kingdom; and he exerted himself, with singular ability, in the debate that lasted two days, on the question, whether an address should be presented to the king for the removal of this minister from his majesty's presence and councils for ever. When his lordship had accepted a place, in conjunction with some of his friends, his reasoning, in 1743, in vindication of the propriety and necessity of retaining the Hanoverian forces in the service of England, was somewhat differ-

ent from the sentiments he had avowed on a former occasion; but he was probably led to approve and defend this measure by the critical situation of our foreign affairs, and argued in its favour from a conviction of its prudence and rectitude. Whatever opinions may be entertained of lord Bathurst's political principles, and of the general reasons upon which his opposition to the whig ministry was founded, the history of that period will furnish scarcely any character, in which we may discover less discrepancy of conduct than in that of his lordship. We shall close this brief recital of his political history with the testimony of an anonymous writer, who delivered it at a time in which his talents were in their full exertion and display. "Lord Bathurst, in all he says, carries along with him that conviction which arises from a warm sense of liberty and virtue, directed by great abilities and a most exquisite discernment. He was called to the house of lords by means of the Tory interest, upon a particular exigence of state; and therefore it might have been presumed, that he was entirely devoted to that party. Yet he has chosen his principles of government so happily from what is commendable in both parties, that, upon whichever side he speaks, he is always observed to lean to the extremes of neither." *Gent. Mag.* vol. x. p. 103.

Lord Bathurst was married, in 1704, to Catherine, daughter and heiress of sir Peter Apsley, by whom he had four sons and five daughters. Having resigned, in 1744, the office of captain of his majesty's band of gentlemen pensioners, to which he was appointed in 1742, his lordship was in no public employment till the year 1757, when he was appointed treasurer to the present king, then prince of Wales, in which office he continued till the death of George II. At his majesty's accession in 1760, he declined the acceptance of any employment on account of his age; but in consideration of his distinguished merit, he had a pension on the Irish establishment of 2000*l.* a year. "As his lordship's abilities and integrity," says an impartial and candid biographer, "in public life, gained him the esteem even of his political opponents, so in private life, his humanity and benevolence excited the affection of all who were honoured with his more intimate acquaintance."—"To his other virtues lord Bathurst added all the good breeding, politeness and elegance of social intercourse. No person of rank, perhaps, ever knew better how to unite "*Otium cum dignitate.*" The improvements he made round his seat at Cirencester were worthy of his fortune, and shewed the grandeur of his taste." In this respect Mr. Pope (*Works*, vol. ii. p. 170. ed. 1776.) paid him a just and fine compliment:

"Who then shall grace, or who improve the soil?

Who plants like Bathurst, or who builds like Boyle?"

The same excellent poet, in his epistle to Lord Bathurst on the use of riches, has no less justly expressed his lordship's knowledge of the right mode of employing a large fortune:

"The sense to value riches, with the art
To enjoy them, and the virtue to impart;
Not meanly, nor ambitiously pursued,
Not sunk by sloth, not raised by servitude;
To balance fortune by a just expence,
Join with economy, magnificence;
With splendour, charity; with plenty, health;
Oh teach us, Bathurst, yet unspoiled by wealth;
That secret rare, between the extremes to move,
Of mad good-nature, or of mean self-love."

His lordship's wit, taste, and learning led him to seek the acquaintance of men of genius; and he was intimately connected

ned with the eminent persons of this character who adorned the beginning of the last century. From the few letters of his lordship that have been published, it appears, that his correspondence was a real honour and pleasure to those who enjoyed it. To the close of his life he preserved his natural cheerfulness and vivacity; and he was always accessible, hospitable, and benificent. He was fond of rural amusements; and enjoyed, with a philosophical calmness, the shade of the trees which he had planted. Till within a month of his death, he constantly rode out two hours in the morning, and drank his bottle after dinner, jocosely observing, that he never could think of adopting Dr. Cadogan's regimen, as Dr. Cheyne had assured him fifty years before, that he would not live seven years longer, unless he abridged himself of his wine. About two years before his death, he had a party of friends; and being loth to part with them at an early hour in the evening, when his son, the chancellor, wished to retire, he said to his companions in a sprightly manner, as soon as his son was gone, "Come, my good friends, since the old gentleman is gone to bed, I think we may venture to crack another bottle." In 1772, his lordship was advanced to the dignity of earl; and having lived to see his eldest surviving son several years lord high chancellor of Great Britain, and promoted to a peerage by the title of baron Apsley, he died in the 91st year of his age, after a few days' illness, at his seat near Cirencester, on the 16th of September, in the year 1775. Biog. Brit.

BATHUS, in *Entomology*, a species of *PAPILIO* (*Pleb. Rur.*), with entire black wings, glossed with blue; beneath white, with numerous black dots, and a continued fulvous band. Fabricius. Inhabits Austria. This is *Papilio Battus* of Schmettér, and *Papilio Telephii* of Esper.

BATHYCHRUS COLOR, in *Painting*, a term used by the Greeks to express what the Romans call *avferus color*. Such a colour was coarse and dull, and wanted the life of the florid colours. See *EVANTHI Colores*.

BATHYCOLPUS, in *Ancient Geography*, a bay and river of Europe, in the Thracian Bosphorus. Hesychius.

BATHYLLUS, and **PYLADES**, in *Biography*, the inventors of a new method of representing all kinds of theatrical pieces by dancing. Bathyllus was a freedman of Mæcenas, the object of his extravagant and licentious attachment; and in compliance with the wishes of Mæcenas, Augustus countenanced these players and their art. Bathyllus excelled as a comic, and Pylades as a tragic pantomime. They flourished under Augustus, about the year B. C. 18. From these two competitors for public fame in the respective departments of their art sprung two sects, each of which retained the name and preserved the manner and character of its master. The disciples of Bathyllus were called Bathylli, and those of Pylades were denominated Pyladæ. The Romans divided themselves into parties on account of these two pantomimes; and the interest of Bathyllus's was at one time so prevalent as to procure the banishment of Pylades. Upon his return Augustus recommended his behaving better for the future, and not attempting to divide the people into parties or factions. Pylades replied, "Cæsar, it is of service to you to have the people buffed about Bathyllus and me." Gen. Dict. Crev. Hist. vol. i. p. 122.

BATHYLLUS, in *Ancient Geography*, a fountain of Arcadia, in the Peloponnesus, near Megalopolis. Pausanias.

BATHYMI, a people of Arabia Felix. Ptolemy.

BATHYS, a river of Phrygia Salutaris, which flowed in the north of this province, along the plain of the city Dorylæum, and discharged itself into the river Sangaris.

BATHYS, *Fiume Tayburo*, a river of Sicily, which ran into the gulf of Castell a Mare.

BATHYS, the name of a port of Ethiopia. Ptolemy.

BATI, a people of India, on the other side of the Ganges. Ptolemy.

BATIA, a town of Italy, in the territory of the Sabines.

BARIA, a district of Attica, belonging to the tribe of Ægides.

BATIÆ, a town of Epirus.

BATIANA, **BAIX**, a town of Gaul, on the right side of the Rhine, according to M. d'Anville.

BATIANI, a people of Italy, placed by Ptolemy in Liguria.

BATILLUS, a musical instrument made of metal, in the form of a staff, furnished with metalline rings, which being struck, yielded a kind of harmonical sounds; used by the Armenians in their church-service.

BATINA, in *Ancient Geography*, a town of Asia, in Media. Ptolemy.

BATINUS, a town of Italy, in Picentinum.

BATIS, in *Botany*, *βαλς*, the name of an herb which bears some resemblance to bramble, *βαλς*, Pliny. Lin. gen. n. 1104. Reich. 1208. Schreb. 1503. Brown 356. Jacq. Amer. 260. Juss. 443. Class and order, *diccia triandria*. Gen. Char. * Male. *Cal.* ament pyramidal; scales one-flowered, fourfold, imbricate. *Cor.* none. *Stam.* filaments four, erect, longer than the scales of the ament; anthers oblong, twin, incumbent. * Female. on a separate plant. *Cal.* ament common fleshy, containing some stercules conglobated into an ovate, quadrangular body; involucre, two-leaved. *Cor.* none. *Pist.* germ quadrangular, flattened to the ament; style none; stigma two-lobed, obtuse, villose. *Per.* berry conjoined with the rest, one-celled. *Seeds*, four, triangular, acuminate.

Ess. Char. Male. Ament four-fold, imbricate. *Cal.* and *Cor.* none. Female. Ament ovate; involucre two-leaved. *Cal.* and *Cor.* none. *Stigma* two-lobed, fissile; berries conjoined, four-seeded.

Species, 1. *B. maritima*. Sloan. Jam. 1. 144. Kali. This is a shrub about four feet high; stems brittle, round, ash-coloured, branched, diffused, procumbent; young branches, four-cornered, four-furrowed, green, opposite and upright; leaves oblong, acute, drawing to a point towards the base, fleshy, succulent; flat above, convex beneath, sessile, opposite, scarcely an inch long, numerous; stigma white; fruits yellow or greenish-yellow. The whole plant is very salt to the taste; and is burnt for barilla at Carthage, &c. A native of the Caribbee islands and the neighbouring continent; very common in all the salt marshes on the south side of Jamaica. Linnæus doubts whether it be distinct from the *bucephalon* of Plumier. Martyn's Miller's Dict.

BATIS, in *Entomology*, a species of *PHALÆNA*, found in England and some other parts of Europe. The interior wings are brown, with five rose-coloured spots on each; posterior ones whitish. This is a rare and elegant insect, and is called by collectors of English insects the peach-blossom moth. Linn. Donovan. Brit. Inf. &c.

BATIS, in *Ichthyology*, a species of *RAJA*, called in England the *SKATE*. It is varied; back smooth in the middle, with a single row of spines on the tail. Linnæus.

This is the largest fish of the Ray tribe; it inhabits all the northern parts of Europe in immense quantities, though it is certainly less common than the thornback, with which it is sometimes confounded. The usual size is from two to three feet in length, or rather more, including the tail; and they have been taken of the weight of an hundred and fifty

or two hundred pounds. They couple in March and April, and spawn in May. The flesh of the skate is thought better than that of the other Rays.

BATISTANI, in *Ancient Geography*, a people of Spain, who inhabited the northern part of Bætica.

BATISTE, in *Commerce*, a fine white kind of linen cloth, manufactured in Flanders and Picardy.

There are three kinds of batiste: the first very thin; the second less thin; and the third much thicker, called Holland batiste, as coming very near the goodness of Hollands. The chief use of batiste is for neck-cloths, head-cloths, surplices, &c.

BATMAN, a weight in Turkey, consisting of six okes. Forty of these batmans make a camel's load, and amount to about seven hundred and twenty pounds English weight.

Batman, or battament, is of a weight used in Turkey and Persia. The Turkish batman is of two kinds; the larger containing six okes, or *ocquos*; at three pounds three quarters Paris weight the *ocquo*; so that the batman amounts to about twenty-two Paris pounds and an half; the smaller, composed likewise of six *ocquos*, at fifteen ounces the *ocquo*, amounting to five pounds ten ounces. The Persian batman is likewise of two kinds: one called the *king's weight*, *batman de chahi*, or *cheray*, used for weighing most of the necessaries of life, equivalent to about twelve pounds and a half Paris weight; the other called *batman of Tauris*, equal to six pounds four ounces Paris or Amsterdam weight. These, at least, are the proportions given by Tavernier. Chardin rates the Persian batmans, somewhat lower, viz. the former at twelve pounds twelve ounces; and the latter at five pounds fourteen ounces.

BATMANSON, JOHN, in *Biography*, prior of the Carthusian monastery, or Charter-house, in London, in the 16th century. He studied at Oxford; and being a great favourite of Edward Lee, archbishop of York, wrote at his request against Erasmus and Luther. He died in 1531, and was buried in the Charter-house. Bale represents him as proud, arrogant, and fond of wrangling; and says, that Erasmus styles him an ignorant fellow, and vain-glorious even to madness. Pits, on the other hand, commends his genius, learning, piety, and zeal; his acquaintance with the scriptures, and his highly exemplary life. His works are "Animadversions in Annotationes Erasmi in N. T." "A Treatise against some of Luther's writings;" both these he afterwards retracted: "Comment. in Proverb. Solomonis;"—"in Cantica Canticorum;" "De Unica Magdalenâ;" "Institutiones Noviciorum;" "De Contemptu Mundi;" "De Christo duodenni," a homily on Luke ii. 42; and "On the words *Missus est*, &c." Biog. Brit. Gen. Dict.

BATNÆ, in *Ancient Geography*, a town of Mesopotamia, in Osdroene. Ammianus Marcellinus calls it Batne and Batna, and says, that it was a municipal city of Anthemusia, of great trade, built by the Macedonians, at a small distance from the Euphrates. The emperor Justinian made it a place of defence by encompassing it with walls. Procopius calls it a small and obscure town, and says, that it was about a day's journey distant from Edeffa. It lay south of Edeffa, and east of Zeugma. It was reduced by Trajan, who took it from Chosroes, king of the Parthians.

BATNÆ was also a small town of Syria, situate between Berrea and Hierapolis, pleasantly seated in a grove of cypresses, about twenty miles from the latter city. When Julian visited this town, A. D. 363, the solemn rites of sacrifice were decently prepared by the inhabitants, who seemed attached to the worship of their tutelary deities, Apollo and Jupiter.

BATNIR, or BATINDA, in *Geography*, a town of Hindostan, in the county of Moulton, in a district famous for pastures and fine horses. Timur marched from Adjodin, a town included in one of the large islands formed by the branches of the Setlege, to Batnir, the distance of 60 *coffes*, 50 *coffes* being equal to about 95 British miles; and in his way he crossed an extensive desert; so that Alexander was not misinformed when he was told there was a desert beyond the Hyphasia. After taking and destroying Batnir, represented as a very strong place, which, however, employed only a few days, he marched by a circuitous road to Samanah, directly distant from Batnir only 72 geographical miles. Batnir is about 150 miles, E. S. E. of Moulton, and 170 N. W. of Agimere. N. lat. 29° 15'. E. long. 74° 40'.

BATO, one of the Ladrone islands. N. lat. 12°. E. long. 142°. See BAN.

BATO, a river of Italy, in the kingdom of Naples, which runs into the Mediterranean, 2 miles S. E. of Scalea, in the province of Calabria Citra.

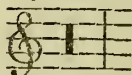
BATOA, a small island near the west coast of Sumatra, seated very nearly under the equinoctial line. E. long. 98°.

BATOE, *Ikan Batoe*, *Iang Aboe*, & *Ikan Pampus Cambodia*, names given by Valent. in his work on Indian fishes, to the species of CHÆTODON, specifically called ANNULARIS by Gmelin.

BATON, or BATOON, in *Heraldry*. See BASTON.

BATON, or *Baston*, as an instrument of punishment. See BASTONADO.

BATON, Fr. in *Music*, a musical character for silence, during two bars in *alla breve* time, and four off common and triple time. It fills up two spaces of the five-line staff;



and has a 2 or a 4 placed over it, proportioned to the time of the movement. See BREVE, TIME-TABLE, and RESTS.

BATOONS of ST. PAUL, *Bastoncini di San Paolo*, in *Natural History*, a name given by some of the Italian writers, as Augustino Scilla and others, to the *lapides Judaici*, or other spines of *echini*. These are found in vast abundance in the island of Malta; and as every thing there is commemorated with some title, with St. Paul at the end of it, these are called *baculi Sti Pauli*, or *St. Paul's battons*.

BATOPILAH, in *Geography*, a town of North America, in the province of New Navarre, 120 miles north of Cinaloa.

BATOS, in *Ichthyology*. See BATIS.

BATRACHA, in *Ancient Geography*, a town of Asia, in Sarmatia. Ptolemy.

BATRACHIAS *Lapis*, the *frog stone*, a name applied by different writers to two very different substances; some understanding by it lumps of common flint, which have accidentally formed themselves into this figure; and others, those pieces of amber, which contain either a whole frog, or any part of one.

BATRACHITES, among *Ancient Naturalists*, a kind of gem found in Egypt, denominated from its resemblance in colour to a frog. The word is formed from *βατραχος*, *rana*, a frog. Pliny speaks of three stones under this denomination; *unam ranæ similem colore*, *alteram ebori* (or rather, according to Hardouin's correction, *ebeni*), *tertiam rubentis et nigro*. The batrachites differed from the modern *busonites*, which does not appear to have been known to the ancients.

BATRACHOIDE, in *Ichthyology*, a genus of fishes of the JUGULARES kind, established by Lacépède for two fishes; the one belonging to the *Gadus*, and the other to the

the *Blennius*, genera of Linnæus, viz. *G. tau*, and *B. rarinus*. The character of the batrachoides consists in having the head very large and greatly depressed; opening of the mouth very spacious; and one or more beards situated about or at the under side of the lower jaw.

BATRACHOMYOMACHIA, formed of the Greek βατραχος, *frog*, μυς, *mouse*, and μάχη, *pugna*, and denoting the battle of the frogs and the mice; the title of a burlesque poem, usually ascribed to Homer. The subject of the poem is the death of Psycharpax, a mouse, son of Toxartes, who being mounted on the back of Physignathus, a frog, on a voyage to its palace, to which he had been invited, was seized with fear when he saw himself in the middle of the pond, so that he tumbled off and was drowned. Physignathus being suspected to have shaken him off with design, the mice demanded satisfaction, and unanimously declared war against the frogs. Stephens, Nunnefius, and other modern authors, take the poem not to be Homer's; but several of the ancients seem of another opinion; and Statius, who wrote under Domitian, makes no doubt of it. See Fabric. Bibl. Græc. lib. ii. c. 1. § 3.

BATRACHOSALIS, in *Ichthyology*, a name assigned by many of the Greek writers to the fish called by Linnæus *LOPHIUS PISCATORIUS*.

BATRACHUS, the name given by Klein to the Linnæan *LOPHIUS PISCATORIUS*.—Batrachus capite, rictuque ranæ, &c. Klein. The last writer also describes the Linnæan *LOPHIUS VESPERTILIO*, as *BATRACHUS capite vomeris instar cornuto*, &c.

BATRACHUS, a species of *SILURUS*, found in Asia and Africa. The dorsal fin is single, and contains sixty rays; beards of the mouth eight. Linn. Mus. Fr.—The tail is entire.

BATTA, or **BATA**, in *Geography*, a duchy or province of Africa, situate on the south-west of Pango, and having Dembo, Amulassa, and the salt-petre mountain on the east, on the south the marquise of Incussa, and the burnt mountains, and Congo and Pemba on the west. It is of considerable extent, was formerly called Anguirima or Aghirimba, and was a kingdom of itself, till both king and people submitted to the kings of Congo. This country is generally fertile, well-watered by rivers, and produces several sorts of grain. The inhabitants are more civilized than their neighbours.

BATTA, the capital of the above duchy, is distinguished in no other respect besides the fertility of its territory, and its being the residence of the governors of this province. There are allowed to have a number of arquebusers in pay, to defend it from the incursions of the wild Giagas, or Jagas, who inhabit the districts near its eastern frontiers, beyond the mountains of the Sun and Saltpetre, and who chiefly subsist by ravaging the adjacent territories. The road between this capital and that of the kingdom of Congo, called St. Salvador, has, it is said, a great number of houses and hamlets on both sides.

BATTA, the name of a country in Sumatra, where the English have two settlements. The inhabitants still eat human flesh, but restrict themselves to that of prisoners taken in war, and capital offenders.

BATTLE GROUND, denotes land lying between England and Scotland, of which the right of possession was disputed, when they were two distinct kingdoms.

The word imports as much as litigious, or disputable ground, from *battere*, to beat or fight.

BATTACKS, or **BATTOGES**, a punishment in Russia, similar to the bastinado, or bastonado, of China, Turkey, &c. The delinquent is stripped naked, and made to lie on

his belly, while two executioners beat him with small sticks, till the judge cries out, *enough*. The order to desist is frequently not given till the back of the unfortunate sufferer has been mortally mangled. During the whipping, he is obliged to pronounce the word "Winawat," which means "I am guilty;" and at the end of the punishment he must go and kiss the feet of him who directed it, and thank him that he did not make it more severe. The highest lords are not exempted from the battoges, and take vengeance for it on their unhappy vassals. This punishment is particularly reserved for the inferior orders, whom malversation or roguery would any where else drive from their employments. In Russia, it is reckoned sufficient to reduce them to an inferior employment, after the correction of the battoges. Chantreau's Travels in Russia, vol. i p. 117. See **BASTONADO**.

BATTAGLIA, in *Geography*, a town of Italy, in the kingdom of Naples, and province of Capitanata, 3 miles N. W. of Velle.

BATTAL, in *Ancient Geography*, a promontory of Arabia, north-east of Julia Cæsarea.

BATTALIA, an army ranged in order of battle, or ready for engagement.

In this sense, we meet with the depth of a battalia; to march in battalia, with the baggage in the middle; to break the battalia, &c. In the Roman battalia, the **HASTATI** made the front.

BATTALION, in the *Military Art*, signifies a small body of infantry, arranged in regular order, and instructed to march and to act in concert.

There are different opinions respecting the force of which a battalion should consist. If composed of too great a number of men, it cannot perform its evolutions with the necessary facility; if, on the contrary, the troops are not sufficiently numerous, it is incapable of producing by its attack any considerable effect. The number must therefore be so regulated, as to permit the necessary manœuvres to be executed with promptitude and regularity; and at the same time to compose a solid body, capable both of charging with firmness, and of sustaining the assault of other corps to which it may be opposed without falling into disorder.

The number of the battalion varies according to the usages of belligerent nations, their arms, the manner in which they employ those arms, and the order in which they engage. Europeans formerly differed very widely on all these points; but at present all the continental powers, the Turks alone excepted, observe nearly the same dispositions with respect to the battalion. The term even is adopted in every modern language.

The French have fixed the number of the battalion at about 700 men. Some nations form them still stronger, others weaker. In the English service they usually consist, in time of war, of ten companies; forming, exclusively of the staff, a total of between seven and eight hundred. When employed on service, the battalions being filled up at the commencement of a campaign, and rarely recruited till its close, are seldom or ever complete; as well from the loss they sustain in different engagements, as on account of sickness and other accidents inseparable from the military profession.

The arms of the battalion have been frequently and materially altered. In the infancy of modern tactics, one third of the troops were furnished with pikes, and drawn up in the centre; the other two thirds carrying muskets, were posted on the wings, to flank, protect, and second, by their fire, the onset of the pikes. The infantry are now universally armed with firelocks and bayonets, the use of the pike being completely laid aside.

The modern method of arrangement has been decried by the

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the ingenious chevalier de Folard (*Traité de la Colonne*, p. 7.) as rendering the battalions too shallow, weak, incapable of supporting each other, and exposing them to be easily penetrated and broken through, all which he denominates essential faults in tactics. According to him, the real strength of a corps consists in its thickness, or the depth of its files, and their connection and closeness, this rendering the flanks almost as strong as the front. He even lays it down as a maxim, that every battalion arranged deeply, and with a small front, will defeat another much stronger than itself disposed according to the usual method. In fact, a corps whose front is widely extended, and whose depth is but small, manœuvres with more difficulty, and cannot totally avoid that wavering from which the close order of M. Folard's battalion or column renders it comparatively exempt. The opinion of the Chevalier has been in a great measure adopted by his countrymen, though his theory has been violently attacked by two French officers formerly in the service of the States General. They admit the superior strength of the column to the modern battalion, were the action to be decided with pikes and swords; but maintain that where fire-arms are used, M. Folard's column is but ill calculated for the purpose, and must be infallibly destroyed. The late campaigns in Italy furnish the best commentary upon these separate systems.

BATTALION, Square, is a battalion the files of which are equal to the ranks, and whose sides form an equal front. There are two kinds, the solid, and the hollow: in the former, the ordinary intervals between the ranks and files are the only ones preserved; in the latter, a vacant space is left in the centre, of pretty considerable extent, according to the ground occupied by the battalion. We shall presently give some account of the evolutions necessary in forming both kinds of the square.

The *solid square*, however ingenious in its formation, and respectable in its appearance on a field of exercise, is of very little utility in actual service. In the first place, it suffers prodigiously from the fire of the enemy, especially if artillery is brought to bear upon it; in the second, it is next to impossible for the troops in the centre of the battalion to employ their own fire effectually. M. de Folard, in his *traité de la Colonne*, exposes much at large the defects both of the solid and the hollow square. He indirectly, however, recommends their use; his own column being nothing more than two or three battalions drawn up according to the rules of the solid square, and placed without any intervals in the rear of each other. Regarding, however, the solid square as entirely distinct from the column, of which we shall speak more at large in its proper place, we shall here conclude by observing that the only case in which it seems capable of affording any real service is when opposed to an enemy whose forces consist entirely of cavalry.

The *hollow square*, which claims for its inventor the celebrated prince Maurice of Nassau, is much less unwieldy in its movements, sooner formed, and more easily reduced, than the solid. Its fire too is more regular, better directed, and does much greater execution. It however participates in a great measure of all the disadvantages of the solid square, and its use can only be recommended in cases of the last extremity, or, as above, when opposed to cavalry.

BATTALION, Triangular, is a body of troops disposed in a triangle, whose ranks, augmenting equally, form an arithmetical progression. Many skilful officers have preferred it to the square, from its presenting a greater front, and being able to make head on all sides. The difficulty is to enure soldiers to march in this order; and we may conclude the triangular only preferable to the square battalion in close

action, when it is necessary to preserve an extended front, or when the nature of the ground requires such a disposition.

BATTALION, Round, is that in which the ranks form a number of concentric circles. The Romans made frequent use of this manœuvre in cases of emergency, and were very perfect in its execution. Cæsar's commentaries furnish several examples, especially on occasion of the defeat of Sabinus and Cotta by Ambiorix, where the formation and nature of the orb are very satisfactorily elucidated. (*De Bell. Gall. lib. v.*) But in the battle between Cæsar and Labienus in Africa, translators seem to have mistaken for the orb, a disposition perfectly different. (*Hirt. de Bello Afr.*)

Although recommended by M. de Puysegur, the round as well as the triangular battalion are now generally disused.

At a crisis like the present, we trust the following account of the training the recruit for service, the order and formation of the battalion, and the principal evolutions it is destined to execute, will not prove wholly unacceptable to our readers. Care has been taken to render the narration as little tedious as possible, and as concise as may be consistent with perspicuity.

Drill of the Recruit without Arms.

It requires in the instructors to whom this duty is entrusted, and who are answerable for its execution, an unremitting perseverance, an accurate knowledge of the subject, and a clear and concise method of conveying instruction, united with a firmness capable of commanding perfect attention to their directions. They must allow for weakness of capacity in the recruit, be patient and not rigorous where endeavour and good-will are not wanting, as quickness is only to be acquired by much practice. Officers and instructors must be critically exact in their own commands, as well as in observing the execution of what they require from others. Without this, all labour will prove ineffectual, and the proposed discipline never be attained.

The recruit must be taught progressively to comprehend one thing before he proceeds to another. In the first circumstances of position, his firelock, fingers, elbows, &c. are to be justly disposed by the instructor. When more advanced, recruits should not be touched, but from example and directions be taught to correct themselves when admonished. They should not be kept too long at any particular part of their exercise, so as to fatigue or render them uneasy; and marching without arms ought to be much intermixed with the use of the fire-lock. Fire, or music, must on no account be used. The young soldier is to be confirmed by habit alone in that cadence of step he is afterwards to maintain in marching to the enemy in spite of every variety of noise or circumstance that may tend to derange him.

Each recruit must be trained singly, and in squad, as hereafter described; nor until steadied in various points of his duty, is he to be allowed to join the battalion, which is sensibly inconvenienced by the awkward behaviour even of one man. On return from long absence, every soldier must be re-drilled before he can again rejoin his company.

I. Position of the Soldier. The equal squareness of the shoulders and body to the front is the first and great principle of the position of a soldier. The heels must be in a line, and closed; knees straight, without stiffness; toes a little turned out, so that the feet may form an angle of about sixty degrees; the arms are to hang near the body, but not stiff, the flat part of the hand and little finger touching the thigh; the thumbs as far back as the seams of the breeches; elbows and shoulders to be kept back; the belly rather drawn in, and the breast advanced, but without constraint; the body upright, but inclining forward,

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ward, so that its weight principally bears on the fore-part of the feet; the head to be erect, and turned neither to the right nor left. The position in which a soldier should move, determines that which he is to observe when standing still. No method must be left untried to supple the limbs, and banish the air of the rustic. But that excess of position which stiffens the person, and tends to throw the body backward instead of forward, is contrary to every true principle of movement, and must therefore be most carefully avoided.

II. *Standing at ease.* 1. On the word *Stand at Ease*, the right foot must be drawn back about six inches, and the greatest part of the weight of the body be brought to bear on it; the left knee a little bent, the hands brought together before the body; but the shoulders to be kept back and square; the head to the front, and the whole attitude without constraint. 2. On the word *Attention*, the hands are to fall smartly down the outside of the thighs; the right heel to be brought up on a line with the left, and the proper position of a soldier to be immediately resumed. After standing at ease for any considerable time in cold weather, the men may be permitted, by command, to move their limbs, but without quitting their ground, so that on the word *Attention*, no one shall have materially lost his dressing in the line.

III. *Eyes to the right, &c.* On the word *Eyes right*, glance the eyes to the right, with the slightest possible turn of the head; *Eyes left*, turn them in the like manner to the left; *Eyes front*; the look and head are to be directly to the front, the habitual position of the soldier. These motions are only useful on the wheeling of divisions, or when dressing is ordered after a halt. Particular attention must be paid, in the several turnings of the eyes, to prevent the recruit from moving his body, which should be preserved perfectly square to the front.

IV. *The Facings.* In going through the facings, the left heel never quits the ground; the body must rather incline forward, and the knees be kept straight. At the word, *to the right, face*, first, place the hollow of the right foot smartly against the left heel, keeping the shoulder square to the front; second, raise the toes, and turn to the right on both heels. *To the left, face*; first, place the right heel against the hollow of the left foot, shoulders square to the front; second, turn, as before, to the left on both heels. *To the right about, face*; first, place the ball of the right toe against the left heel, shoulders square to the front; second, raise the toes, and turn to the right about on both heels; third, bring the right foot smartly back, in a line with the left. *To the left about, face*; first, place the right heel against the ball of the left foot, keeping the shoulders square to the front; second, turn, as before, to the left about; third, bring the right foot smartly up, in a line with the left. The utmost precision must be observed in the facings, for if they are not exactly executed, a corps, although previously properly dressed, will lose their dressing on every small movement of facing.

V. *Position in Marching.*—*March!* The soldier must, here, as much as possible, maintain the position of his body, as directed in sect. i. He must be well-balanced on his limbs. His arms and hands without stiffness, must be kept steady to his sides, and not suffered to vibrate. He must not stoop forward, still less lean back. His body is to be kept square to the front, and thrown rather more forward in marching than when halted, that it may accompany the movement of the leg and thigh, which movement must spring from the haunch. The ham must be stretched, but without stiffening the knee. The toe a little pointed, and kept so near the

ground, that the shoe-soles may not be visible to a person in front. The head to be well kept up, straight to the front, and the eyes not suffered to be cast down. The feet, without being drawn back, must be placed flat on the ground.

VI. *Ordinary Step.* The length of each pace, from heel to heel, is 30 inches, and the recruit must be taught to take 75 of these steps in a minute, without tottering, and with perfect steadiness. Ordinary time being the pace on all occasions whatever, unless greater celerity be particularly ordered, the recruit is to be carefully and thoroughly trained to this most essential part of his duty, and made perfectly to understand, that he is to maintain it for a long time together, in line, in column, and in marching over rough or smooth ground. This is the slowest step which a recruit is taught, and is also applied in all movements of parade.

VII. *The halt.* On the word, *halt*, let the rear foot be brought upon a line with the advanced one, so as to finish the step which was taking when the command was given.

VIII. *The oblique Step.* Having acquired the regular length and cadence of the ordinary pace, the recruit is next to be taught the oblique step. At the words, *to the left, oblique—march!* he will, without altering his squareness of personal position, when he is to step with his left foot, point, and carry it forward 19 inches, in the diagonal line, to the left, which gives about 13 inches to the side, and nearly the same number to the front. On the word *two*, he will bring forward his right foot 30 inches, thus placing the heel of that foot 13 inches directly before the left one. Here he will pause, and on the word *two*, continue the same mode of marching, by advancing his left foot 30 inches, pausing at each step, until confirmed in his position, as it is essentially necessary to take the greatest care in preserving the shoulders square to the front. Combining these two movements, the obliquity gained will amount to an angle of about 25 degrees. When the recruit is habituated to the step, he must be made to continue it firmly, without pausing, and in the cadence of the ordinary pace, viz. 75 steps in the minute. As all marching (the side-step excepted) commences by the left foot, whether the obliquing commences from the halt, or on the march, the first diagonal step taken, is by the leading foot of the side inclined to, when it comes to its turn, after the command is pronounced. Squareness of person, and the habitual cadenced step are, consequently, the great directions of the oblique, as well as the direct march.

Each recruit should be separately and carefully instructed in the principles of the foregoing eight sections of the drill. They form the basis of all military movements. Three or four recruits will now be formed in one rank, at very open files, and instructed in the following manner.

IX. *Dressing when halted.* Dressing is taught equally by the left as by the right. On the word *dress*, each individual will cast his eyes to the point to which he is ordered to dress, with the smallest turn possible of the head, but preserving the shoulders and body square to the front. The whole person of the man must move as may be necessary, and bending backward and forward is not permitted. He must take short, quick steps, thereby gradually and exactly to gain his position, and on no account be permitted to attempt it by any sudden or violent alteration, which will infallibly derange whatever is beyond him. The faces of the men, not their breaths, or feet, are the line of dressing. Each soldier is to be able just to distinguish the lower part of the face of the second man beyond him. In dressing, eyes are always turned to the officer who gives the word; who is posted at the point by which the body halts: and who from that point corrects his men on another, at or beyond

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the opposite flank. Faults to be avoided, and generally committed in dressing, are, passing the line; the head forward, and body kept back; shoulders not square; or the head turned too much.

Two or more men being moved forward, or backward, a given number of paces, and placed in the new line and direction, the following commands will be given: 1. *by the right* (or *left*) *forward-dress*; 2. *on the right* (or *left*) *backward-dress*. The dressing once accomplished, *eyes front* will be given, that heads may be replaced, and remain square to the front. No rank, or body, ever should be dressed, without the officer on its flank determining a line on which to form it, and for that purpose taking as his object the distant flank man, or a point beyond him, or a man purposely thrown out. Dressing must then be made gradually, and progressively, from the fixed point, towards the distant flank one; and each man successively, but quickly, must be brought up into the true line, so as to become a new point, from whence the instructor proceeds in the correction of the others; and himself, while thus occupied, must take care that his person, at least his eyes, be in the true line, which he is then giving.

X. *Stepping out*. The squad marches, as already directed, in ordinary time. On the word, *step out*, the recruit must be taught to lengthen his step to 33 inches, by leaning forward a little, but without altering the cadence. The step is necessary, when a temporary exertion in line, and to the front, is required; or when the rear divisions of a column are to move up in line with the leading ones, and is applied both to ordinary and quick time.

XI. *Mark time*. On this word, the foot then advancing completes its pace. The cadence is then continued, without gaining any ground, but alternately throwing out the foot, and bringing it back square with the other. At the word, *ordinary time*, or *forward*, the usual pace of 30 inches will be taken. This step is necessary marching in line, when any particular battalion is advanced, and has to wait for the coming up of others.

XII. *Stepping short*. On the word, *step short*, the foot advanced will finish its pace, and afterwards each recruit will step as far as the ball of his toe, and no farther, until the word, *forward*, be given, when the usual pace is to be taken. This step is useful when a momentary retardment either of a battalion in line, or of a division in column, is required.

XIII. *Changing the Feet*. To perform this in marching, the advancing foot completes its pace, and the ball of the other is brought up quickly to the heel of the advanced one, which instantly makes a step forward, so that the cadence may not be lost. This is required of an individual who may be stepping with a different foot from the rest of his division; in doing which, he will, in fact, take two successive steps with the same foot.

XIV. *Side, or closing Step*. This is performed from the halt in ordinary time, at the following command; *Close to your right*, or *left* (a caution)—*March!* On the latter word, eyes are turned to the right, and each man carries his right foot about 12 inches directly to his right; or, if the files are closed, to his neighbour's left foot, and instantly brings up his left foot, till the heel touches his right heel; he then pauses, so as to perform this movement in ordinary time, and proceed to take the next step in the same manner: the whole with perfect precision of time, shoulders kept square, knees not bent, and the true line on which the body is formed. At the word *halt*, the whole halt, turn their eyes to the front, and are perfectly steady.

XV. *Back Step*. This is performed in the ordinary time and length of pace, from the halt, on the command *step back*

—*March!* The recruit must be taught to move straight to the rear, preserving his shoulders square to the front, and his body erect. On the word *halt*, the foot in front must be brought back square with the other. A few paces only of the back step can be necessary at a time.

XVI. *Quick Step*. The cadence of the ordinary step having become perfectly habitual to the recruits, they are now to be taught to march the quick time, which is 108 steps in the minute, each of thirty inches, making 270 feet in a minute. The word of command, *Quick—March!* is given with a pause between them. The word *Quick*, is to be considered as a caution, and the whole to remain perfectly still and steady. On the word *March!* the recruits step off with the left foot, keeping the body in the same posture, and the shoulders square to the front. The foot to be lifted from the ground, that it may clear any stones, or other impediments in the way, and to be thrown forward, and placed firm. The whole of the sole to touch the ground, and not the heel alone. The knees are not to be bent, neither are they to be stiffened, so as to occasion fatigue or constraint. The arms to hang with ease along the outside of the thigh; a small motion to prevent restraint may be permitted, but not to swing out, and thereby occasion the least turn, or movement of the shoulder. The head is to be kept to the front; the body well up, and the utmost steadiness to be preserved. This is the pace to be used in all filings of divisions from line into column, or from column into line; and by battalion columns of manoeuvre, when independently changing position. It may occasionally be used in the column of march of small bodies, when the route is smooth, and no obstacles occur; but in the march in line of a considerable body it cannot prudently be required, nor often in a column of manoeuvres. Fatigue will otherwise arise to the soldier, and more time be lost in hurry and inaccuracy than is attempted to be gained by quickness.

N. B. The word *March* given singly, at all times denotes that *ordinary time* is to be observed. When the *quick march* is meant, that word will precede the other. The word *March* marks the commencement of movements from the halt; but is not given when the corps is in previous motion.

XVII. *Quickest Step*. The quickest time, or wheeling march, is 120 steps of 30 inches each, or 300 feet, in the minute. The directions already given for the march in quick time are equally applicable to the march in quickest time. This is adapted chiefly to the purpose of wheeling, and is the rate at which all bodies accomplish their wheels; the outward file stepping 33 inches, whether the movement is from line into column; into column during the march, or from column into line. In this time also divisions should double and move up, when passing obstacles in line, or when in column of march it becomes necessary to increase or diminish the front.

Three or four recruits in rank, with intervals of twelve inches between them, should be practised in the various steps, that they may acquire the firmness and independence of movement. Many different times of march would only perplex the soldier: the three already mentioned must suffice. Plummets, which vibrate the required times of march in a minute, are of great utility, and can alone prevent or correct uncertainty of movement. They must be in the possession of, and occasionally referred to, by each instructor of a squad. The several lengths of plummets swinging the times of the different marches in a minute, are as follows:

Ordinary time,	75 steps in a minute,	24 inch.	96 hund.
Quick do.	108 do.	- 12	3
Quickest do.	120 do.	- 9	80

A musket

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A musket ball, suspended by a string which is not subject to stretch, and on which are marked the different required lengths, will answer the above purpose, and should be frequently compared with an accurate standard. Accurate distances of steps may also be marked out on the ground along which the soldier is practised to march, and thereby accustom him to the just length of each.

Six or eight recruits will now be formed in a rank, at close files, leaving a steady well-drilled soldier on their flank to lead; and file marching may be taught them.

XVIII. File Marching. The recruits must first face, and then be instructed to cover each other exactly in file, so that the head of the man immediately before may conceal the heads of all the others in his front. The strictest observance of all the rules for marching is particularly necessary in marching by files, which is first to be taught at the ordinary, and afterwards in quick time. On the word *March*, the whole immediately step off together, gaining at the very first step thirty inches, and continuing each step without increasing the distance betwixt each recruit, every man locking or placing his advanced foot on the ground, before the spot whence the preceding man has taken up his. No looking down nor leaning backward is to be tolerated on any pretence. The leader is to be directed to march straight forward to some distant object given him for that purpose, and the recruits made to cover one another during the march with the most scrupulous exactness. Great attention must be paid to prevent them from marching with their knees bent, which they will at first be extremely apt to do, from an apprehension of treading down the heels of those before them.

XIX. Wheeling in single Rank, from the Halt. At the word to the *Right Wheel*, the man on the right of the rank faces to that flank; on the word *March*, they step off together, the whole turning their eyes to the left (the wheeling flank), except the left hand man, who looks inwards, and during the wheel, becomes a kind of base line for the rest to conform to and maintain the uniformity of front. The outward wheeling man always lengthens his step to thirty-three inches. The whole observe the same time; but each man shortens his step, in proportion as he is nearer to the standing flank on which the wheel is made. During the wheel, the whole remain closed to the standing flank, i. e. they touch without incommoding their neighbour; nor must they stoop forward, but remain upright. Opening out from the standing flank, and closing in upon it, during the wheel, are equally to be avoided. On the word *Halt—Dress*, each man halts immediately, without jumping forward or making any false movements. When able to perform the wheel with accuracy in the ordinary time, the recruits must be next practised in the quickest. Nothing sooner tends to enable them to acquire the proper length of step, according to their distance from the pivot, than continuing the wheel without halting for several revolutions of the circle.

XX. Wheeling, in single Rank, from the March. The recruits are first taught to perform this wheeling at the ordinary, afterwards in the quickest time, the proper wheeling step. The rank marching to the front in ordinary time, receives the word of command, *Right—Wheel*. The man on the right of the rank instantly halts, and faces to his right. The rest of the rank turning their eyes to the wheeling flank (as above directed), immediately change the step together to wheeling time. As soon as the portion of the circle intended to be wheeled, is completed, the words *Halt—Dress* will be given, (a pause of two or three seconds may be made), and then *March*, at which the whole rank steps off together in ordinary time.

XXI. Wheeling backwards, in single Rank. At the word *On your Right, backwards,—Wheel*, the right-hand man of the rank faces to his left. At the word *March*, the whole step backward in wheeling time, dressing by the outward wheeling man; those nearest the pivot making their steps extremely small, and those towards the wheeling man increasing them as they are placed nearer to him. The recruit in this wheel must not bend forward, nor be suffered to look down; but by casting his eyes to the wheeling flank, preserve the dressing of the rank. On the word *Halt*, the whole remain perfectly steady, still looking to the wheeling flank, till they receive the word *Right—Dress*. The recruits should be first practised to wheel backwards at the ordinary step. At all times it will be necessary to prevent their hurrying the pace, an error soldiers are very subject to, particularly in the backward wheel. Where large bodies wheel from line into column, this wheeling is necessary to preserve the covering of pivot flanks, and the distances of the divisions, which the line has broken into.

XXII. Wheeling in single Rank, on a moveable Pivot. In performing this wheel, both flanks are moveable, and describe concentric circles round a point, which is removed a few paces from what would otherwise be the standing flank; and eyes are all turned towards the directing pivot man, whether he is on the outward flank or the flank wheeled to. When the wheel is to be made to the directing pivot flank (suppose the left), the rank marching at the ordinary pace, receives the word *Right Shoulders Forward*; on which the pivot man, without altering either the time or length of his pace, continues his march on the circumference of the lesser circle; and tracing out a considerable arch, on the principle of dressing, gradually brings round his rank to the direction required, without obliging the other flank, which is describing the circumference of a larger circle, to too great hurry. On the word *Forward*, shoulders are squared, and the pivot marches directly to his front. When the directing pivot is on the outward flank, and has to describe the circumference of the larger circle, on the word *Left Shoulders Forward*, he will (preserving the time and length of his pace) gradually bring round the rank to the required direction, so as to enable the inward flank to describe a similar arc of a lesser circle, concentric to the one he himself is moving on. During both these wheels, the rank dresses to the proper pivot; and when he describes the smaller circle of the wheel, the other flank which has more ground to go over, will quicken its march and step out. When the pivot describes the greater circle of the wheel, the other flank having less ground to go over, will step shorter and gradually conform. In the first case, the recruit must be cautioned against opening out from the pivot; and in the latter, from crowding on him. The just performance of this mode of wheeling depends so much on the directing pivot, that a well-drilled soldier should at first be placed on the flank named, as the proper pivot, and changed occasionally. It is used when a column of march (to follow the windings of its route) changes its direction in general less than a quarter circle.

Drill of the Recruit with Arms.

I. Position of the Soldier. When the firelock is given, and is shouldered, the person of the soldier remains in the position described in section I. of the drill without arms, except that the wrist of the left hand is turned out, the better to embrace the butt; the thumb alone is to appear in front, the four fingers to be under the butt, and the left elbow a little bent inwards, without being separated from the body, or being more backward or forward than the right one. The firelock is placed in the hand, not on the middle

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of the fingers, and so carried, that it shall not raise, advance, or keep back, one shoulder more than the other. The butt must therefore be forward, and as low as can be permitted without restraint: the fore-part nearly even with that of the thigh, and the hind-part of it pressed by the wrist against the thigh. The piece must be kept steady and firm before the hollow of the shoulder. Should the firelock be drawn back, or attempted to be carried high, in that case one shoulder will be advanced, the other kept back, and the upper part of the body distorted, and not placed square with respect to the limbs. Each recruit must be separately taught the position of shouldered arms, and not allowed to proceed until he has acquired it.

II. *Motions of the Firelock.* The following motions of the firelock will be taught and practised, until each recruit is perfect in them; being necessary for the ease of the soldier in the course of exercise. 1. Supporting arms; 2. Carrying arms; 3. Ordering at eased arms; 4. Standing at ease; 5. Attention; 6. Shouldering; 7. Trailing arms; 8. Shouldering from the trail. The recruit must be accustomed to *carry* his arms for a considerable time together: it is most essential he should do so, and not be allowed to *support* them so often as is practised; under the idea that long carrying them is a position of too much restraint.

III. *Forming the Squad.* When the squad, or division, of six or eight files, is ordered to *Fall in*, each man, with carried arms, will, as quick as possible, take his place in the ranks, beginning from the flank to which he is ordered to form. He will dress himself in line by the rule already given, assume the ordered position of a soldier, and stand perfectly still and steady, until ordered to stand at ease, or that some other command be given him. Attention must be paid, that the files are correctly close; that the men in the rear ranks cover well, looking their file leaders in the middle of the neck; that the ranks have their proper distance of one pace, or 30 inches, from each other; that all the ranks are equally well dressed; that the men do not turn their heads to the right or left; and that each man has the proper unconstrained attitude of a soldier.

IV. *Open Order.* The recruits being formed in three ranks, at close order, on the caution *Rear ranks take open order*, the flank men, on the right and left of the centre and rear ranks, step briskly back, one and two paces respectively, face to the right, and stand covered, to mark the ground on which each rank is to halt, and dress at open order: every other individual remains ready to move. On the word *March*, the dressers front, and the centre and rear ranks fall back one and two paces, each dressing by the right, the instant it takes its ground.

V. *Close Order.* On the word *Rear ranks take close order*, the whole remain perfectly steady. At the word *March*, the ranks close within one pace, marching one and two paces, and then halting.

VI. *The Manual Exercise.* The following is the regulation for performing the manual exercise, the recruit standing at the position already described, with his firelock shouldered. The manual is not to be executed by one word, or signal, but each separate word of command is to be loudly and distinctly given by the officer who commands the body performing it. Three seconds are the time allotted between each motion, except that of fixed bayonets, in which a longer time must be given.

Order Arms. Bring the firelock to the trail in two motions; seizing it at the first at the lower loop, just above the swell; at the second, bring it down to the right side, the butt within two inches of the ground; at the third, drop the butt on the ground, placing the muzzle against the

hollow of the right shoulder, and the hand flat upon the sling.

Fix Bayonets. At the word, *fix*, place the thumb of the right hand, as quick as possible, behind the barrel, taking a gripe of the firelock. As soon as the word of command is fully out, push the firelock a little forward, at the same time drawing out the bayonet with the left hand, and fixing it with the utmost celerity. The instant this is done, return as quick as possible to the order as above described, and stand perfectly steady.

Shoulder Arms. As soon as the word *shoulder* is given, take a gripe of the firelock with the right hand, as in fixing bayonets; and at the last word, *arms*, the firelock must be thrown with the right hand, in one motion, and with as little appearance of effort as possible, into its proper position on the left shoulder. The hand crosses the body in so doing; but must be instantly withdrawn.

Present Arms. First, seize the firelock with the right hand, beneath the guard, turning the lock to the front, but without moving it from the shoulder; second, bring it to the poise, seizing it with the left hand, the fingers extended along the sling, the wrist upon the guard, and the point of the left thumb equal in height with the eyes; third, bring down the firelock, with a quick motion, as low as the right hand will admit without constraint, drawing back the right foot at the same instant, so that the hollow of it may touch the left heel. The firelock in this position is to be totally supported in the left hand, the body to rest entirely on the left foot, both knees to be straight.

Shoulder Arms. First, by a turn of the wrist, bring the firelock to its proper position on the shoulder, as described above, the left hand grasping the butt; second, quit the right hand, and bring it briskly down to its place at the side.

Charge Bayonets. First, at one motion throw the firelock from the shoulder across the body, to a low diagonal recover, a position generally denominated *porting arms*, or *preparing for the charge*, in which the lock is to be turned to the front, and at the height of the breast, the muzzle slanting upwards, so that the barrel may cross opposite the point of the left shoulder, with the butt proportionally depressed. The right hand grasps the small of the butt, and the left holds the piece at the swell, close to the lower pipe, the thumbs of both hands pointing towards the muzzle; second, make a half face to the right, and bring down the firelock to nearly a horizontal position, with the muzzle inclining a little upwards, and the right wrist resting against the hollow of the thigh, just below the hip. N. B. The first motion of the charge is the position which the soldier will, either from the shoulder, or after firing, take, in order to advance on an enemy whom it is intended to attack with bayonets fixed. The word of command, for that purpose, is, *Prepare to charge*. The second position is that which the front rank takes when arrived at a few yards distance only from the body to be attacked. The first motion of the charge is also that which sentries are to take, when challenging any persons who approach their posts.

Shoulder Arms. First, face to the front, and throw up the piece into its position on the shoulder, by a turn of the right wrist, instantly grasping the butt, as above described, with the left hand: second, quit the firelock briskly with the right hand, bringing it to its proper place by the side.

The men must likewise be taught to *support arms* at three motions, throwing the first and second nearly into one. First, they seize the small of the butt under the lock with the right hand, bringing the butt in front of the groin, and keeping the lock somewhat turned out; second, they bring their left arm

under the cock; third, they quit the right hand. In *carrying arms*, from the support, the motions are exactly reversed. In marching any distance, or in standing at ease when supporting, the men are allowed to bring their right hand across the body, to the small of the butt, which latter must, in that case, be thrown still more forward; the fingers of the left hand being uppermost, must be placed between the body and the right elbow. The right hands are to be instantly removed, when the division halts, or is ordered to dress by the right. In regard to the motions of *securing, grounding, and trailing*, as well as *piling arms*, it will be sufficient for the soldiers to be taught to perform them in the quickest and most convenient method. *Unfixing bayonets* is to be done from the order, in the same manner as fixing them.

Sentries posted with shouldered arms, are permitted afterwards to *support*, but not to *slope* them. On the approach of an officer, they immediately *carry* their arms, and put themselves into the proper position; not at the instant he passes, but by the time he is within twenty yards of their post, so that they may be perfectly steady before he comes up. If a field officer, he is entitled to the *present arms*. Corporals marching with reliefs, or commanding detachments or divisions, will carry their arms *advanced*.

VII. *The Platoon Exercise*. When perfect in the manual, the troops are next to be taught this part of their duty, and the manner in which to execute the several firings. The recruit standing at shouldered arms, the first word given is:

Make Ready. This is done by bringing the firelock to the recover, and instantly cocking.

Present. Slip the left hand along the sling as far as the swell of the firelock, and bring the piece down to the present, stepping back about six inches to the rear with the right foot.

Fire. Having fired, drop the firelock briskly to the priming position, and half cock.

Handle Cartridge. First, draw the cartridge from the pouch; second, bring it to the mouth, holding it between the forefinger and thumb, and bite away the top of it.

Prime. First, shake a little powder into the pan; second, shut the pan with the three last fingers; third, seize the small of the butt with the same three fingers.

Load. First, face to the left on both heels, so that the right toe may point directly to the front, and the body be a very little faced to the left, bringing, at the same time, the firelock round to the left side, without sinking it. It should, while in this position, be nearly perpendicular (having the muzzle only a small degree brought forward); and, as soon as it is steady there, it must instantly be forced down within two inches of the ground, the butt nearly opposite to the left heel, and the firelock itself somewhat sloped, and directly to the front. The right hand at the same instant catches the muzzle in order to steady it; second, shake the powder into the barrel, putting in after it the paper and ball; third, seize the top of the ram-rod with the fore-finger and thumb.

Draw Ram-rods. First, force the ram-rod half out, and seize it, back-handed, exactly in the middle; second, draw it entirely out, and turning it with the whole hand and arm extended from you, put it one inch into the barrel.

Ram down Cartridge. First, push the ram-rod down, holding it, as before, exactly in the middle, till the hand touches the muzzle; second, slip the fore-finger and thumb to the upper end, without letting the ram-rod fall further into the barrel; third, push the cartridge well down to the bottom; fourth, strike it two very quick strokes with the ram-rod.

Return Ram-rods. First, draw the ram-rod half out, catching it back-handed; second, draw it totally out, turning it very briskly from you, with the arm extended, and put it

into the loops, forcing it as quick as possible to the bottom; then face to the proper front, the finger and thumb of the right hand holding the ram-rod, as in the position immediately previous to drawing it, and the butt raised two inches from the ground.

Shoulder Arms. Strike the top of the muzzle smartly with the right hand, to fix the bayonet and ram-rod more firmly, and at the same time throw it nimbly up at one motion, to the shoulder. N. B. Though the butts are not come to the ground in casting about, as accidents may happen from it, yet they are permitted, while loading, to be so rested; but it must be done without noise, and in a manner imperceptible in the front.

In priming and loading quick, 1st, bring the firelock down in one brisk motion to the priming position. the thumb of the right hand placed against the pan cover or steel, the fingers clenched, and the elbow a little turned out, so that the wrist may be clear of the cock. 2d, Open the pan, by throwing up the steel with a strong motion of the right arm, turning the elbow in, and keeping the firelock steady in the left hand. 3d, Bring your hand round to the pouch, and draw out the cartridge. The rest as above described; except that in the quick loading, all the motions are to be done with the utmost dispatch possible, the soldiers taking their time from the flugel-man in front, for casting about and shouldering only.

In firing three deep, the priming position for the front rank is the height of the waistband of the breeches; for the centre rank, about the middle of the stomach; and for the rear rank, close to the breast. The firelock in all these positions is to be kept perfectly horizontal.

As Front Rank kneeling—make ready. Bring the firelock briskly up to the recover, catching it in the left hand, and, without stopping, sink down with a quick motion on the right knee, keeping the left foot fast, the butt of the firelock at the same moment falling upon the ground. Then cock, and instantly seize the cock and steel together in the right hand, holding the piece firm in the left, about the middle of that part which is between the lock and the swell of the stock; the point of the left thumb to be close to the swell, and pointing upwards. As the body is sinking, the right knee is to be thrown so far back, that the left leg may be right up and down, the right foot a little turned out, body straight, and the head as much up as if shouldered. The firelock must be upright, the butt about four inches to the right of the inside of the left foot.

Present. Bring the firelock down firmly to the present, by sliding the left hand to the full extent of the arm along the sling, without letting the motion tell; the right hand at the same time springing up the butt by the cock so high against the right shoulder, that the head may not be too much lowered in taking aim; the right cheek to be close to the butt, the left eye shut, and the middle finger of the right hand on the trigger. Look along the barrel with the right eye, from the breech-pin to the muzzle, and remain steady.

Fire. Pull the trigger strong with the middle finger, and, as soon as fired, spring up nimbly upon the left leg, keeping the body erect, and the left foot fast, and bringing the right heel to the hollow of the left. At the same instant, drop the firelock to the priming position, half cock, handle cartridge, and go on with the loading motions as before described.

As Centre Rank—make ready. Spring the firelock briskly to the recover. As soon as the left hand seizes it above the lock, raise the right elbow a little, placing the thumb of that hand upon the cock, with the fingers open on the plate of

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the lock, and then, as quick as possible, cock the piece, by dropping the elbow, and forcing down the cock with the thumb. Step at the same time with the right foot a moderate pace to the right, and keeping the left fast, seize the small of the butt with the right hand. The piece must be held in this position perpendicular, and opposite the left side of the face, the butt close to the breast, but not pressed, the body straight and full to the front, and the head erect.

Present, as in the foregoing explanation.

Fire. Pull the trigger strong with the middle finger; and, as soon as fired, bring the firelock to the priming position. Prime and load as before, with this difference only, that the left foot is to be drawn up to the right, at the same time that the firelock is brought down to the priming position; and that, immediately after the firelock is thrown up to the shoulder, the men spring to the left again, and cover their file leaders.

As Rear Rank—make ready. Recover and cock as before directed for the centre rank. As the firelock is brought to the recover, step briskly to the right a full pace, at the same time placing the left heel about six inches before the point of the right foot. The body to be kept straight, and as square to the front as possible:

Present, as in the foregoing explanation.

Fire, as before; remembering only the difference of the priming position for this rank. After firing and recovering the shoulder, the men step as the centre rank does.

In firing with the front rank standing, that rank makes ready, &c. as mentioned in the first part of the platoon exercise. The platoon exercise is always to be performed with ranks closed except at the drill.

VIII. *Firings*. When the recruits have acquired the management of their arms, and are perfect in the motions of the manual and platoon exercises, they will be instructed in closed ranks, at firing. 1st, direct to their front; 2dly, obliquely to the right and left; and, 3dly, by files.

IX. *Marching to the front and rear*. The division, or squad, is to be particularly well dressed, files correct, arms carried, the rear ranks covering exactly, and each individual to have his just attitude and position, before the squad is ordered to move. The march will be made by the right or left flank, and a proper trained man will therefore conduct it. The word *division* may be given as a caution; and at the word *march*, each man steps forward a full pace. The recruit must not turn his head to the hand to which he is dressing, as a turning of the shoulders would undoubtedly follow. His elbows must be kept steady, without constraint: if they are opened from his body, the next man must be pressed upon; if they are closed, there arises an improper distance, which must be filled up. In either case, waving on the march will take place, and is therefore to be avoided. The going to the right or left about, in march, is not to be at first practised, but the squad is to halt, front by command, and then march. As the being able to march straight forward is of the utmost consequence, the officer commanding the drill will take every pains to perfect his squad in it. For this purpose he will often go to the rear, place himself behind the flank file which regulates the march, and take a point or object exactly in front of that file. He will then command, *march*; and remaining in his place, will direct the advance of the squad, by keeping the flank file always in a line with the object. It is also from behind he will soonest perceive the leaning back of a shoulder, or the bringing it forward; faults which ought instantly to be rectified, as productive of the worst consequence in a line, where one man, by bringing forward a shoulder, may change the direction of the march, and oblige the wing of

a battalion to run, in order to keep dressed. In short, it is impossible to labour too much at making the soldier march straight forward; keeping always the same front as when he stepped off. This is effected by moving solely from the haunches, keeping the body steady, the shoulders square, and the head to the front; and will without difficulty be attained by a strict attention to the rules for marching, and a careful observance of an equal length of step, and an equal cadence or time of march.

Changing from ordinary to quick time, and from quick to ordinary, must always be preceded by a halt. Although this may not appear essential for the movements of a division or battalion, it is absolutely so for those of a larger body, and is therefore required in small ones. Turning on the march, in order to continue it, though inaccurate and improper for a large body, is necessary, and must often be allowed, in the movements of small divisions in file or front, when connected with others in line or column. As helps for fixing the true cadence of the march, the plummet must often be resorted to. The words *left*, *right*; may when necessary, be repeated; slowly for ordinary, and more rapidly for quick time. Strong taps of the drum, regulated by the plummet, may be allowed to be given immediately before the word *march*, to imprint the required measure on the mind of the recruit; but they are on no account, or in any situation, to be given during the march.

X. *Open and close Order, on March*. The squad, when moving to the front in ordinary time, receives the word, *Rear ranks take open order*; on which the front rank continues its march without altering the pace, and the centre and rear ranks mark the time, *viz.* the centre once, and steps off at the second pace; the rear rank moving forward on the third. On the word *Rear ranks take close order*, the centre and rear ranks step nimbly up to close order, and instantly resume the pace at which the first rank has continued to march.

XI. *March in File to a Flank*. The accuracy of the march in file is so essential in all deployments into line, and in the internal movements of the divisions of the battalion, that the soldier cannot be too much exercised to it. The whole battalion, as well as its divisions, is required to make this flank movement, without the least opening out, or lengthening of the file, and in perfect cadence and equality of step. After facing, and at the word *march*, the whole squad steps off at the same instant, each replacing, or rather overstepping the foot of the man before him, *i. e.* the right foot of the second man comes within the left foot of the first, and thus of every one; more or less overlapping, according to the closeness or openness of the files, and the length of step. The front rank will march straight along the given line, each soldier of that rank looking along the necks of those before him; never to the right or left; otherwise a waving of the march will take place, and of course the loss and extension of line and distance, whenever the body returns to its proper front. The centre and rear ranks must look to, and regulate themselves by their leaders of the front rank, and always dress in their file. Although file marching is generally in quick, yet it must also be practised in ordinary time. The above position of feet takes place in all marching in front, where the ranks are close and locked up. With a little attention and practice, this mode of marching, apparently so difficult, will be found by every soldier to be easier than the common method of marching by files, when, on every halt, the rear must run up to gain the ground it has unnecessarily lost.

XII. *Wheeling in File*. The squad, when marching in file, must be accustomed to wheel its head to either flank; each

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each file following in succession, without losing or increasing distance. On this occasion, each file makes its separate wheel, on a pivot moveable in a very small degree, but without altering its time of march, or the eyes of the rear ranks being turned from their front rank. The front rank men, whether pivot-men or not, must keep to their distance; and the wheeling men must take a very extended step, and lose no time in moving on.

XIII. Oblique Marching in Front. When the squad is marching in front, and receives the word *to the right oblique*, each man, the first time he raises the right foot, will, instead of throwing it straight forward, carry it in the diagonal direction, as has been already explained in § 8. of the drill without arms; taking care not to alter the position of his body, shoulders, or head. The greatest attention is to be paid to the shoulders of every man in the squad, that they remain parallel to the line, on which they first were placed, and that the right shoulders do not fall to the rear, which they are very apt to do in obliquing to the right, and which immediately changes the direction of the front. On the word *forward*, the incline ceases, and the whole march forward. In obliquing to the left, the same rules are to be observed, with the difference of the left leg going to the left, and attention to keeping up the left shoulder. The same instructions that are given for ordinary time, serve also for quick time; but this movement, though it may be made by a small division, cannot be required from a larger body. Obliquing to the right is sometimes to be practised with eyes to the left; and obliquing to the left, with eyes to the right; as being absolutely necessary on many occasions: for if one of the battalions of a line in advancing be ordered to oblique to the right or to the left, the eyes must still continue turned towards its centre.

XIV. Oblique Marching in File. In obliquing to the right or left by files, the centre and rear rank men will continue looking to their leaders of the front rank. Each file is to consider itself as a rank entire, and is to preserve the same front, and position of the shoulders, during the oblique, as before it began. This being a very useful movement, recruits are to be often practised in it.

XV. Wheeling forward from the Halt. The directions already given for the wheeling of a single rank, are to be strictly attended to in this wheel of the squad. On the word *right*, or *left wheel*, the rear ranks, if at one pace distance, lock up. At the word *march*, the whole step together in the quickest time, and the rear ranks, during the wheel, incline so as to cover their proper front rank men. At the word *halt*, the whole remain perfectly steady.

XVI. Wheeling backward. The squad must be much practised in wheeling backward in the quickest time. In this wheel the rear ranks may preserve their distance of one pace from each other. Great attention should be paid to prevent the recruits from fixing their eyes on the ground.

XVII. Wheeling from the March. The directions for wheeling on a halted and on a moveable pivot, have already been given under the drill without arms. The squad should now be practised in both, until thoroughly confirmed in those movements.

XVIII. Stepping out, &c. The squad must likewise be practised in *stepping out*, *stepping short*, *marking time*, *changing the feet*, *the side step*, and *stepping back*: the instructions for which have been fully detailed in the first part of the drill.

It can neither be too strongly inculcated, nor too often remembered, that upon the correct equality of march, established and practised by all the troops of the same army, every just movement and manœuvre depend. If this is not

attended to, disunion and confusion will necessarily take place on the junction of several battalions in corps; although, taken individually, each may be in most respects well trained. It is in the original instruction of the recruit and squad, that this great point is to be laboured at and attained. The time and length of step, on all occasions, are prescribed. The time is infallibly ascertained by the frequent corrections of the plummet, which, when applied, will soon give to each man that habitual measure so much desired. Every driller must therefore have it at hand; and, as already observed, before any squad or larger body is put in march, five or six strong taps of the drum may be given, in exact time, as regulated by the plummet, which will imprint the true measure on each ear, and prepare for taking an accurate step at the word *march*. The length of step is only to be acquired by repeated trial; and therefore, before the recruit is put in motion, each instructor should ascertain the space on which he is to drill his men; he will therefore (supposing that he himself is accurate in his paces, and that there is ground for that purpose) mark out an oblong square of forty paces by twenty or thirty, the corners of which he will ascertain by halberts, stones, or any other visible manner. Along the sides of this figure he will march the pivot flank of his squad, making correct wheels and halts at the angles. The time of march being exactly ascertained, he will then see that the sides of the oblong are gone over at the known number of steps; and if there be any inaccuracy, he will lengthen or shorten the step, till the squad marches with the utmost precision, every man preserving his just position, and all the other indispensable attentions in marching being strictly observed. Where there is a sufficiency of ground, the squads will occasionally march over larger spaces; but the distances should in the same manner be exactly determined, so that there may be no doubt as to the true length of the step. In proportion to the strength of squads or drills, one or more formed soldiers should accompany each, to march on the flank, give distances, and in other points regulate the motions of the drill.

Formation and Exercise of the Platoon, or Company.

The recruit being thoroughly grounded in all the preceding parts of the drill, is now to be instructed in the movements of the platoon, as a more immediate preparation for his joining the battalion. For this purpose, from ten to twenty files are to be assembled, formed, and told off in the following manner, as a company in the battalion.

I. The platoon falls in three ranks, at close order, with shouldered arms; the files lightly touching, but without crowding. Each man will then occupy a space of about 22 inches. The commander of the platoon takes post on the right of the front rank, covered by a serjeant in the rear rank. The other serjeants will form a fourth, or supernumerary rank, three paces from the rear rank. The platoon will be told off into subdivisions, and, if of sufficient strength, into four sections; but as a section should never be less than five files, it will often happen that, for the purposes of march, three sections only can be formed. The four best-trained soldiers are to be placed in the front rank, on the right and left of each subdivision. When thus formed, the platoon will be practised in opening and closing of ranks; dressing to the front, to the rear, or in an oblique direction, by the right or left; and exercised in the several motions of the firelock. Close order is the chief and primary order in which the battalion and its parts at all times assemble and form. Open order is only regarded as an exception from it, and occasionally used in situations of parade and shew. In close order, the rear ranks are closed up to within one pace; the length of which is to be taken from the

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the heels of one rank to those of the next. At open order they are two paces distant from each other.

II. *Marching to the Front.* In the drill of the platoon, the person instructing must always consider it as a company in battalion, and regulate all its movements upon that principle. He will therefore, before he puts it in motion to front or rear, indicate which flank is to direct, by giving the word *Eyes Right*, or *Eyes Left*, and then *March*. Should the right be the directing flank, the commander of the platoon himself will fix on objects to march upon, in a line truly perpendicular to the front of his corps. When the left flank is ordered to direct, he and his covering serjeant will shift to the left of the front rank, and take such objects to march upon. To march on one object only, and to preserve a straight line, is an operation not to be depended upon. The conductor of the platoon therefore, before the word to march is given, will endeavour to remark some distinct object on the ground in his own front, and perpendicular to the directing flank. He will then observe some nearer and intermediate point in the same line, such as a stone, tuft of grass, &c. These he will move upon with accuracy; and as he approaches the nearest of those points, he must from time to time chuse fresh ones, in the original direction, which he will by this means preserve, never having fewer than two such points to move upon. If no object in the true line can be ascertained, his own squareness of person must determine the direction of the march. A person placed in the rear of a body can, more readily than if posted in its front, determine the line which is perpendicular to that front; and, could we suppose ranks and files perfectly correct, the prolongation of each file would be a perpendicular to the front of the body. As the march of every corps, except in the case of inclining, is made on lines perpendicular to its then front, each individual composing that corps, must in his person be placed and remain perfectly square to the given line; otherwise he will naturally and insensibly move in a direction perpendicular to his own person, and thereby open out or close in according to the manner in which he is turned from the true point of his march. If the distortion of a single man (and all turnings of the head do so distort him) operates in this manner, it may easily be imagined what that of several will occasion, each of whom is marching on a different front, and whose lines of direction are crossing each other. Accuracy and squareness of position, the equality of cadence and step, the light touch of the files which is never to be relinquished, just distances, and true lines of movement, will give, without apparent constraint, the head being turned, or the least trouble taken in dressing, the most decisive exactness in the marches and operations of the largest bodies.

The platoon, during its march in line, will occasionally be ordered to *step out*, *mark time*, *open* and *close ranks*, and *oblique*, as already described.

III. *Side Step.* The side or closing step must also be frequently practised. It is very necessary and useful on many occasions, when halted, and when a very small distance is to be moved to either flank; for instance to open or close files; to join one division to, or open it from, another; to regain an interval in line; to move a whole battalion or parade twenty or thirty paces to a flank; to regulate distances between close columns, before deploying, &c. Alterations made in this manner are imperceptible from the front, and better made than by facing and file-marching. The words of command must be decided and strong. When the whole platoon is to close; at the word, *to the Right—Close*, the platoon officer takes one step to the front, and instantly faces about, the covering serjeant replacing him. On the word

March, the whole move together. On the *Halt*, the platoon officer resumes his place, having stepped in the same manner as the men, but fronting them, and thereby assisted in preserving the direction.

IV. *Back Step.* The platoon must be accustomed, at the halt on the words *Back Step—March*, to step back any ordered number of paces in the ordinary time and length, as it is an operation that may be sometimes required from a battalion.

V. *File Marching.* In marching by files, the commander of the platoon will lead the front rank. If therefore the movement is by the left, on the word *to the Left—Face*, he and his covering serjeant will instantly shift to the left flank of the division. At the word *Quick—March*, the whole steps off together; and on the *Halt, Front*, the leader and his serjeant will return to their posts on the right.

VI. *Wheeling from a Halt.* In wheeling, whether forward or backward, from a halt, the commander of the platoon, on the word *Right* or *Left Wheel*, moves out, and places himself one pace in front of the centre of his platoon. During the wheel, he turns towards his men, and inclines towards that flank which has been named as the directing or pivot one; giving the word *Halt—Dress*, when his wheeling man has just completed the required degree of wheel. He then squares his platoon, but without moving what was the standing flank, and takes his post on the new directing flank.

VII. *Wheeling forward by Subdivisions from Line.* On the word *By Subdivisions—to the Right, Wheel*, the commander of the platoon places himself one pace in front of the centre of the right subdivision; at the same time, the men on the right of the front rank of each subdivision face to the right. At the word *March*, each subdivision steps off in wheeling time, observing the directions above given for wheeling forward. The commander of the platoon, turning towards the men of the leading subdivision, and inclining to its left (the proper pivot flank), gives the word *Halt—Dress*, for both subdivisions, as his wheeling man is taking the last step that finishes the wheel square; and instantly posts himself on the left, the pivot flank. The covering serjeant, during the wheel, goes round by the rear, and takes post on the pivot flank of the second subdivision. It is to be observed, that the commander of the platoon invariably takes post with the leading subdivision; therefore, when the platoon wheels by subdivisions to the left, the commander of the platoon moves out to the centre of the left subdivision, and during the wheel, inclines towards the right, now become the proper pivot flanks of the subdivisions. The proper pivot flank in column, is that which, when wheeled up to, preserves the divisions of the line in the natural order, and to their proper front; the other is denominated the *reverse* flank. In column, divisions cover and dress to the proper pivot flank; to the left when the right is in front, and to the right when the left is in front.

VIII. *Wheeling backward by Subdivisions from Line.* The platoon will also break into open column of subdivisions by wheeling backwards. When the right is intended to be in front; at the word, *By Subdivisions, on your left backwards Wheel*, the commander of the platoon moves out briskly, and places himself in front of the centre of the right subdivision; the man on the left of the front rank of each subdivision at the same time faces to the right. On the word *March*, each subdivision wheels backward in quickest time. During the wheel, the commander of the platoon turns towards his men, inclining at the same time to the left, or pivot flank; and on completing the wheel, gives the word *Halt—Dress*, to both divisions. He and his covering

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covering serjeant then place themselves on the left flanks of their subdivisions. It may be considered as a rule almost general (the reasons for which are subsequently given), that all wheels of the battalion or line (when halted, and when the divisions do not exceed sixteen or eighteen files) into column, should be backward; and all wheels from column into line, forward. The only necessary exceptions seem to be in narrow ground where there is not room for such wheels.

IX. Marching on an Alignment, in open Column of Subdivisions. The platoon having wheeled backwards by subdivisions from line, as just stated, and a distant marked object in the prolongation of the two pivot flanks being taken, the commander of the platoon, who is now on the pivot flank of the leading subdivision, immediately fixes on his intermediate points to march on. On the word *March*, both divisions step off at the same instant; the leader of the foremost corps marching with the utmost steadiness and equality of pace on the points he has taken; and the commander of the second division preserving the leader of the first in an exact line with the distant object, at the same time he keeps the distance necessary for forming from the preceding division, which distance is to be taken from the front rank. These objects are in themselves sufficient to occupy the whole attention of the leaders of the two divisions; therefore they must not look to, nor endeavour to correct, the march of their men, which care must be entirely left to the non-commissioned officers of the supernumerary rank.

X. Wheeling into Line from open Column of Subdivisions. The platoon being in open column of subdivisions, marching at the ordinary step on the alignment, receives the word *Halt* from the instructor of the drill. Both divisions instantly halt, and the instructor sees that the leaders of the divisions are correct on the line in which they have moved. He then gives the word (supposing the right of the platoon to be in front), *By Subdivisions, to the left wheel into Line*. On this the commander of the platoon goes to the centre of his subdivision; the two pivot men face to their left, exactly square with the alignment; and a serjeant runs out and places himself in a line with them, so as to mark the precise point at which the right flank of the leading subdivision is to halt, when it shall have completed its wheel. At the word *March*, the whole wheel up in quickest time. During the wheel, the commander of the platoon, turning towards his men, inclines to the wheeling flank, and gives the word *Halt—Dress*, the moment the wheel of the division is completing. He also, if necessary, corrects the internal dressing of the platoon on the serjeant and pivot-men. This dressing must be quickly made; and when done, the commander of the platoon gives the word *Eyes Front*, in a moderate tone of voice, and resumes his post in line. In all wheels of the divisions of a column (either from the halt or from the march) that are made on a halted pivot, the flank firelock of the front rank on the hand wheeled to, is such pivot; not the officer who may be on that flank, and whose business is to conform to it. All wheels by subdivisions or sections from line into column or from column into line, are performed on the word given by the commander of a battalion, when the whole of a battalion is at the same instant so to wheel; or on the word given by the captain of the company, when companies singly, or successively, so wheel. They are not to be repeated by the leaders of its divisions.

XI. In Open Columns of Subdivisions, wheeling into an Alignment. The platoon being in open column of subdivisions, marching in ordinary time; when its leading division arrives at the ground, where the wheel is to commence, it receives the word, *Right or Left Wheel*, from its commander. On this the rear ranks, if at one pace distance, lock up;

the flank front-rank man alone halts, and faces into the new direction, while the others quicken their pace to the wheeling time, and regulate their step by the outward hand to which they have turned their eyes, until the wheel is completed. He then gives the word *Halt—Dress*, for his division to dress to the hand it is to move by; and whenever the second division, which has continued to advance in ordinary time, arrives close to the wheeling point, he gives his division the word *March*, and moves on in ordinary time, so as its rear rank does not occasion even a momentary stop to the division behind it, which at that moment receives the word *Wheel*, then *Halt—Dress*, and finally *March*, whenever the leading division has gained its proper distance from it. The officer conducting the leading and every other division of the column in march on any given point or object where it is to wheel into a new direction, and to its proper pivot hand on a halted pivot, always stops at that point or object close on his outward hand, and gives the word *Wheel*, when the front rank of his division has taken one pace beyond such object. He thus allows space for his own person, when the wheel is finished, to move on close behind the new direction of march. But if the proper pivot flank is to be the wheeling one, each commander of a division gives his word *Wheel*, as he successively arrives at such a distance from the point on which he has moved, as that at the completion of the wheel, his division may halt perpendicular to the new line, but with the given point of course behind the proper pivot; and that he also, in his own person, be on the new direction, prepared to give his word *March*, and to proceed. The rear ranks, if at one pace distance, must close up at the word *Wheel*; and during the wheel, they incline so as to cover their proper front-rank men. The subdivisions must take care that they continue their march correctly upon, and wheel exactly at the point where the leading one wheeled, and that they do not shift to either flank, which without much attention they are apt to do. In this manner, the subdivisions succeed each other; and if the words of command be justly given, no stop made on arriving at the wheeling point, the wheels performed at an increased time and step, and the proper halt, dressing, and pause, be made after the wheel, no extension of the column will take place, but the just distances between the divisions will be preserved. The officer conducting the directing flank of a division may, during the wheel, be advanced one or two paces before it, and remains so, facing to the flank, that he may the more critically be enabled to give the word *Halt*, at which instant he will again place himself on the flank, ready to judge his distance, and to give the word *March*.

XII. In Open Column of Subdivisions, wheeling into a new Direction on a moveable Pivot. The commander of the leading subdivision, when at a due distance from the intended new direction, will give the word *Right or Left Shoulders Forward*; and he himself carefully preserving the rate of march, without the least alteration of step or time, will begin to circle in his own person from the old into the new direction, so as not to make an abrupt wheel, or that either flank shall be stationary. The rest of his division, on the principle of dressing, will conform to the direction he is giving them; when this is effected, he will give the word *Forward*. The leader of the second subdivision, when he arrives at the ground on which the first began to wheel, will in this manner follow the exact tract of the first, always preserving his proper distance from him. Thus, without the constraint of formal wheels, a column, when not confined to its flanks, may be conducted in all kinds of winding and changeable directions; for, if the changes be made gradual and circling, and that the pivot leaders of divisions

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divisions pursue their proper path, at the same uniform equal pace, the true distances will be preserved, which is the great regulation object on this occasion, and to which every other must give way.

XIII. Countermarch by Files. The platoon, when it is to countermarch, must always be considered as a division of a battalion in column. The instructor of the drill will therefore, previous to his giving the caution to countermarch, signify whether the right or left is supposed to be in front, that the commander of the platoon and his covering serjeant may be placed on the pivot flank, before such caution is given; as it is an invariable rule in the countermarch of the divisions of a column by files, that the facings be made from the flank, then the pivot one, to the one which is to become such. On the word *To the Right* or *Left Face*, the platoon faces; the commander of it immediately goes to the other flank; and his covering serjeant, advancing to the spot which he has quitted, faces to the right about. At the word *Quick March*, the whole, except the serjeant coverer, steps off together: the platoon officer wheeling short round the rear rank (viz. to his right, if he has shifted to the right of the platoon; or to his left, if he remains on the left of it); and proceeds, followed by the platoon in file, till he has conducted his pivot front-rank man close to his serjeant, who has remained immovable. He then gives the words *Halt, Front, Dress*; squares, and closes his platoon on his serjeant, and then replaces him. All countermarches by files necessarily tend to an extension of the files. Unity of step is therefore absolutely indispensable, and the greatest care must be taken, that the wheel of each file be made close, quick, and at an increased length of step of the wheeling man, so as not to retard or lengthen out the march of the whole.

XIV. Wheeling on the Centre of the Platoon. The platoon must be accustomed to wheel upon its centre, half backward, half forward, and to be pliable into every shape which circumstances can require of it; but always in order, and by a decided command. The words of command are, *Platoon—in your Centre, to the Right Wheel, to the Left Wheel; to the Right about wheel; to the Left about wheel; &c.* When the wheel is to be made to the right, or right about, the right half platoon is the one to wheel backward, and the left forward. The reverse will take place when the wheel is to be made to the left, or to the left about. On the word *March*, the whole move together in the quickest time, regulating by the two flank men, who, during the wheel, preserve themselves in a line with the centre of the platoon. As soon as the required degree of wheel is performed, the commander of the platoon gives the word *Halt—Dress*, and instantly squares it from that flank on which he himself is to take post.

XV. Oblique Marching. The instructor of the drill will have the oblique march frequently practised in platoon, in subdivisions, and in file. He will see, when in divisions, that the rear ranks lock well up, and cover exactly; when in file, that the exact distances are preserved between the files; and in both cases, that the platoon, during its march, continues parallel to the position from which it commenced obliquing.

XVI. Increasing and diminishing the Front of an Open Column, when halted. 1. Increasing. The company standing in open column of subdivisions (suppose the right in front) receives from the instructor of the drill the caution to *form platoon*. The commander of the platoon instantly orders *Rear Subdivision, to the Left oblique—Quick March*. When it has obliqued, so as to open its right flank, i. e. when its right flank has room to march past the left flank of the division that was in its front he gives the word *Forward*;

and on its arriving in a line with the first division, he orders *Halt—Dress*, and takes post on the left, the pivot flank of the platoon. 2. Diminishing. On the cautionary command, from the instructor of the drill, to *form Subdivisions*, the commander of the platoon orders, *Left Subdivision—to the Right Face*; and instantly on facing, the three leading files disengage to the rear, the serjeant coverer running round to head them. On the word *Quick March*, the serjeant conducts the subdivision in file to its proper distance, in the rear of the first subdivision. The commander of the platoon, having moved to the left flank of the leading division, as soon as he sees the rear file of the second in a line with his own person, gives the word *Halt—Front and Left—Dress*. The serjeant coverer at the same time moves briskly to his post on the left flank of the rear subdivision, and squares it. It is to be observed as a general rule, in diminishing the front of a column by the doubling of subdivisions or sections, whether the column be halted or in motion, that the subdivision or section on the reverse flank is the one behind which the other subdivisions or sections double. Thus, when the right is in front, the doubling will be in rear of the right division, and *vice versa* when the left is in front; by which means the column is at all times in a situation to form line to the flank, with its divisions in their natural order, by simply wheeling upon the pivot flanks. In increasing the front of a column, the rear subdivisions or sections oblique to the hand the pivot flank is on; so that when the right is in front, the obliquing will be to the left; and the reverse when the left is in front.

XVII. Increasing and diminishing the Front of an open Column on the March. 1. Increasing: The platoon marching at the ordinary time in open column of subdivisions (suppose the right in front) receives from the instructor of the drill the cautionary command *Form Platoon*. The commander of the platoon instantly gives the words *Left oblique—Quick March*; on which the rear subdivision oblique to the left, and as soon as its right flank is open, receives the word *Forward*. When it gets up to the first subdivision, which has continued to march with the utmost steadiness at the ordinary pace, the commander of the platoon gives the word *Halt—March*, and takes post on the pivot flank. 2. Diminishing: When the instructor of the drill gives the caution to form subdivisions, the commander of the platoon immediately orders, *Left Subdivision, Mark Time*. This it does till the right one, which continues its march steadily at the ordinary pace, has cleared its flank. He then orders the left subdivision, *Quick oblique*; and when he perceives that it has doubled properly behind the right one, he gives the word *Forward*, on which it takes up the ordinary march, and follows at its due distance. The same directions that apply to increasing or diminishing by subdivisions, apply equally by sections, which individually repeat the same operations. The words for the subdivisions or sections increasing or diminishing the front of a column, are given by the commander of a company, and not repeated by those of its divisions. Increasing and reducing the front of a column is an operation that will frequently occur in the march of large bodies; and it is of the utmost importance that it be performed with exactness. The instructor of the drill must therefore be particularly attentive, that the transition from one situation to the other be made as quick as possible; that the leading division continues its march at the regular time and length of pace; and that the exact distances between the divisions be accurately preserved. During the operation, the ranks must be well closed, arms carried, and the greatest attention required from each individual.

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XVIII. *The Platoon in open Column of Subdivisions to pass a short Defile by breaking off Files.* We suppose the platoon in open column of subdivisions, with the right in front, marching in ordinary time. When the leading division is arrived within a few paces of the defile, it receives from the instructor of the drill an order to break off a certain number of the files (suppose three); the commander of the leading division instantly gives the words, *Three Files on the Left, Right turn.* The named files immediately turn to their right, and wheel out in rear of the three adjoining files. The commander of the subdivision himself closes into the flank of the part formed. When the second subdivision comes to the spot where the first division contracted its front, it will receive the same words of command from its own leader, and will proceed in like manner. Should it be required to diminish the front of the column one or two files more, the commander of the leading division will, as before, order the desired number of files to turn; on which those already in the rear will incline to their right, so as to cover the files now ordered to break off, and which are wheeling out in the manner already prescribed. In this movement, the files in the rear of the subdivisions must lock well up, so as not to impede the march of the succeeding division. As the defile widens, or the instructor of the drill shall direct, the commander of the leading subdivision will order files to move up to the front, by giving the word *One, two, or three Files to the Front*; on which the named files turn to their front, the left, and lengthening their pace, march up, file by file, to the front of their subdivision, and immediately resume the ordinary pace. Those files which are to continue in the rear, will oblique to the left, lengthening also their step, till they cover, and are closed up to the three files on the left flank of their subdivision.

XIX. *Marching in quick Time.* The platoon must frequently be practised to march in quick time, particularly in file, until the men have acquired the utmost precision in this movement, which is essential in all deployments from close column. The platoon will also occasionally be marched in front at the same step, as it may be sometimes required from small bodies.

XX. *Forming to the Front from File.* The platoon, when marching in file, may form to its front, either in sections, subdivisions, or in platoon. The right flank being supposed to lead, on the word *halt front*, the platoon instantly halts, and faces to its left. The word is then given, *by sections, sub-divisions, or platoon, on your left backwards wheel*; and at the word *march*, the wheel ordered is performed in the manner already directed in sect. viii. But in situations where it may have been necessary to order an extension of files (such as will sometimes occur in marching through the streets of a town), a body thus moving, in order to avoid incorrect distances between the divisions, may form to the front in the following manner, either by platoon, subdivisions, or sections. On the word *to the front form platoon*, the front rank man of the leading file halts alone, and is instantly covered by his centre and rear rank men. Every other file of the platoon makes a half face to the left, and successively moving up, dresses on the right file. When the commander of the platoon sees it is properly dressed, he gives the word *eyes left*, and places himself on the pivot flank. Should the order have been, *to the front form sections or sub-divisions*, the leading sub-division or section will proceed in the manner already detailed for the platoon. The succeeding sub-divisions or sections will each continue moving on, until its front file arrives at the proper forming distance from the division in its front; when it will receive from

its commander the word *to the front form*, and will instantly form up by files in the manner already described.

XXI. *Forming from File to either Flank.* The platoon marching in file, suppose from the right, has only to halt and front to be formed to the left flank. To form to the right, it will receive the word *to the right form*. The front rank man of the leading file instantly turns to his right, and halts; his centre and rear rank men move round and cover him. All the other files of the platoon make a half turn to their left, and move round successively in a line with the right hand file; the centre and rear rank men of each file keeping closed well up to their file leaders.

XXII. *To form to either Flank from open Column of Subdivisions or Sections.* The platoon marching in the ordinary time in open column of sub-divisions or sections, to form to its left receives the words *halt, left wheel, and form, march, &c.* and proceeds as has already been shewn in sect. x. To form the platoon to its right flank, the instructor of the drill gives the cautionary word of command, *to the right form platoon*; on which the commanders of the several divisions shift to the other flank, and the commander of the leading subdivision or section instantly gives the word to his division, *right wheel*; and when it has wheeled square, he orders *halt, right dress*; goes to the right flank of his division, and dresses it on the intended line of formation. The commander of the other sub-divisions or sections, on the leading one being ordered to wheel, gives the word *to the left oblique*, and gradually inclines so as to be able to march clear of the rear rank of the division forming. This being effected, the word *forward* will be given to each division, and they move on in the rear of the one formed. When the second sub-division or section is arrived at the left flank of the first, its commander gives the word *right wheel*, then *halt, dress up*; on which the division moves up into the line with the one formed; and its commander instantly places himself two or three files from the left of his first division, and dresses his own on it as quickly and as accurately as possible. Thus each succeeding section should proceed, until the whole be formed.

XXIII. *The Platoon moving to the Front to gain Ground to a Flank, by a March in Echelon by Sections.* In the drill of the platoon, when the soldier is completely formed, he may be taught to march in echelon by sections. This is a very useful movement for a battalion or larger body moving in line, that is required to gain ground to a flank, and may be substituted instead of the oblique march. It will be performed in the following manner: the platoon marching to the front in the ordinary time, receives the word *by sections to the right*. The right hand men of the front rank of each section turning in a small degree to their right, mark the time for three paces, during which the sections are wheeling in ordinary time on their pivot men. At the fourth pace, and at the word *forward*, the whole move on direct to the front that each section has now acquired, and the commander of each section having taken post on the right of his division, the platoon continues its march in echelon. On the word *form platoon*, the pivot men mark the time for three paces, turning back in a small degree to the left, their original front; and the sections instantly wheel backward into line. At the fourth pace, the whole move forward. When the platoon is in two ranks only, two paces instead of three will be sufficient to mark time, and to step off at the third instead of the fourth pace.

XXIV. *From three Ranks, forming into two.* The platoon halted, is ordered *form two deep*. The rear rank men of the left sub-division instantly step back one pace. On the word *left face*, the rear rank of both sub-divisions face.

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The word *quick march* is then given, on which the men of the rear rank of the left sub-division step short, until those of the right get up to them; they then move on with them in file. As their rear is clearing the left flank of the platoon, the commander, who has shifted to this flank during the movement, gives the words *halt, front, dress up*, instantly dresses them on the standing part of his platoon, and resumes his post on the right. One third, or one more sub-division is thus added to the front of the company, which is here supposed standing as one in a battalion column.

XXV. *From two Ranks, forming into three.* The platoon being halted, and told off into three sections, it receives the word *form three deep*; on which the third section instantly steps back one pace. The word *right face* is then given, and the man on the right of its front rank, on facing, disengages a little to his right. On the word *quick march*, the front rank men of the third section step off, those of the other mark the time, till they have passed, and then follow. When the leading man has got to the right of the platoon, the commander gives the word *halt front*; on which, each man halts, faces to his left, and instantly covers his proper file leader.

In pursuance of the foregoing instructions, and on the principles they contain, every company of a battalion must be frequently exercised by its own officers, each superintending a rank, or an allotted part of the whole. On a space of seventy or eighty yards square, every circumstance can be practised that is necessary to qualify it for the operations of the battalion. That space being pointed out by under officers, or other marks, as directed at the latter end of the drill with arms, the company will practise, both at open and close files, without and with arms.

By ranks. 1st, March in single file, by successive ranks, along the four sides of the square; the same by twos. 2d, March and wheel by ranks of fours; file off singly and double up, preserving proper distances, and not quickening on the wheel. 3d, March and wheel by sub-divisions of ranks. 4th, March and wheel by whole ranks. 5th, March to front and to rear, ranks at ten paces asunder. 6th, March the company in a single rank to front and to rear, by a flank and by the centre. 7th, Oblique, by ranks. 8th, Open and close files, and intervals, by the side step. 9th, March in file to either flank. 10th, Ranks successively advance six or eight paces, halt, and dress; ranks successively fall back the same number of paces, halt and dress. 11th, Advance or retire two or three flank men, the ranks dress to them. 12th, Open and close ranks.

At close ranks and files. 13th, March and wheel in all directions, by sub-divisions and by company; shorten step, and lengthen it; the march to be made both in ordinary and quick time; the wheels to be made in wheeling time. 14th, Advance and retire two or three flank files, and dress to them. 15th, Open and close to the flank by the side step. 16th, Change front by the countermarch by files. 17th, March in file to the flanks, close, and without opening out, form to the front, or to either flank. 18th, March oblique. 19th, Sub-divisions double on the march, and again form up by obliquing. 20th, Wheel backwards by sub-divisions, march along the line to prolong it; form to the flank by wheeling up, or to the front by obliquing. 21st, File from the flank of company to the rear, as in the passage of lines; halt front, close into pivot files, wheel up as in forming line. 22d, From three deep, form two deep. 23d, From two deep, form three deep. 24th, Exercise of the firelock, manual and platoon, by ranks and company. 25th, Firings by Files, sub-divisions, and company.

The necessary pauses and formations betwixt these movements in order to connect them, must of course be made. They may be practised in whatever succession that shall at the same time be found proper. The greatest precision must be required and observed in their execution, according to the rules already laid down.

Every officer must be instructed in each individual circumstance required of a recruit, or a soldier; also in the exercise of the sword; and accustomed to give words of command with that energy and precision which is so essential. Every officer, on first joining a regiment, is to be examined by the commanding officer; and if he is found imperfect in the knowledge of the movements required from a soldier, he must be ordered to be exercised, that he may learn their just execution. Till he is master of those points, and capable of instructing the men under his command, he is not to be permitted to take the command of a platoon in the battalion. Squads of officers must be formed, and exercised by a field officer. They must be marched in all directions; to the front, oblique, and to the flank. They must be marched in line, at platoon distance, and marched as in open column. They must change direction, as in file, and cover anew in column. In these, and other similar movements, the pace and the distances are the great objects to be maintained. From the number of files in division, they must learn accurately to judge the ground necessary for each, and to extend that knowledge to the front of greater bodies. They must acquire the habit of readily ascertaining, by the eye, perpendiculars of march, and the squareness of the wheel. An officer must not only know the post which he should occupy in all changes of situation, the commands which he should give, and the general intention of the required movement; but he should be master of the principles on which each is made, and of the faults that may be committed, in order to avoid them himself, and to instruct others.

These principles are in themselves so simple, that moderate reflection, habit, and attention, will soon shew them to the eye, and fix them in the mind; and individuals, from time to time, when qualified, must be ordered to exercise the battalion, or its parts. The complete instruction of an officer enlarges with his situation, and at last takes in the whole circle of military science. From the variety of knowledge required of him, his exertion must be unremitting, every one striving to make himself master of his own part. Besides the instruction peculiar to the non-commissioned officers, they should be exercised in the same manner as the officers are, as they are frequently called on to replace them. The necessity also of order, steadiness, silence, and of executing every thing deliberately, and without hurry, should be strongly inculcated on the infantry foldier.

Formation of the Company.

The company is always to be sized from flanks to centre. It is formed three deep. The files lightly touch, when firelocks are shouldered and carried, but without crowding, and each man will occupy a space of about twenty-two inches.

Close order is the chief and primary order, in which the battalion and its parts at all times assemble and form. Open order is only regarded as an exception from it, and occasionally used in situations of parade and shew. In close order, the officers are in the ranks, and the rear ranks are closed up within one pace. In open order, the officers are advanced three paces, and the ranks are two paces distant from each other. Each company is a platoon. Each company forms two subdivisions, and also four sections. But as sections should never be less than five files, it will happen where

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where the companies are weak, that they can only, for the purposes of march, or three sections.

When the company is singly formed, the captain is on the right, the ensign on the left, or the front rank, each covered by a serjeant in the rear rank. The lieutenant is in the rear, as also the drummer and pioneers in a fourth rank, at three paces distance. The left of the front rank of each subdivision is marked by a corporal. The right of the left subdivision may be marked by another corporal. When necessary, the places of absent officers may be supplied by serjeants; those of serjeants by corporals, and those of corporals by intelligent men. When the company is to join others, and the battalion, or part of it, to be formed, the ensign and his covering serjeant quit the flank, and fall into the fourth rank, until otherwise placed.

When the company is to take open order from close order, on the command *Rear Ranks—take open Order*, the flank men on the right and left of the rear ranks, step back to mark the ground on which each rank respectively is to halt and dress at open distance. They face to the right, and stand covered. Every other individual remains ready to move at the word of command *March*, the rear rank dresses front, and the rear ranks fall back one and two paces; each dressing by the right the instant it arrives on its ground. The officers move out in front three paces, and divide their ground. One serjeant is on each flank of the front rank. The pioneer remains behind the centre of the rear rank. The drummer places himself on the right of the right serjeant.

When the company is to take close order from open order, at the word of command *Rear Ranks take close Order*, the officers, serjeants, and drummer, face to the right. On the word *March*, the ranks close within one pace, marching one and two paces, and then halting. The officers move round the flanks of the company to their respective posts: the serjeants and drummers fall back, and each individual resumes his place, as in the original close order. The above regards the company when single; but when united in the battalion, other posts are allotted to the drummer and pioneer.

Formation and Order of the Battalion.

A perfect uniformity in the formation and arrangement of all companies and battalions is indispensable for the execution of just and combined movements. The strength of the battalion is ten companies; one grenadier, eight battalion, and one of light infantry, consisting most commonly of three officers, three serjeants, three corporals, two drummers, and fifty-seven privates. When these companies join, and the battalion is formed, there is to be no interval between any of them, grenadier, light company, or other; but every part of the front of the battalion should be equally strong. Each company which makes a part of the same line, and is to act in it, must be formed and arranged in the same manner.

The companies will draw up as follows, from right to left. Grenadiers; first and third captain; fifth and seventh captain; eighth and sixth captain; second and fourth captain; light infantry. The four eldest captains are on the right of the grand divisions. Officers commanding companies or platoons are all on the right of the front rank of their respective companies. The eight battalion companies will compose four grand divisions, eight companies or platoons, sixteen subdivisions, and thirty-two sections, when sufficiently strong to be so divided, otherwise twenty-four, for the purposes of march. The battalion is also divided into right and left wings. When the battalion is on a war establishment, each company is to be divided into two platoons. When the ten companies are with the battalion,

they may then, for the purposes of firing or deploying, be divided into five grand divisions, from right to left. The battalion companies will be numbered from the right to the left, 1, 2, 3, 4, 5, 6, 7, 8; the subdivisions will be numbered 1, 2, of each; the sections will be numbered 1, 2, 3, 4, of each. The files of companies will also be numbered 1, 2, 3, 4, &c. The grenadier and light companies will be numbered separately in the same manner, and with the addition of those distinctions. The several appellations will be preserved, whether faced to front or rear.

The companies must be equalized in point of numbers, at all times when the battalion is formed for field movement; and could the battalions of a line also be equalized, the greatest advantages would arise. But though from the different strengths of the battalions, this cannot take place, yet the first requisite always must, and is indispensable.

Pl. III. fig. 2. When the battalion is formed in close order, ranks are at the distance of one pace, except the fourth or supernumerary rank, which has three paces. All the field officers, and the adjutant, are mounted. The commanding officer is the only officer advanced in front, for the general purpose of exercise, when the battalion is single; but in the march in line, and in the firings, he is in the rear of the colours. The lieutenant colonel is behind the colours, six paces from the rear rank. The major and adjutant are six paces in the rear of the third and sixth companies. One officer is on the right of the front rank of each company or platoon, and one on the left of the battalion. All these are covered in the rear rank by their respective serjeants, and the remaining officers and serjeants are in a fourth rank behind their companies. It is to be observed, that there are no covers in the centre rank to the officers or colours.

The colours, which in most regiments are carried by the two youngest ensigns, are placed between the fourth and fifth battalion companies both in the front rank, and each covered by a non-commissioned officer or steady man in the rear rank. One serjeant is in the front rank, between the colours; he is covered by a second serjeant in the rear rank, and he by a third in the supernumerary rank. The sole business of these three serjeants is, when the battalion moves in line to advance and direct the march. The place of the first of those serjeants, when they do move out, is preserved by a named non-commissioned officer, who moves up from the supernumerary rank for that purpose. Of the officers appointed to carry the colours, the eldest carries the king's, the youngest the regimental colour. Whenever the right wing advances or retires, the king's colour accompanies it on its flank, and to it the men's eyes are directed as their point of dressing. In the same manner, the regimental colour accompanies the left wing.

The fourth rank is at three paces distance when halted, or marching in line. When marching in column, it must close up to the distance of the other ranks. The essential use of the fourth rank is to keep the others closed up to the front during the attack, and to prevent any break beginning in the rear. On this important service too many officers and non-commissioned officers cannot be employed. The pioneers are assembled behind the centre, formed two deep, and nine paces from the third rank. The drummers of the eight battalion companies are assembled in two divisions, six paces behind the third rank of their second and seventh companies. The grenadier and light infantry drummers and fifers are six paces behind their respective companies. The music are three paces behind the pioneers in a single rank, and at all times, as well as the drummers and pioneers, are formed at loose files only, occupying no more space than is necessary. The staff of chaplain, surgeon, quarter-master, and surgeon's

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assistant, are three paces behind the music. Officers in general remain posted with their proper companies; but commanding officers will occasionally make such changes as they may find necessary. Whenever the officers move out of the front rank, in parade, marching in column, wheeling into line, or otherwise, their places are taken by their serjeant covers, and preserved until the officers again resume them. When the line is halted, and especially during the firings when engaged, the serjeant covers fall back into the fourth rank, and observe their platoons.

Pl. III. fig. 4. When the battalion is to take open order, at the word of command *Rear Ranks take open Order*, the flank men on the right of the rear ranks of each company step briskly back to mark the ground on which each rank respectively is to halt. They face to the right, and cover as pivots, being regulated and dressed by the adjutant or serjeant major on the right. Every other individual remains ready to move. At the word *March*, the flank dresses face to the front, and the whole move as follows:—The rear ranks fall back one and two paces, each dressing by the right the instant it arrives on the ground. The officers in the front rank, as also the colours, move out three paces. Those in the rear, together with the music, move through the intervals left open by the front rank officers, and divide themselves, viz. the captains covering the second file from the right; the lieutenants the second file from the left; and the ensigns opposite the centre of their respective companies. The music form between the colours and the front rank. The serjeant covers move up to the front rank, to preserve the intervals left by the officers. The pioneers fall back to six paces distance behind the centre of the rear rank. The drummers take the same distance behind their divisions. The major moves to the right of the line of officers. The adjutant to the left of the front rank. The staff place themselves on the right of the front rank of the grenadiers. The lieutenant colonel and the colonel (dismounted) advance before the colours, two and four paces. The whole being arrived at their several posts, the words *Halt—Dress* are given to the respective companies, and the battalion remains formed for parade in the order in which it should receive a superior officer. When the battalion is reviewed singly, then in order to make more show, the division of drummers may be moved up, and formed two deep on each flank of the line. The pioneers may form two deep, on the right of the drummers of the right; and the staff may draw up on the right of the whole.

When the battalion is to resume close order, the words *Rear Ranks take close Order* is given. The lieutenant-colonel, officers, colours, staff, and music face to the right. The drummers and pioneers, if on the flanks, face to the centre. The serjeants, if in the front rank, face to the right. At the word *March*, the rear ranks close within one pace, moving up one and two paces, and then halting. The music marches through the centre interval. The serjeants, drummers, pioneers, &c. resume their places, each as in the original formation of the battalion in close order. The officers move through and into their respective intervals, and each individual arrives, and places himself properly at his post, in close order.

On particular occasions, and when necessary, officers commanding platoons, who in line are on the right of their platoons, shift to the left to conduct the heads of files, or the pivot flanks of their divisions, in echelon, or in column. When the battalion wheels by companies, or sub-divisions, to either flank into column, both colours, and the file of directing serjeants always wheel to the proper front, and place themselves behind the third file of the new pivot.

There is no separate colour reserve, the pioneers, music, &c. sufficiently strengthen the centre; but in the firings, the two files on each side of the colours may be ordered to reserve their fire.

The constant order of the light company, when formed in line, and united with the battalion, is at the same close files as the battalion. Their extended order is an occasional exception. When the light company is detached, and the grenadier company remains, it will be undivided on one flank of its battalion, whenever there are several battalions in line; but when the battalion is single, it is permitted to be occasionally divided on each flank. When the grenadier or light companies are detached, and make no part of the line, they may be formed two deep, if it is found proper.

With a very few obvious alterations, these general rules take place when a company or battalion is permitted or ordered to form in two ranks only; and which, on the low establishment of our battalions, may often be done for the purposes of exercise or movement on a more considerable front. It is also evident that they generally apply, whether the companies are strong or weak, and whether a greater or lesser number of them compose the battalion.

We shall now proceed to give an abstract of the most essential general attentions required in the movements of the battalion, and which may be found more fully detailed in the rules and regulations for the battalion and the line, as published by his majesty's command.

I. Attentions of the Soldier.

Quick time is in general confined to wheelings and filings. The other movements of the platoon or battalion are made in *ordinary time*. It is seldom that they will, or ought to be, required at quick time. All *wheelings*, forward or backward, are made quick. Eyes are turned to the wheeling flank, at the word *March*, and not before. The wheeling flank man steps out firm at a pace of thirty-three inches, till he receives the word *Halt*. It is the business of the rest of the rank to keep up to him. Eyes remain in all cases to the wheeling hand, till a new order is given by the commanding officer. All *filings* are made quick, close, and at the lock step. Files are at no time to open out, on occasions of exercise, parade, or manœuvre; but they will often be so permitted and ordered, when marching in the streets; or in common route marching, when the march by divisions cannot so conveniently take place. All *facings* must be accurately made on the left heel. Pivot men must cover carefully and exactly. In wheeling backward, the standing man faces the opposite way to that he does in wheeling forward. Pivots, whether in wheeling into column, or in wheeling into battalion, when once posted are to remain immoveable and do not alter their position in consequence of platoon dressing, nor on any account, but by order of the commanding officer of the battalion, when he finds it necessary to require a more correct dressing from the whole.

The great observance of the soldier in the ranks, and under arms, is the squareness of the shoulders and body, the head to the front, and eyes only glanced to the point of dressing. When the battalion is halted, and a more accurate dressing is ordered, the head may be a little turned during that operation only, and each man should just distinguish the lower part of the face of the second man from him. Whether in movement, or halted, each man is just to touch, without crowding, his neighbour's arm, towards which he dresses, to depend on that chiefly for his line, and at no time to separate from him. At the word *March*, the stamp of the foot is not to be made, but the first step is to be taken as firm and long as any other, and the body of each man, if in his true position under arms, is prepared for it by an inclination forward.

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forward. On the perfect execution of this depends much of the accuracy of march. On the word *March*, the first step in all situations is taken with the left foot. When the commanding officer of the battalion gives that word, the whole step off together, whether in line or in column. When he gives the word *Halt*, the whole halt at that instant. At the word *March*, eyes are directed to the pivot flank, if in column; or to the head of the file, if filing; to the colours, if marching in battalion; and in general to that point by which they are conducted. At the word *Halt*, the foot in the air finishes its step, and the other is brought up to it. Eyes remain directed to the pivot flank if marching in column; to the colours, if in line; or to the wheeling flank, if wheeling; and in general to the point to which they were turned when in movement, until a new order commands a new dressing. Whenever the word *Dress* is given by platoon officers to their platoons, eyes are turned to the pivot where the officer is, and from whence he corrects them upon a distant object. In marching in line, each man must preserve his body perfectly square, and just feel the touch of his neighbour, who is nearer than himself to the directing point. The rear ranks are to be well locked up, particularly when firing. In marching in battalion, or when halted, rear ranks will be locked up; but in marching in column, they may in general be at one pace distance. The steps are to be taken firm, and marked.

All alterations in *carrying, supporting arms, &c.* are done by the whole battalion at once, whether in line or column, and not by the divisions of it separately. The commanding officer gives the word, and not the platoon officers; and no such change is at any time made, but in consequence of his command. The men therefore, in all cases, wheel, halt, march, dress, &c. with their arms carried, supported, trailed, or sloped, according as the last-given command directed them. The same is to be observed whenever the battalion, moving in line or in column, changes its time of march.

In column, when the right of the battalion is in front, the left is the pivot flank; and when the left is in front, the right is the pivot. In marching in column, the pivot files of men next to the officers must have great attention in covering, when the movement is made in a straight line, as they are points on which the formation is made; and therefore for that purpose, they must remain close to their pivot officers, who in that situation cover and give distance.

Supported arms should only be allowed when halted in line, or when moving in column. But the march in line, and in general all wheelings up into line, and all formations of the line or dressing it, should be made with *carried arms*, as the only situation which preserves the true distance of files, or can give an accurate line.

II. Covering Platoon Sergeants.

The covering sergeant accompanies and assists the platoon officer in all his movements, and preserves his place in line, or on the pivot flank in column, whenever the officer's duty requires him occasionally to quit it. In battalion, he covers in the rear rank. At open order he moves into the officer's place in the front rank. At close order, he leaves it for the officer to take it. In the march in echelon, he is on the outward flank of the front rank. When the battalion breaks into column to the right or left, the sergeant falls back two paces; and when the wheel is finished, he covers his officer on the pivot flank. When the column marches, if the officer is in front of the platoon, the sergeant is on the pivot of the front rank, and is answerable for the platoon distance; if the officer remains on the pivot flank, the sergeant then falls behind the rear rank, and covers the second file from the pivot. When from column the right in front platoons wheel up to the left into line, the sergeant at the

word *Wheel*, goes to the right of the front rank of the platoon, and wheels up with it, thereby preserving the officer's place. If the wheel is to the right, the sergeant is behind the right file, ready to move up to the officer's place at the conclusion of the wheel. On all occasions, when any platoon, which is then separated, joins in line to one on its right; at that instant must the covering sergeant be on its right, to preserve the place of his officer, who may be employed in dressing his platoon.

When the platoons wheel either into line or into column, the sergeant of the leading platoon runs out, and marks the point in the line of pivots where its flank is to halt. When platoons countermarch in column, the sergeant moves into the officer's place on his quitting it to lead in file, faces to the right about, stands fast, and becomes the pivot point for the front rank leader to close to after the countermarch is finished, and its place is occupied by the officer after dressing his division. When the platoons from columns file, in order to take a new line either to the front or rear; the sergeant of each successively, as it arrives within thirty yards of that line, and no sooner, runs out, takes distance, places himself upon it, and remains as a point to which his officer is to bring and close in the pivot flank man of his platoon, and as a point which the officer himself is afterwards to occupy. Whenever the battalion halts to fire, the sergeants fall back, and in concert with the supernumerary rank, keep the rear ranks well locked up and attentive to their duty. When the battalion again moves, sergeants resume their places. When the battalion is in column of subdivisions, if the officer is ordered to march in front of his platoon, the sergeant is on the pivot of the leading subdivision. If the officer is on the flank of his leading subdivision, the sergeant takes the flank of the second. In column of sections, the sergeant also takes the flank of the second section. In close column, the sergeant is on the flank of the rear rank, behind the officer; and in forming line after the *Halt, Front*, of the platoon, he remains on its outward flank, and marches up with it.

The pioneers, in column of march, are in front; in line, they are formed two deep behind the centre, and nine paces from the rear rank. Drummers, in column of march or close column, are with their companies, and on the flank not the pivot one. In line, the grenadier and light drummers are six paces behind the rear rank of their companies. The battalion drummers are in two divisions, and formed six paces behind the third and seventh companies. In parade, at open order, the drummers preserve their six paces from the rear rank. Whenever the platoon is cautioned to wheel forward or backward any *named* number of paces, the sergeant immediately posts himself before or behind the eighth file from the standing flank, and takes the ordered number of paces; when his platoon has conformed, he places himself on its outward flank. The music, in open or close column, are on the flank which is *not* the pivot one; in line, they are in a single line behind the centre, twelve paces from the rear rank. On parade, at open order, they are between the colours and the front rank. Drummers, music, pioneers, &c. will take care not to impede the flank movements of the close column, nor its formation into line, but will get into the rear of their respective battalions, as soon as they are disengaged from each other.

III. Attentions in Platoon Officers.

When the battalion is formed in line, company or platoon officers are all on the right of their platoons. In column, they are on the pivot flank, unless particularly ordered into the front of each platoon, if a march for any considerable distance is to be made. When on the pivot flanks, they are

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are answerable in their own persons for distances and covering. When in front, their serjeants, under their direction, preserve the ordered distance.

In wheeling from line to column, each moves out, and places himself one pace before the centre of his platoon. Each turns towards his men during the wheel, and inclines to his pivot flank. Each gives his word, *Halt—Dress*, when his wheeling man has just completed his degree of wheel. Each squares his platoon, but without moving what was the standing flank. Each then places himself on the proper pivot flank. After the wheel into column is completed, no one is to cause his platoon to shift, by way of covering on the pivot flank, unless so ordered by the commanding officer, or that in the course of marching a straight line is gradually taken up. In wheeling from column into line, the officer places himself one pace before the centre of his platoon, turns towards his men during the wheel (inclining towards the pivot of his preceding platoon), and gives the word *Halt—Dress*, when his wheeling man, on whom his eye is fixed, is just arrived at the next standing pivot man. He then, from that pivot man correcting the interior of his platoon upon his own pivot man, takes his place, and remains steady on the right of his platoon.

If the column is in movement, and platoons are successively to wheel into a new direction, each officer, to whatever hand he is to wheel, gives the word from the point he is then placed at, whether in front or on the flank. If on the wheeling flank, he conducts it; if on the standing flank, he steps out two or three paces, the better to see that his platoon wheels quick, with a proper step, and that he may time his word *Halt*. This done he is to fall back to his place on the pivot flank, no longer to look to his platoon, but having his eye fixed on the officer of the preceding platoon, he is to give his word *March* at the instant that officer is taking the last step which establishes the proper distance between the platoons. When an officer is marching on the pivot flank, he is to be answerable for distance and covering. These circumstances alone must solely engage his attention: he can only occasionally give a glance of his eye towards his platoon, which must dress to him of course, and without any particular direction. When platoons in column are each to countermarch on its own ground, the officer, when his platoon faces, goes to that flank which is to become the pivot flank, conducts his platoon in file, and closes its leader to the serjeant, who has remained to mark the pivot, *Halts*, *Fronts*, and dresses it square. He then places himself where the serjeant stood.

When the battalion marches in line, officers then become individuals, equally attentive as the soldier; nor can officers then be attentive to any thing but to the correctness of their own personal march. Every operation then depends on the word from the commanding officer, who moves, halts, and dresses the battalions. Whenever the battalion is in line, officers give no commands except in firings.

When the platoons of a column file separately to a flank, the officer conducts the head; and when he arrives within thirty paces of the new position in which he is to form, he detaches his serjeant to mark the point at which he is to place his pivot front rank man, either in filing to front or rear. The officer stops at that serjeant, and halts, fronts, and dresses his platoon close to the serjeant. He then himself, after correcting his platoon, replaces the serjeant, who falls back to the rear rank. In filing, distances and dressing are taken from that hand to which, by a face of the platoons, the whole would stand fronted in column; and the line breaks into column towards the directing point. The leaders of the third, fourth, &c. platoons from the directing

flank are never to overpass the straight line which joins the heads of the first and second, but are, if any thing, to be behind it, till they arrive and halt exactly in the new line. In movements to the rear, distances and dressing are always taken from the same point to which they would be made, if the movement was to the front; that is, from the left in going to the rear, if it should be from the right in going to the front.

On the leading platoon officer of the column much of the precision of march depends. He must lead at an equal, steady pace, and on two objects either given to him, or which he himself takes up on every alteration of position. This demands his utmost attention; nor must he allow it to be diverted by looking at his platoon, the care of whose regularity depends on the other officers and non-commissioned officers belonging to it. The second platoon officer must also be shewn, and know, the points on which the first leads. He is always to keep that first officer and those points in a line; and those two officers, together with the placed mounted officers, thus become a direction for the other pivot officers to cover. In marching in open column, the covering serjeants are placed behind the second file from the pivot officers, that the officers may the more correctly see and cover each other in column. In the column of march, after the word *Halt* is given, no one is to move, and pivots particularly must remain where they are then placed. In this situation, when ordered to form, each platoon wheels up to its adjoining pivot; the whole will then perhaps, as in the case of marching upon a road, along the different turnings of a height, &c. &c. be on a winding line, and must not attempt to get into a straight line, unless so ordered by the commanding officer to answer some particular object. When the platoon wheels *backwards* from line into column, the situation and business of the officer are the same as when wheeling forwards; and he halts and dresses from his pivot flank, which he gains during the wheel.

In close column, division officers are on the pivot flanks. In forming line, before the divisions face, they are shifted to the leading flank, if necessary. The officer of each stops in his own person, when the division nearer to the forming point than himself, receives the word *Halt*, *Front*, allows his serjeant to proceed with the division; at the due instant gives his word *Halt*, *Front—Dress*, and as soon as the front of his division is clear, the word *March*, conducting it into line. Before the division arrives within three or four paces of its ground, the officer will have stepped out nimbly to the flank of the preceding division, and will be thus ready to give the word *Halt—Dress* at the instant his inward flank man joins the preceding division. The men dress by the formed part of the line, and the officer corrects them on the known distant point. He then resumes his platoon place, which has been preserved by a serjeant. When the close column, or part of it, forms line on a rear division, the officer of each, when the one behind him halts, fronts, will step nimbly round the rear, and without impeding his division, allow his serjeant to proceed. From hence he can better judge the proper moment of giving his words *Halt*, *Front*, to his division. He then places himself on its inward flank, and marches up when his front is clear. The officer of one of the centre platoons is always in open column, to preserve distance for the colour files. The colours wheel up into column, with the leading centre platoon, and place themselves behind the third file of men from its pivot flank. When the line forms, they close in to that flank.

When officers march in front of their divisions, they must in their own persons keep so close to the preceding ones, as not to hinder the flank of their own division from preserv-

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ing its proper distance. When the head of a column of march changes its direction, and that marching in an alignment is not in question, instead of making regular wheels on fixed points, the officer who conducts the leading division will often be directed to bring it gradually round into the new direction, by the turn of the outward shoulder, making both its flanks continue moveable; but each succeeding division, without the formality of command or halt, does the same thing, the whole attention resting on each pivot flank, which at no rate must increase its distance, but during this operation preserves the same equality of time and length of step at which it was before moving. On all occasions of forming in line, either by wheeling up from open column, or in moving up from close column, or in marching up from echelon, &c. the conducting officer moves nimble to his point of appui, some paces before the arrival of his division in the line, and from thence gives his word to *Halt*, and instantly dresses it.

Officers and serjeants of the supernumerary rank are in the rear of their respective companies. When the battalion is halted, or marching in line, they are three paces from the rear rank. In open column, they are within one pace of the rear rank. In close column, they go on the flank of their division which is not the pivot. Their great attention during movements is, that files are correct, ranks kept up, and that perfect order is preserved among the soldiers; circumstances in which they greatly assist the platoon officer, who having the more important objects of distance and the covering of pivots to observe, cannot in such situation be giving minute directions to his platoon, without losing sight of his more material duties. During the firings, the supernumerary rank, assisted by the platoon serjeants, are to keep the rear ranks well closed up to the front, and to prevent any break beginning in the rear.

The staff (adjutant excepted), in line, are three paces behind the music; in parade, at open ranks, they are on the right of the grenadier front rank. It is the particular business of the adjutant at all times to ascertain the direction on which the column is to move, or on which the formation of the line is to be made. For this purpose he is mounted; otherwise he could not properly discharge this important duty; and he can be much assisted in it by having two or three camp colour men, or non commissioned officers, properly trained to line themselves quickly with any two given points. He is to take care that the point where the battalion in column enters an alignment is ascertained to it; when it is moving in that alignment, that two points a-head of the column are always prepared; when it wheels up into line, that a point beyond each flank of that line is ascertained; when the line is to be prolonged, and has wheeled backward by divisions, that two points in the exact line of the pivots are ready for its march; when the close column is to form in line, that a point to each flank is given; when the battalion changes position, either by files, or by the diagonal march of divisions, that there are points given on which the pivots of files will cover, and can dress their divisions upon from their several points of appui; in short, that upon all occasions, fixed points of forming, dressing, and march, are given, except in advancing in line, where the ascertaining such points does not depend on the adjutant.

When the battalion changes position, by the echelon march, the named division wheels its eighth file into the new direction. The other divisions wheel their eighth file half the number of paces as the named one. The serjeant is on the outward flank, the officer on the inward flank of each division. At the word *March*, they move on, preserving their relative distance, and covering of pivots from before

them, and just before the inward flank of each division arrives at the outward flank of its preceding one, which is already halted in line, its officer places himself before that flank; and when his inward man touches it, he gives his word *Halt—Dress up*, if the movement is to the front, and dresses his division on the distant prepared flank point, so that his division is steadied before the arrival of the next one. When the change is made to the rear, the retiring part faces about before the division wheels are made, proceeds as above, and each officer gives the word *Halt, Front, Dress—Back*, to his division when its inward man touches the preceding formed one.

IV. *Attentions of Commanding Officers of Battalions.*

The battalion may be considered with respect to the line, what the platoon is to the battalion.

Commanding and field-officers are always to be mounted, and unless they are active on horseback, it is impossible for them to see, to correct, to prevent mistakes, or to move with that dispatch which is necessary from one point to another. Whatever operation is to be performed by the whole of the battalion at once, is done upon the word from the commanding officer, without any repetition being made by platoon officers. He puts it in motion, and halts it, whether in line or in column. He wheels it from line into column, and from column into line. He orders arms to be carried, supported, &c. He dresses it from the centre, when it has marched in line, and halts; and from what was the leading flank when it has wheeled up from column into line.

Before the column marches, the commanding officer ascertains points to the leading officer; and when he intends to change the direction of the march, he gives new points, and he watches over the just leading of the column. He takes care that all wheels of platoons are made at the identical point where the leading platoon wheeled; that all doublings of subdivisions are made successively in the same manner and at the same point; and that forming up to platoons is made at the spot where the first forming up is made; that in all diminutions of the front, the natural order of the column is preserved, whether the right or left of the battalion leads; that a column of half platoons occupies no more space than a column of whole platoons, viz. just enough to wheel up into battalion.

When the open column marching in an alignment is to form in a straight line, and for that purpose halts; the instant that it does halt, the commanding officer from the head of the battalion corrects the pivot files of men (which however ought not to be necessary) in the true line, and upon a rear point. But if the march is making in a winding direction, and that the intention is not to form, or not to take up a straight line, the platoons remain on the ground on which they halt, and do not move in any shape, until they receive a further order, either to form in line, or first to cover, and then to form or continue the march. The commanding officer always conducts the head of his battalion column to the point at which it is to enter a new line, and he takes care in time to dispatch a mounted officer to ascertain that point. When the platoons wheel up into line, he immediately, if necessary, corrects the dressing of the battalion from the flank which led when in column, and that generally upon a point beyond the other flank.

When acting in line with others, the commanding officer of each battalion conforms to the movements of the regulating one, and from it takes, and rapidly repeats, his words of *Halt, Wheel, March*, &c.; and the least delay in repeating any of these words must undoubtedly disorder the line in proportion to that delay, for the whole of a line should march or halt at the same instant. In line, the commanding officer

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officer is in the rear of the colours. From thence, by marked cautions, he makes his battalion step out, or step short, or incline, as is necessary to preserve its place in the general line. His great attention is to see and prevent the beginning of faults, and not wait till they have had their effect. By watching and regulating his advanced serjeants, he best regulates his battalion. The squareness of the march, the compactness of the files, and the equality of step, are the great objects he is to have in view. The other mounted officers are behind the wings, and can assist much in preventing faults, and in correcting them.

All the battalions of a line must halt at the same instant in consequence of that word, repeated by commanding officers, whether they are then correct, or not in line. Each half battalion from its own colour, and the men looking to it, will be immediately dressed on the colours of the next adjoining battalion. By this means a general continued line will be obtained, or, at any rate, a straight one between each two colours; and if all the colours shall have truly halted in one line, the whole corps will be completely formed in a straight line. But if the halt is not justly made, and that a better line must be obtained, the colours of the defective battalions will be brought into the general line; the platoon officers will quickly arrange themselves, eyes will be ordered to the right, and the men will in an instant move up. Too much celerity cannot be used in completing this operation.

A single battalion, when it halts, is dressed on its right or left centre company, and is therefore in a straight line. Two battalions dress each from its centre on each other's colours, their outward wings conforming, and are therefore in a straight line. Three or more battalions dress from the centre of each, on their next colour; and therefore if all the colours halt in a line, the line of the whole will be straight: if they are not so halted, the general line will not be dressed, till a special correction is made, but no flank will be thrown out of the general direction. When a battalion retires and halts, it ought never to remain in that situation, but be immediately faced about, and dressed to the proper front. The greatest fault that a battalion in line can make, is increasing its interval. Bad dressing may be remedied without danger, but a false distance presents a weak part to the enemy, and is not to be closed without a hazardous movement, and great operation of the line. Commanding officers cannot take too much precaution to ascertain true points in the line in which they are to form, before the arrival of their battalions in it. When a battalion is exercising singly, a commanding officer may have two camp colour-bearers behind each flank, properly trained, and ready to run out to that flank, to give points of marching, forming, or dressing upon the true line; in doing which, one flank of the battalion is generally considered as in that line, and often both.

Words of command cannot be specified for all the variety of circumstances and situations that occur, but commanding officers, being themselves clear in what is to be done, should by distinct and explicit orders, which they divide and adapt for the occasion, lead their battalions through all the points of execution with precision. This will always be found the shortest path, nor on any account should any operation, more especially the correction of an error or mistake, when once a battalion is assembled under arms, be performed in a careless or slovenly manner, which will always be the case if the commander's orders be not pointed, loud, and sufficiently explanatory.

A battalion close column forms in line on its front division, on a rear division, or on a central one, according as circumstances require; and in all cases the line formed upon is that

on which the head of the column or columns is halted before the formation begins. Therefore the division on which each battalion at any time forms, moves up at the proper instant, and halts on that line. When several close battalions, standing on the line, are to extend and form, the regulating and named battalion only can be obliged to form on a central division. Each of the others will form on its front or rear division, viz. on that which first arrives at its ground where it halts, fronts, and occupies its proper place, while the others move on, and successively come up to it. In forming line from close column, points must be given beyond both flanks in the direction of the line, and a mounted officer halts, and fronts each division, which is especially necessary for those that form upon a rear one, although less so for those that form upon a front one. The dressing and correction of the line is from the first formed division towards the other flank, and all the eyes of the battalion are of course turned to that first formed division.

The same number of points are required for the march into an alignment, and wheeling up into line of an open column of one battalion, as for that of several battalions; viz. *one* where the line is entered, and always *two* beyond the head of the column. Therefore, although these precautions may appear formal for the movements of the battalion when single, yet they are necessary in all its exercises, when it is recollected, that such battalion is in the place of, and must consider itself as the leading one of the column, on whose correct position that of every following one depends. The same exactness is required in every extension from close column into line, and in every forming and change of position that the battalion makes. In fine, in order to qualify the battalion for acting in the general line, it must at its single exercises work on points fixed and relative, and make no chance and accidental movements or formations. Although on most occasions of movement and formation, and at all times in instruction, determined points marked by detached and mounted officers are given; yet such helps cannot be expended or depended upon, when the line is advancing on an enemy, when a corps is harassed in its retreat, and when it is unsafe to send out officers, &c. In such situations every thing will depend on the eye and judgment of conducting officers, who must preserve such direction of movement, and seize such accidental points as present themselves, and lead to the object which is to be accomplished.

In whatever shape a battalion is moving, the commanding officer is never to lose sight of this great principle, that the battalion should at no time cover more ground than its proper extent when formed in line. Therefore if he is marching in line, he must take care that his files do not open; if in column, his great attention should be, that his divisions do not open. For this purpose his march must be just and compact, his wheels quick, and all doublings up, or back, which alter the extent of front, must be made so as not to impede the general movements of the column, or to change its distances. When the front is to be diminished, he must see that the doubling division slackens its pace, and when disengaged from the other division, that it inclines well up, quick, and covers, so as not to impede the division in its rear. When the front is to be increased, the moving up division does it quick, and by oblique marching.

The commanding officer must recollect, in the winding movements of the open column of march, that the wheeling distances must be just; that the pivots are to follow on the exact tract which the leading one has traced out; that the whole, when ordered, halt on the precise ground they then occupy; and that when they wheel up and form, the line will not then be a continued, but probably an irregular curved one.

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one. But if a straight line is to be entered, and formed upon, from the point where the head enters, and not sooner, and where a mounted officer remains posted, does every platoon pivot officer begin to cover in the true line, to march in that line, and to preserve his true distance; nor must any obstacle that can possibly be surmounted, ever force the pivot officers out of that line, although the men of their platoon, when it becomes necessary, may open or widen their files from them. If the pivots, on account of any material impediment, are thrown for a time out of the line, they should always, if possible, move to the hand which carries them behind the line, and again re-enter it if they can; for which purpose an officer, or non-commissioned officer, should be placed where they are to re-enter it. In marching in the alignment, the commanding officer should frequently place himself in it, see with a glance of the eye whether his files preserve it, and correct them if necessary.

As one field officer at a time must command the battalion, the others present can only act in aid of him, nor can their situation in all cases be ascertained; but should the commanding officer not be at the head of the open column when it marches, and particularly when it halts, to correct if necessary the pivots in the general line, another field officer, or the leading officer, if no field officer is there, should instantly attend to it, that the wheeling up may not be delayed. If in the course of exercise and instruction, the commanding officer is not behind the centre when the battalion marches in line or halts, another field officer from that situation can immediately give every proper aid in movement, or in lining as it ought when halted; and in every case it must be evident in what manner the commanding officer can be assisted.

When the line is to break and wheel into open column of march, in almost all cases it is better done by wheeling backward than forward, for the wheel is in this manner made on the pivot flanks; and although divisions may be unequal, yet these flanks cover after the wheel, an advantage which is lost if the wheels be made forward. When a battalion makes a retired echelon, or part of an echelon of a considerable line, the commanding officer must take great care to regulate his movements by those of the one preceding him, viz. that he preserves his parallelism, his ordered distance, his proper flank interval, and when the leading echellons halt, and that he is to move up into line, that the outward flank is not thrown too forward (which without great attention will happen), and thereby perhaps be exposed to the enemy's enfilade.

Commanding officers of regiments, brigades, or larger bodies, are moveable according to circumstances, and should, by no means, consider the centre of such bodies as their general post in exercise or movements, or expect by the exertion of one voice, from one fixed situation, to command and direct the whole. Their presence is more frequently required near one or the other flank. In general, they should be at the conducting point of movement or formation, and to that address their orders by voice or message; for if that point is led or placed in the direction it should take, there is little danger of the other parts of the corps not properly and successively conforming to it. There are many situations in the movements of great bodies, where commands, that are not immediately to influence the whole, are not given loud, but quietly, to the directing body, to whose situation the rest by the eye conform: as when the head of an open column is ordered to halt, that the rest of the divisions may move on, and successively stop in close column; and on all occasions where parts only of a large body are to march, or halt, successively. In these cases, commanding officers of

regiments should have an attention to give their commands in such manner as not to produce an alteration in those points that are not meant to be influenced by them at that instant.

Where a large body is marching in column or columns, through a narrow ground, and when its parts are to be assembled beyond the defile in several lines, in a compact manner behind each other, such parts are not to begin to assemble when the leading one does, but the head of each line is successively first to come up to the ground on which it is to stand, and when it there halts, its proper followers, and not before, move into line with it; thus not impeding the divisions that are still behind them in the defile, and are to perform the same operation.

Precision of movement depends altogether on the instant circulation of commands of execution, and that on the attention of officers to the point they may be expected to come from. Unless the whole of a body, however large, is put in motion at the same instant, a column will be extended badly, and a line will be ill dressed, and with false intervals. Officers must particularly attend to the difference between changes of direction made by *wheel*, and by *shoulders forward*. In the first case, one flank remains fixed, while the other is on the wheel; in the second, both flanks are in motion. *Shoulders forward* applies to a small front, and to a column of march, where the change of direction is to be made gradually without an alteration of the pace. In proportion to the front of the body so changing, must be the degree of sweep made by both flanks; and in all cases, the reverse flank conforms to the pace of the pivot flank. In no case can it be made short and quick, otherwise it becomes a wheel.

Regulations in Firing.

1. The advance of the battalion should instantly succeed the forming of the line, and when it arrives and halts at the point where it is to fire, the firing ought instantly to commence at the word *Halt*, for the battalion having been apprized, during the march, of the nature of the required firing, no improper delay need therefore be made. The greatest care should be taken by the officers and non-commissioned officers in the rear (whose principal attention this is) that the rear ranks are well locked up in the firings, and that in loading they do not fall back.

2. The pause betwixt each of the firing words *Make ready—Present—Fire*, is the same as the ordinary time, viz. the 75th part of a minute, and no other pause is to be made betwixt the words.

3. In firing wings by companies, each wing carries on its fire independent, and without regard to the other wing, whether it fires from the centre to the flanks, or from the flanks to the centre. If there are five companies in the wing, two pauses will be made betwixt the *fire* of each and the *make ready* of the succeeding one. If there are four companies in the wing, three pauses will be made in the same interval. This will allow sufficient time for the first company to have again loaded, and shouldered at the time the last company fires, and will establish proper intervals between each. In firing by wings, one wing will make ready the instant the other is shouldering. The commanding officer of the battalion fires the wings.

4. In firing by grand divisions, three pauses will be made betwixt the fire of each division and the *make ready* of the succeeding one. In platoon firing, two pauses will be made. In firing by subdivisions, when one *fires*, the next *presents*; when one *presents*, the next is *ready*: thus keeping up an incessant fire.

5. In firing companies by files, each company fires inde-

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pendently; when the right files present, the rest make ready, and so on. After the first fire, each man as he loads comes to a recover, and the file again fires without waiting for any other. The rear rank men are to have their eyes on their front rank man, and be guided by, and present with them.

6. In general, after the march in front, and halt of the battalion, company, or platoon firing, should begin from the centre, and not from the flanks. In other cases, and in successive formations, it may begin from whatever division first arrives, and halts on the ground.

7. The line, if retiring, *Halts, fronts*, at one command, and instantly begins firing, from the centre and not from the flanks.

Objects of Fire.

I. *Against Cavalry.* The chief object of the fire against cavalry is to keep them at a distance, and to deter them from the attack. As their movements are rapid, a reserve is always kept up. But when fire commences against infantry, it cannot, consistent with order, and other circumstances, be too heavy or too quick while it lasts, which should be till the enemy is beaten or repulsed, or till the contest becomes too unequal. The fire of three ranks standing, is hardly, with our present arms, to be required, especially if the ground should be broken, and the soldiers loaded with their knapsacks. The fire of the rear rank, therefore, is generally reserved.

II. *Defensive Fire.* Where infantry are posted upon heights that are to be defended by the fire of musquetry, the front rank will kneel, that one-third of the fire that may be given should not be lost; otherwise the rear rank in such a situation could not sufficiently incline their pieces to raise the slope. As soldiers generally present too high, and as fire is of the greatest consequence to troops that are on the defensive, and who are posted if possible on commanding grounds, the habitual mode of firing should therefore be rather at a low level than a high one; and the fire of the front rank kneeling being the most efficacious, as being the most raising, should not be dispensed with when it can be safely and usefully employed.

III. *In Line advancing.* When infantry marches in line to attack an enemy, and in advancing makes use of its fire, it is preferable to fire the two first ranks only standing, than to oblige the front rank to kneel, thus firing the whole. But volleys, fired at a considerable distance, or on a retiring enemy, may be given by the three ranks, the front one kneeling.

IV. *Platoon Firing.* A line posted, or arriving at a fixed situation, will fire by platoons, each battalion independent, and such firing generally commencing from the centre of each. The first fire of each battalion will be regular, and establish intervals. After the first, each platoon shall continue to fire as soon as it is loaded, independent of any other, and as quick as it can, till the battalion or line is ordered to cease.

V. *Independent, or File Firing.* If behind a parapet, hedge, or abatis, the two first ranks only can fire, and such firing may be file firing, and may be made deliberate and cool, the two men of the same file, always firing together. It may begin from the right or left of platoons, and should be taught in situations adapted to it, not in open ground. Should the parapet, hedge, or abatis be but little raised, platoon firing may be used.

VI. *Running Fire.* Troops should be often practised in executing the *billebancé*, or running fire. This should begin on the flank files, and when once commenced, continued without the soldier being subject to any other rules than

keeping silence. This sort of firing is the only one which infantry should make use of in engagements. It is the most lively, and more slaughtering than any. It emulates and warms the soldier, and renders him insensible to danger. The grand point is to accustom troops to leave it off when a signal is given, and afterwards remain silent.

VII. *Oblique Firing.* Oblique firing by battalions is advantageous on many occasions. As when attacked in an oblique direction; when time does not allow to give an obliquity to a greater part of the line; and when their fire can in this manner be thrown against the opening of a defile, the flanks of a column, or against cavalry or infantry that direct their attack on some particular battalion or portion of the line.

VIII. *Regularity of Firing.* As long as the fire by battalion, by wings, or by platoons, can be kept up regular, it is highly advantageous, and can at any time be stopped; but should file firing be allowed, and one begun, unless troops are exceeding cool and well disciplined, it will be difficult to make it finish, and to make them advance and charge in order. When a line halts at its point of firing, no time is to be lost in scrupulous dressing, and the fire is instantly to commence; but a line that halts, and is not to fire, or when its firing ceases after the halt, may immediately be ordered to dress from colours to colours.

IX. *Street Firing.* It is so called from being obliged to engage in a street, highway, lane, or narrow passage, where no more than 10, 12, 16, or 20 files can march abreast; so that, according to the breadth of the place, the platoons must be stronger or weaker. When the column is in motion, and arrived where the firing is to begin, the commanding officer from the rear, gives the word *Halt*. The officer commanding the platoon instantly gives the words *ready, present, fire; recover arms, outwards face, quick march*. At the word *recover arms*, the platoon immediately in the rear of the one that has fired, recover their arms also, and cock, and when their front is open by the march of the others down their flanks, they march on with recovered arms, until they receive from their officer the words *halt, present, fire, &c.* As soon as the platoon has got down the flanks, it must form instantly in the rear, and immediately prime and load again without halting, keeping always their exact distance from the division before them, which would not be the case if they halted to load and shoulder.

When this is to be put in practice on real service, the front of the platoons must not be equal to the breadth of the place they are to engage in; but there must be a small space of ground, or interval, left on the flanks, for those who have fired to have room to march back, and form in the rear. It is in this manner, when there is not time to raise a breastwork, that a pass, bridge, road, or street is to be maintained against the enemy, by the platoons sustaining one another, and firing in their turn, which may be continued as long as there is occasion, almost without intermission, by one battalion only. In firing as above described, the colours, &c. must, at the first, be placed in the rear, and kept there by the subdivisions, as they come down the flanks after firing, forming constantly in their front, till the whole business is over.

There are, however, different methods, of retiring the platoons from the front to the rear. Some are instructed, after the word *fire*, to recover their arms, and wheel out the platoon by subdivisions from right to left, load, and remain in that position till the last platoon passes them, when they wheel back, and form. Another method is, supposing the street to be filled by the platoon, and no room left on the flanks, then by throwing back or retiring a centre section

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of each platoon, the retiring division may pass through the centre of the column to the rear. It looks well, and has a good effect on a day of parade; but it is too complicated to be attempted with safety in the presence of an enemy.

General Observations.

There is no doubt but that the fire of the musquetry may be reduced to a theory; but far from that being the case, the foldier has no principle given him, for at the distance or situation of the objects, be what they may, he fires at random. It is principally owing to the exercise of the target being so little practised, that this ignorance and deficiency of principle are so severely felt.

In our firings, the foldier is instructed always to fire low, yet no reason is given him why it should be so, but that the ball rises. To consider this a moment; the line of level [The line of level is the straight line by which is seen the object on which the ball should be carried to.] and the line of fire [The line of the fire is a straight line which represents the axis of the musquet.] are by no means parallel; for according to the different weights of metal which the barrel has at its breeching, and at its aperture, so they describe an angle more or less acute beyond the tube. As the eye seeks its aim from the length of the line of level, it is therefore fixed at the *exterior* of the barrel. But entirely different to this principle, the motional body, the bullet, is impelled from the *interior* part of the instrument, and the length of the line of fire; therefore the line of fire and the line of level cut each other. From the law of attraction imposed on all bodies obliquely thrown, at its delivery from the mouth of the cylinder, the bullet or ball describes a curve, which rising from the muzzle, cuts the line of level at a small distance from the mouth of the barrel. It will, at about the distance of 60 toises, or 360 feet, be found to be at a foot and a half or two feet, its greatest elevation above the line of level. From thence drawn to the earth by that gravitation to which all bodies are subjected, it again inclines to the former line, and at the distance of about 120 toises, cuts it a second time. It is this second point of intersection which is called the musquet shot, or point blank, after which the bullet finishes to describe its parabola to the end of its fall. What is here said is a common property to all fire-arms.

It follows, that to make the ball arrive at the mark intended, the sight must not be always precisely levelled at that mark. Suppose a mark six feet high, divided into three equal parts, if the distance from it is 50 or 60 toises, or 360 feet, then to strike the upper dimension aim must be taken at the middle one, two feet under the mark. If meant to strike the middle, aim must be taken at the lower dimension, &c.

If at 100 toises, the aim must be taken one foot below the mark in order to hit it. If the distance is more than 100 toises, to strike any of the dimensions, aim must be taken above the mark, and so keep raising in proportion to the distance.

Suppose a battalion of the enemy in front; if at 300 toises distance, aim should be taken three feet over the battalion. If at 200 toises, about a foot and a half. If at 150, aim should be taken at their hats. If at 100, at the middle of the body, &c. Although the horizontal shot of a musquet may be computed at 180 toises, yet, where the fire of a line of infantry can have effect, it is seldom more than at 80 toises, or 160 yards.

We shall close this article with some account of the form of a review of a battalion of infantry, and the method of performing the eighteen manœuvres, as practised by his majesty's forces.

Receiving the General.

At the time appointed for the review, the battalion will, as directed above, draw up in *open order*. Four camp colours are to be placed so as to form a square, round the angles of which the wheelings are to be made. A fifth camp colour is to be placed eighty or a hundred paces in front of the centre of the battalion, where the general is supposed to take his station; and a sixth at the same distance, in the rear of the battalion, and opposite to the one in the front; but although the general may choose to quit that position, still the colour is to be considered as the point to which all movements and formations are relative. The colour must be so placed, that the right flank of the divisions, when marching past in review, shall be about four yards distant from the general.

When the reviewing general is within fifty or sixty paces of the centre, he will be received with a general salute: the colonel, with his back to the regiment, gives the word *present arms*. The men present arms, and the officers salute: the music will play, and the drums beat. The officers, in saluting, take their time from the flugel man; as he comes to the *poize*, they bring their swords to the *recover*; as he sinks his firelock to the last motion of the *present*, they drop the points of their swords; when he comes to the shoulder, they bring their swords to the *recover*; and then, taking their time from the colonel, bring them gracefully across their bodies to the point, and remain perfectly steady and square to the front. The colours only salute such persons, as from their rank, and by regulation, are entitled to it.

The colonel then gives the word *shoulder arms*. While the general is going round the battalion, every person remains perfectly steady: no compliment is paid. The music will play, and the drums beat, but they will cease as soon as the general has returned to the right flank of the battalion. While the general is proceeding to place himself in the front, the colonel turns to the regiment, and gives the word *rear ranks take close order—march*. He will then, as also the lieutenant-colonel, mount on horseback, in the rear of the centre, giving the words *companies, on the left backwards wheel—quick march*. Pioneers and music are ordered to the head of the column. Officers commanding companies must be very attentive when they give the words *halt—drefs*, to see that they are well obeyed.

Column—March. The companies wheel successively at the first and second angles of the ground. When the leading company has made the second wheel, it brings them on the line on which they pass the general. Each leader of a company, when it has advanced six paces from the wheeling point, changes quickly by the rear to the right flank of his company, and gives the words *eyes right*, then *rear ranks take open order*. The music begins to play, the officers move three paces in front of the company, dividing the ground equally, the captain on the right, the lieutenant on the left, and the ensign in the centre. The captain's place is supplied on the right flank by his covering serjeant, who is responsible for keeping the company at the proper wheeling distance from the one preceding it. The colonel is at the head of the grenadiers, or leading company, with the major a little behind him on his left. The music are in two ranks, six paces before the colonel. The pioneers are in two ranks, six paces before the music, having a corporal at their head to lead them. The drummers and fifers are on the left flank of their respective companies, and the supernumerary serjeants three paces in the rear of their several divisions. The lieutenant-colonel is in the rear of the light company; the adjutant a little behind him on his left. The colours are

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three paces behind the fourth battalion company, covered by their serjeants. Staff officers do not march past.

The officers, when within six paces of the general, prepare to salute, by recovering their swords. They drop them when in a line with the general, and recover them when ten paces from him, bringing them afterwards to the port, without in the least altering the rate of march, or impeding the front ranks of their companies. The commanding officer, when he has saluted at the head of the column, places himself near the general, and remains there till the rear has marched past. The drummers give a roll each, when the officers of their own companies salute. The officers commanding companies will, each successively, when he has passed the general by thirty paces, give the words *rear ranks, take close order*, and will immediately shift to the left, the proper pivot. Officers bring their swords to the advance, and each individual of the company resumes the post which he held when the column was first put in motion.

When the third wheel is completed by all the companies, and the leading company is near to where the left of the battalion stood in its original position, the colonel gives the word *halt*. The whole halt, and the music ceases. At the words *support arms—quick march*, the whole march off in quick time. No music. The column makes three several wheels; viz. at the point where the left of the battalion first stood, at the point where the first wheel was made, and just before the third wheel commences, the colonel gives the word *carry arms*.

When the third wheel is completed, which passes the column on the line of passing the general, the music begins to play. The leading officer of each company shifts to its right, by its rear, giving the word *eyes right*, and when he has passed the general thirty paces, he will resume his proper pivot flank, giving the word *eyes left*. The supernumerary officers and serjeants march in a rank, in the rear of the several companies, at one pace from the rear rank; and officers' swords are carried steadily against the right shoulder. The colonel, lieutenant-colonel, major, and adjutant, are in the same places as in marching past in ordinary time; as also drummers, pioneers, and music. In marching past in quick time no compliment is paid by officers.

When the head of the column approaches to the left of the ground on which it originally stood, the music will cease. The colonel gives the word *halt*, and, after a pause, *march*. The men carry their arms, and the column takes up the ordinary march, for the purpose of moving on an alignment. When at the point on the left of the alignment, each officer gives the words *halt, left wheel, halt dress, march*. It is scarce necessary to observe, that these words are repeated at every wheeling point. The column prolongs the alignment, till arrived at the point where its head or right is to be placed, viz. where it originally stood. The colonel then gives the word *halt*. Pivots are corrected, if necessary, but should be done instantly, and if possible, ought to be avoided, as nothing can more clearly point out how badly disciplined, and how inattentive the commanding officers of companies must be, when this operation is necessary to be done in the face of the general. On the word, *companies, to the left, wheel into line*, pioneers and music go to their posts behind the centre, officers move to the front of their companies, and at the word *quick march*, the battalion wheels up again into line.

When the line is formed, the colonel then cautions the battalion, that it will perform the manual and platoon exercise. He immediately goes to the rear, and the major, advancing to the front of the battalion, gives the commands

rear ranks take open order, march—order arms—unfix bayonets—shoulder arms—officers take post in the rear. The officers recover their swords, and face to the right. On the word *march*, they, as well as the colours, &c. march through the several intervals occupied by the serjeants, three paces beyond the rear rank. At the word *front*, they face about, and bring their swords to the port. The colonel, lieutenant-colonel, adjutant, pioneers, music, supernumerary serjeants, drummers, and fifers, are at their posts in the rear, as when the battalion is formed at close order, where they remain perfectly steady.

The major proceeds with the manual as directed by regulation, observing only the front rank comes down to the last position of the *charge bayonet*, the others remaining ported. The serjeants who intervene in the front rank the places of the platoon officers, remain there steady during the whole of the manual, except that they charge their pikes at the same time as the bayonets. When the manual is over, the major gives the words *rear ranks take close order, march*, on which officers, serjeants, colours, and every other individual, take their places as when the battalion is at close order. The major then gives the word *platoon exercise*, and proceeds with it, according to regulation. When finished, the major goes to his post, the colonel comes into the front, and gives the word *with cartridge—prime and load*. The corps is now ready to commence the ordered movements. The flugel man stands opposite the centre of the battalion, with his front to the general, and goes through the motions as directed for the manual exercise, &c. Of course he is not to perform any of what are called the flugel motions.

Method of performing the EIGHTEEN MANOEUVRES.

FIRST MANOEUVRE. *Close Column on a Rear Division.*

The colonel gives the word *the battalion will form close column of companies, in rear of the grenadiers*. Remaining companies—*right, face*. All the companies, except the grenadiers, face to the right. The captains and their covering serjeants post themselves at the head of their files, ready to lead. Two or three leading files of each company disengage a little to the right. The captain of the grenadier company, with his covering serjeant, shifts to the left of his company, the pivot flank. The colonel then gives the word *quick, march*. All the companies, except the grenadiers, step off at once, and move on in file till they come near the company to be formed on, when the serjeants who were leading the files, step briskly forward to mark the situation of their companies in the perpendicular of the front of the column. The covering serjeant of the first company halts one pace in the rear of the covering serjeant of the grenadier company, carefully covering him, and standing perfectly square in his own person. His own captain also halts close to him, and allows his company to move on in the rear of the serjeant, taking care that the right hand, or leading file of the company, does not pass beyond, but mark time when it comes up to the right hand file of the grenadiers. As soon, therefore, as the captain sees that the left hand file of his company is in with his covering serjeant, he instantly gives the word *halt, front, eyes left*; and having dressed his company correctly on his covering serjeant, he gives the word *eyes, front*, takes his proper post, which his serjeant had kept for him, who immediately covers him, while the captain himself correctly covers the captain and covering serjeant of the grenadier company. In this manner each succeeding company proceeds till the column is completely formed. The colours precede the fifth company, and remain on its reverse flank, covered by their serjeants.

The close column being now formed, with the right in front, the colonel gives the word, *form column of grand divisions*.

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divisions. At this caution, all supernumeraries, but not the colours, go to the rear of the column, if not there already. *Left companies, left face.* The left companies immediately face, always to the pivot flank, and their captains take one side step to the right, so as to be clear of their rank. At the word *march*, the captain stands fast, the sergeants conduct the divisions, and the captain of each, when it has cleared the standing division, gives the word *halt, front, dress.* He then steps nimbly to the third file of the standing company, and from that gives the word *march, halt, dress.* The captains commanding the right companies are now on the right of each grand division. The captains commanding the left companies move to the left flanks of the grand division, their intervals being kept by their sergeants. The colonel now gives the word, *the column will close to the front, march.* All the divisions step off, except the front one, and each, when within one pace of the division in its front, gets the word *halt, dress,* from the pivot captain of each division. The close column of grand divisions is now formed, and ready to deploy. The colours are with their proper division in the column, and that division must, of course, out-flank on the hand, not the pivot. To obviate this inconvenience, some regiments leave a space between the third and fourth grand divisions, for the colours.

The colonel then gives the word, *the column will take ground to the right, and on its march deploy on the rear grand division.* At this caution, a serjeant immediately steps out from the rear division, and places himself on the pivot flank of the front grand division, following it in file. When the rear grand division is halted, this serjeant halts also, and instantly fronts, remaining perfectly steady to mark the ground for the rear grand division to march up to. The colonel gives the word *right face, quick march,* and when the column, in obedience to these orders, has marched as far as he sees necessary, generally twenty or thirty paces, he gives the word *rear grand division, halt, front,* and when he sees that the division immediately before the rear one has cleared its front, he gives the word, *fourth grand division, halt, front.* As soon as the rear division, which has halted and fronted, finds its flank free by the *halt, front,* of the division that was immediately before it, at that instant the captain on the left gives it the word *march.* The grand division marches steadily till it places its pivot flank; the left, close to the serjeant who had stepped out to mark the ground for it. It then receives the word *halt, dress,* from the captain on the left. He dresses the grand division, from the standing serjeant (the point of appui) to the camp colour (the point of formation) on the right. As soon as the dressing is finished, he shifts to the right of his company. The rear grand division being dressed, the fourth is marched up, and dressed on it, exactly as the rear one had dressed on the standing serjeant, and so the third, second, and first, till all are in line. If the deployment be correctly made, the first grand division has only to *halt, front,* as it is already in the true line. Much of the exactness of this, and every deployment of the same kind, must depend on the accuracy of the mounted officer, who halts and fronts each grand division. For this purpose he must be in the rear of the column. If he is confused all will be deranged. Supernumerary officers and sergeants, drums, music, and pioneers, halt with their respective grand divisions, and as they are halted and dressed, take their proper stations in the rear. The line is now formed to the general's left.

Observe, when the column deploys on the rear division, it faces from the pivot flank, which then becomes the following one.

SECOND MANOEUVRE.—*Close Column on a Front Division.*

The colonel gives the word, *the battalion will form close column of companies in front of the right infantry: remaining companies—left, face.* The captains and their covering sergeants post themselves at the head of their leading files. Heads of files disengage. At the word *quick—march*, the covering serjeant of the eighth company steps briskly forward till he comes in front of the light infantry captain, and three paces from him he faces him. Then, being certain that he is in a true line with him, he immediately faces to the right about, and stands perfectly steady, and square to his front. The captain of the eighth company leads on his company till he places his pivot man close to the serjeant. He then gives the word *halt, front, dress,* replaces his serjeant (who immediately covers him), and gives the word *eyes front.* In this manner, each succeeding company proceeds, till the column is completely formed, with the grenadiers in front. The colours move in rear of the fifth company.

The column of grand divisions is then formed, and closed up, exactly as directed in the first manoeuvre.

The colonel then gives the words, *the column will take ground to the left, and on its march deploy on the front grand division, left, face—quick, march.* When the column has marched thirty or forty paces, or as many paces as the colonel sees necessary, he gives successively, and in due time, to each grand division the words *halt, front,* till all are halted, beginning with the front division. The inward captain of each grand division (that is, the captain on the right,) when it has halted and fronted, gives his words, *dress, march, halt, dress,* and the outward captain (the captain on the left) remains on the flank of the division in the line, till the succeeding captain, having so dressed his grand division, comes to replace him. He then replaces his covering serjeant on the right of his proper company. In this manner, grand division after grand division comes up till the whole are in line, and the supernumeraries also take their places gradually in the rear.

Observe.—When the column deploys on a front division, it faces to the pivot flank, which then becomes the leading one.

THIRD MANOEUVRE.—*Close Column on a central Division, facing to the Rear.*

The colonel gives the word, *the battalion will form close column on the right centre company, facing to the rear. Right centre company, right, face. Right counter-march, quick march.* The captain at the head of his company, which has faced immediately on receiving the order, turns short in file to his right hand, and leads his company till he places his front rank in line with the rear rank of the fifth and third companies. He next gives the word *halt, front,* and then *dress,* from the right of his company, where he remains. The colours and centre sergeants counter-march with this company. At the word *remaining companies, outwards, face,* the companies on the right of the right centre companies face to the right, those on the left face to the left. Captains and their covering sergeants move to the heads of files. On the word *to the left counter-march—quick march,* the captains lead the files; the whole step off at once. The companies of the left wing, No. 5, 6, 7, 8, and light infantry, file one after another in the front of the right centre company. The right wing, No. 3, 2, 1, and grenadiers, file one after another into the rear of the right centre company. The sergeants must be very careful to follow the instructions, as in the first and second manoeuvre. Each company, as it compleats its counter-march, receives the word, *halt, front, dress,*

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dress, from its own captain, who is now on the pivot flank, the right; the left of the column being in front.

At the word *column, left face*, the column immediately faces to the left, captains, &c. moving to the heads of files to lead them. All the covering serjeants stand fast. At the word, *the left hand companies will lead out, quick march*, the left, or alternate companies, that is, No. 1, 3, 5, 7, and the light infantry, march out in quick time, until their rear has cleared the standing companies about four or five paces. The colonel then gives the command *halt, the whole will counter-march to the left, left counter-march, quick march*. The whole, except the covering serjeants, who face to the right about, instantly counter-march. The right companies, viz. the grenadiers, 2d, 4th, 6th, and 8th, counter-march, on their own ground exactly. The left companies, i.e. the 1st, 3d, 5th, 7th, and light infantry, march on towards the column, until they fill the intervals they had quitted, and are again in column in their proper place. The captain of each company gives the words, *halt, front, dress*, as their companies finish the counter-march, which is completed when the leading man of each front rank arrives at his respective serjeant. When the counter-march is finished, the column stands with its right in front, as in the first manœuvre, and its centre opposite the general.

The colonel gives the word, *the column will deploy on the right centre company, remaining companies, outwards face*. The right centre company stands fast. The companies on the right of the right centre company, face to the right; those on the left of it, face to the left. At the word *quick march*, the covering serjeant of the right centre company steps up to the left flank of the grenadiers, and remains there. As soon as the flanks of the right centre company are clear, its captain gives it the word *march*, and when he arrives close to his covering serjeant who occupies the exact ground quitted by the grenadier captain, he then, with great correctness, *halts*, and *dresses* his company on the serjeant (the point of appui) to the point of formation on the right, and then, giving the word *eyes front*, shifts to his post, the right of his company. When the remaining companies are clear of each other's flanks, they get the words *halt, front, march*, from their own captains. The third company dresses from the right of the right centre company, its point of appui, to the distant point of formation on the right. The other companies of the right wing dress in the same manner on the standing companies as they severally come up into line. When the fifth or left centre company, has marched up to its point of appui (the left flank of the right centre company), its captain from that point dresses his company to the point of formation on the left. In this manner each company proceeds, till all are in line on their original ground, the centre opposite the general.

FOURTH MANOEUVRE.—*Change of Position in open Column.*

On the word *by companies on the left backwards, wheel*, left hand men of companies face inwards to their companies. Captains step nimbly to the front of their divisions. The serjeant of the right company steps back, and remains to mark the spot where the wheeling man of his company is to rest when the quarter circle is completed. The other companies conform to this, each standing perpendicular to the base line on which its pivot is placed. At the word *quick march*, all the companies wheel back the quarter circle on the principle already laid down. Captains *halt, dress*, their companies, and then giving the words *eyes front*, remain on the pivot flank of their companies. The battalion is now in open column of companies, the right in front.

The colonel gives the word *column march*. The column marches thirty or forty paces in ordinary time. The adjutant having been apprized by the commanding officer, that the battalion is to change its direction to the left, and having the spot pointed out to him where the change is to commence, and also the direction which the column is to take, will immediately move forward, and place a camp colour at the spot where the leading company is to wheel. He will place a second colour as the point of direction on which the leading flank of the column is to move in the new alignment; and he will place a third camp colour, the point of formation, oblique to the right of the column, covering exactly the other two colours, so that a line drawn from the second colour to the first, and continued to the third, will be a right line, which line will be oblique to, and cut the original line on which the column was marching at the point where the leading company began its wheel, which point is on the new alignment. These matters being all quickly arranged, when the colonel sees that the leading company is near the point of wheeling, he will give the words.

The column will change its direction to the left. The captain of the leading company, on the principle of the moveable pivot, gives the words *right shoulders forward*, and when the company has made the required wheel, he gives the word *forward*, and keeps his eyes fixed on the distant camp colour, to which he steadily marches. Each company, as it approaches the wheeling point, (the first camp colour,) conforms exactly to what has been done by the leading company. When the colonel sees as many companies wheeled into the new direction as he judges to be sufficient, generally three, he gives the word *halt*. The leading companies, and such others as have already wheeled into the alignment, being now at their proper points, remain so.

The rear companies will file into the new alignment. Rear companies, right, face. At this word, all the companies who are still in the old direction face to the right, i.e. to the flank which conducts to their place in the new line. Captains and their covering serjeants shift to the heads of files, to lead them. At the word *quick march*, the serjeants step briskly forward, to mark their points in the line where the pivot flanks are to be placed. Each captain leads his company to his covering serjeant, where he halts, and lets his company pass in rear of the serjeant, till its left flank is in with him, and he then gives the word, *halt, front, dress*. At the word, *column, to the left wheel into line, quick march*, the serjeant of the grenadiers moves quickly to the right, and places himself in line with the pivots. The rest of the covering serjeants go as usual to their right flanks, to keep the place for their captains. When the wheel is completed, the captains give the word *halt, dress*, from the file on their right to the camp colour on the left, and immediately replace their covering serjeants.

FIFTH MANOEUVRE.—*Wing thrown back.*

The colonel gives the following words of command; *the left company will wheel four paces backwards on its left. The remaining companies will go to the right about, and wheel two paces to their right.* The covering serjeant of the left company, now on the circle, steps to the rear, and on the eighth file from the pivot marches the named number of paces, and comes to the right about, lining himself with the camp colour, placed by the adjutant on the right, to mark the new line, which is to be parallel to the original line of formation. The command is then given, *left company, four paces on the left backwards wheel, quick march*. The company's serjeant halts the company in a low tone of voice, and the captain accurately dresses it on the colour to the right. At the

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the word, *remaining companies, to the right about face*, they face accordingly. On that of, *two paces to the right wheel, march*, each covering serjeant steps out two wheeling paces on the circumference of the circle, and when the men wheel up to him, he halts them in a low tone of voice. The captain dresses the company. The battalion now stands in echelon, with its rear ranks in front, the captains having shifted to the inner flanks of their several companies, and their covering serjeants to the outside flanks.

The battalion will march in echelon, and form line on the left company, march. The companies march with their rear ranks in front. The captain of the company next to the formed one, gives the word *left shoulders forward*, and then having disengaged himself from his division, the moment his leading flank man of his (now) front rank touches the flank of the company that is already formed, he will give the word, *halt front, dress back*, on which his company fronts, and, without hurry, dresses back on him and the formed part of the line, he correcting them on the more distant given point, the camp colour on the right, which having done, he goes to his post, the right of his company. Every other captain does the same, till the line is formed. It is then parallel to its original line of formation, but more retired by the length of seven companies, supposing that three wheeled into the oblique alignment. The battalion is now to the general's left. It is to be observed, that the greatest activity must be used by each captain in this dressing, otherwise the point of appui will not be ready for the next company, and the distant point will be obscured; whereas it must be left open and distinct, so that the direction of the line may run at the distance of one file from the given object of dressing.

To follow the plan as laid down in the rules and regulations, the battalion should now go to the right about, retire fifty or sixty paces, and then halt, front.

SIXTH MANOEUVRE.—*Counter-march, solid square, and change of position.*

On the word, *battalion, by companies on the left backward wheel, quick march*, the battalion breaks into open column of companies, the right in front. The colonel then gives the word, *the column will change its front by the counter-march of companies to the right, companies, right face*. At this word, the whole face to the right. Each captain will immediately quit the pivot, and place himself on the right of his company, and his covering serjeant will advance to the spot which he has quitted, and face to the right about. At the word, *right counter-march, quick march*, the whole move. Each captain wheels short round to the right, and proceeds followed by his files of men till he has placed his pivot front rank man close to his serjeant, who remains immoveable. Each captain instantly gives the words, *halt, front, dress*, to his company, so as to have it squared, and closed to the right, which is now the pivot flank. The captain replaces his serjeant, who falls back behind the rear rank. The column now stands faced to its former rear, with the left in front.

Column march. The column marches thirty or forty paces. At the word *column will close to the front*, the leading company immediately halts, and the remaining companies each halt within one pace of the company in its front. Captains must be very careful to *halt dress* their companies correctly, as this is preparatory to forming the solid square. Observe, that the column may be closed at the option of the chief, either in this manner, or by the head division continuing its march, and the rear ones being ordered to march quick into close column, and successively to resume the ordinary march.

Form solid square. All the companies composing the front half of the column, *i. e.* the left wing, take one pace forward, except the light infantry which stands fast. The two last companies close up one and two paces to the company before them. At the word, *subdivisions, one pace to the right and left, march*, the whole companies make an interval of two paces in the centre, by their subdivisions taking each one pace to the flanks. Two captains, with their serjeants, place themselves on each of the front and rear intervals. Two captains, with their serjeants, also take post on each of the increased intervals in the centre of the sides. A serjeant takes the place of each flank front rank man of the first division, and of each flank rear rank man of the last division. All the other officers, serjeants, the four displaced men, drummers, &c. assemble behind the centre of the companies which are to form the flank faces.

N. B. The remainder of this manœuvre cannot be correctly performed, unless each company consists of *at least* twelve files formed three deep.

Four files, outwards, face. The two rear companies face to the right about, and four files on each flank of all the companies, except the grenadiers and light infantry, face outwards, the whole lining with the flanks of the front companies, and dressing in ranks from front to rear. On the word *quick march*, the fifth file from each flank of all the companies, except the first and last, followed by the front rank man of the sixth file, move up to right and left, and respectively fill up the interval between their own and the preceding division. The remainder of the men of the side divisions arrange themselves to their right and left, forming close in the rear of their own divisions respectively. The whole thus stand faced outwards, and formed at least four deep, with two officers and their serjeants in the middle of each face to command. The captains may fill the intervals as follows: The grenadier and first company in the rear face; the light infantry and eighth company in the front face; second and third in the right face; fourth and fifth in the left face; each covered by his serjeant. All the other officers, as well as serjeants, displaced men, the colours, &c. are in the void space in the centre, behind their companies; and the files of the captains in the faces may be completed by serjeants, &c. from the interior, in such manner as the chief may direct. The mounted officers pass into the centre of the square by the rear face. Whatever is the strength of the companies which compose the flank sides, the whole of them will face outwards, except their four centre files, which are always reserved for filling up the intervals.

Prepare for firing. The two first ranks all round kneel, and slope their bayonets. The two next ranks fire standing, and the others, if any, remain in reserve. The file covers behind each captain in the sides give back, and enable the captains to stand in the third rank. They are replaced by their serjeants, who, with the serjeants in the angle, slope forward their pikes, at the same time that the men slope their bayonets. The colonel then gives the word *commence independent firing*, and on the close of the preparative, the two standing ranks commence file firing from the right of each face. This ceases on the beat of the general, and the colonel gives the word, *kneeling ranks, present, fire*. If ordered, the kneeling ranks may load again without rising up. Otherwise they immediately recover their feet after firing, and the word *prime and load* is given.

When the colonel sees it proper to reduce the square, he gives the words *form close column*. The files that faced outward, come to their proper front. Those in the intervals, *i. e.* the fifth file, and front rank man of the sixth, face about. At the word *quick march*, the front company takes

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one pace forward, and the two rear companies, *i. e.* the grenadiers and first company, one and two paces forward, and then face about. The files from the intervals take their proper places. Officers, serjeants, displaced men, &c. will quit the interior, move to their several stations, and the companies that composed the flank faces will be compleated. Not to multiply words of command, the best method to close the subdivisions, &c. is to move the column immediately, by giving the word, *column, march*, either in quick or ordinary time, as the colonel thinks proper.

When the column has marched as far as the commanding officer judges necessary, he gives the words, *column will open from the rear*, on which the captain commanding the rear company gives the word to his company, *grenadiers, halt*, and immediately the caution *first company*, to the company in his front. When he sees it exactly at a proper wheeling distance from him, he gives it the word *halt*. The captain of the first company, when he has halted, gives the same caution and command to the second; the second to the third, and so on in succession, till the column is opened out.

The colonel now gives the word, *the column will change its head by the counter-march of companies from the rear. Right wing, to the front*. The grenadier captain gives the words, *grenadiers, left face*. He and his covering serjeant immediately shift to the left to lead the files. He then gives the word, *quick march*, till his right flank can freely pass near the left flank of the others. He then gives the word *halt, front, march* (in ordinary time) close by the left flank of the first company. The captain of that company, while the other is approaching, gives the word, *left, face*; and as soon as the grenadiers have cleared his flank, *quick march*, leading his company into the rear of the now leading one. He gives the word *halt, front*, when he covers, and *march*, when at the due wheeling distance. All the other companies successively perform the same operation; and when the light company has taken its place in the rear, the whole column is in perfect order.

Column, halt, left wheel into line, quick, march. When the battalion has wheeled into line, it is considerably to the general's right, and with its rear to him. Observe, That some regiments at review, in this counter-march from the rear to the front, face their companies to the right, and bring them out on that side, contrary to the general principle. The divisions which advance come out always on the side to which front is to be made, and on which the enemy is placed; because then, with the divisions that are free, he can be opposed, while the others are moving behind the line.

SEVENTH MANOEUVRE.—*Counter-march by Files on the Centre of the Battalion*.

This brings back the battalion to its original front. The colonel gives the following words; *the battalion will counter-march from its centre, and on its centre, by files—wings—inwards—face*. The whole face to the colours, which stand fast; and a serjeant remains to mark each flank of the battalion. The word is given, *wings—three side steps to the right—march*; if the battalion is only two deep, two paces to the right is sufficient. Each wing takes the named number of paces to its flank, that they may be disengaged from each other. At the second word *march, or quick, march*, the whole move on, and each file wheels successively into the centre, as it arrives at and beyond the colours. As soon as each company is in the line from the colours to the flank serjeant, the captain fronts it. When the whole is formed, the colours counter-march, and if necessary, the dressing of the line is corrected.

EIGHTH MANOEUVRE.—*March in open Column*.

The battalion will form open column in rear of the left company—Remaining companies on the right backwards wheel—quick march. All the companies wheel backwards on their right, except the light infantry, which stands fast. On the word *left face*, they all face to the left, except the light company; and the captains place themselves to lead the files. At the word *quick march*, the whole will lead to the rear, and the covering serjeants will successively, as before, take up their points on the new line. The captain conducting each platoon, when he arrives at his serjeant, will stop directly before him, allow his platoon to move on behind the serjeant, till the rear file comes close to, but beyond him. The captain will then *halt, front, and dress* his platoon, with his front rank closed in to the serjeant. He will himself take the place of the serjeant, and remain steady on the pivot flank.

As soon as the third company has taken its place in the column, the colonel gives the word *march*. The head of the column moves on in ordinary time, and the remaining companies follow, preserving the proper wheeling distance between each. When the leading company arrives within 12 or 15 paces of the point where it is necessary to diminish its front, the colonel will give a loud caution, that the subdivisions are to double, either by companies successively, or the whole battalion at once. If at once, as is ordered in this manœuvre, then he gives the words *form column of subdivisions—right subdivisions—mark time*. Each right hand subdivision marks time, till its left hand subdivision, which marches on steadily, has opened or cleared its flank. At the words *quick oblique, or left oblique*, the right divisions immediately oblique to the left, and cover the left ones correctly. The captains move to the right flank of the left subdivisions. Their covering serjeants lead the right subdivisions.

When the column of subdivisions has marched as many paces as the colonel sees proper, he gives the word *form companies, right subdivisions—quick oblique*. As soon as each right subdivision has cleared the right flanks of the left, by the quick oblique, it immediately receives the word *forward*, and when in line with the left subdivision, each receives the word *ordinary* from the captain, who had shifted to its right. It may be observed, that the above is in conformity to the general rule, whether the column be halted or in motion, that the subdivision or section on the reverse flank is the one behind which the other subdivision or section doubles. But in this case, were the left subdivisions to double in front of the right ones, the pivots would be better dressed, as the right subdivisions, which were marching correctly in the alignment, would not be discomposed. The colonel gives the words *column halt—right wheel into line—quick march*.

NINTH MANOEUVRE.—*Echelon Change of Position*.

The colonel gives the words, *companies on the right backwards wheel—quick march*. The battalion breaks into open column, the left in front, each company getting the *halt—dress* from its own captain, as usual. The colonel continues: *The seventh company (the third, reckoning from the left) will wheel four paces, the remaining companies six paces, on the left backwards—quick march*. The companies are dressed by their captains, who are now on the inside flanks of the echelon. The colonel orders *eighth and light company right about face*. Two camp colours are sent to the right and left in a correct line with the seventh company. At the word *the column will march in echelon, and form line on the seventh company—march*, the captain of the seventh company shifts to its right flank. Each company on the right of the seventh, viz. Nos. 6, 5, 4, 3, 2, 1, and grenadiers, as it comes successively into line, receives from its captain the word *halt—dress*.

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—*dress* on the camp colour to the right. The captain then shifts to the right of his company. The companies on the left of the seventh, viz. N^o 8. and the light infantry, receive the words from their captains *halt, front, dress up*. They are dressed on the camp colour to the left.

TENTH MANOEUVRE.—*Echelon Change of Position.*

The colonel gives the words *the light infantry will wheel four paces, the remaining companies two paces to the left*. When the covering serjeants have taken the named number of paces from the front of the eighth file from the left of their companies, the colonel gives the word *quick—march*. The captain commanding the light infantry immediately shifts to its left flank. When the company has wheeled up, he gives the word *halt, dress*, dressing it correctly on the camp colour, which the adjutant had previously sent to the right for this purpose. The captain, when his company is correctly dressed, gives the word *eyes front*, and resumes his place on the right of his company, taking care that his men stand perfectly steady, and with carried arms, until the next company has dressed on them; his right flank being the point of appui. When the colonel sees that every division is ready, he gives the words *the battalion will march in echelon, and form line on the left company—march*. All the companies march in ordinary time. As they arrive in line successively, they are dressed by their captains from their standing companies to the camp colour on the right. Each captain, when he has so dressed his company, gives the word *eyes front*, and then shifts to the right of his division. The whole are now formed in line, parallel to their original front, and considerably to the general's right.

ELEVENTH MANOEUVRE.—*Change of Position.*

The colonel gives the words *the battalion will form open column of companies in the march—right face—march*. When the battalion has marched in file as far as is judged necessary, he gives the word *form companies*. The files instantly make a half face, each marching up quick and diagonally to their respective leading men, who do not alter their pace. As the pivots are in the rear of companies, when they come up, the companies dress to them by their captain giving the word *eyes left*: and they take up as they form, the ordinary step. The column marches; and when the colours are opposite to the general, the colonel gives the word *halt*, and then *to the left wheel into line, quick march*.

TWELFTH MANOEUVRE.—*Retreat in Line.*

The colonel gives the word *the battalion will retire—right about face—march*. It marches fifty or sixty paces in ordinary time dressing by its centre. No music plays during the retreat of the battalion. The colonel gives the word *halt front*, and directly after *the battalion will fire twice by companies, from centre to flanks*. On the last stroke of the preparative, the captains on the right of companies step out one pace, and give the word of command *platoon, ready—present—fire—load*. When the first part of the general is beat, the captain falls back into the front rank. The colonel then gives the word, *the battalion will retire by alternate companies—right companies, right about face—march*. After marching in ordinary time about fifty paces, they receive the word *halt, front*. In marching, one colour remains on the flank of its proper company in each line. The King's colour with the right centre, and the other colour with the left centre company. A serjeant will advance six paces before each colour during the march. Each line directs its movements by its colour; distances are preserved from that colour, and to it the men's eyes are turned during the march. Each line has a commander. Captains are ordered to be on the inward flanks of their companies, but

this makes a perpetual shifting of positions, and is better omitted.

The colonel gives the word *left companies, make ready—present—fire*. Immediately after firing, the men come to the recover, half cock, and shoulder arms. At the word *right about face—march*, the left companies march steadily on, dressing by their colour. They pass through the intervals of the right companies, and continue marching until they receive the word from the colonel *halt front—prime and load*. If the chief fires the left companies, the next in command fires the right companies, exactly as the left companies were fired. They retire in the same manner through the intervals of the left companies. The colonel then fires the left companies, and retires them as before, and so on till he thinks it expedient to form line.

The left companies will form line on the right companies—march. When they have marched and filled up the intervals, the word *halt* is given by the colonel, and *dress* by the captain of each company. The right companies may form line on the left in the same manner. Sometimes the right companies are fired in battalion previous to their retiring. The words of command are the same as if they had been separated from the left companies. The light infantry may be divided in the intervals of the first line, retire with it, and charge to the other line, whenever it becomes the advanced one. In this situation, they cover the retreat, and may occasionally fire; and when the line is formed, they resume their post on the left. Unless, however, the battalion is very strong, the light infantry remain in their usual position as a company. When the line is formed, the colonel gives the word *the battalion will retire in line—right about face—march*. When it has retired as far as he chuses, he gives the word *halt, front*.

THIRTEENTH MANOEUVRE.—*March to a Flank in Echelon.*

The colonel gives the word *battalion, by companies four paces to the right wheel, and form echelon*. Covering serjeants take the named number of paces as usual. The pivots make a half face to the right, the serjeants dressing by them. On the word *quick march*, captains on the right of their companies give the word *halt, dress*. Covering serjeants go to the reverse flank. The colonel then gives the word *the battalion will advance in echelon—march*. The whole advance to the flank in echelon about two hundred and fifty paces. At the word *wheel back into line*, the three centre serjeants instantly step out into the front, and mark the time for the battalion. The pivots mark time, gradually turning to their proper front, while the rest of the divisions wheel back the four paces they had advanced. When the fourth pace is completed, the colonel gives the word *forward*; and the whole, dressing by the centre, step out their full pace, till they receive the word *halt*. The line is then considerably to the general's left, and parallel to its original front. In this situation, the colonel commands *fire three rounds by companies from centre to flank*. Each captain gives the words *platoon, ready, present, fire, load*.

FOURTEENTH MANOEUVRE.—*The Hollow Square, and its Movements.*

The colonel gives the word *the battalion will form a hollow square on the three centre companies* (viz. the fourth, fifth, and sixth), *remaining companies—four paces on the right and left backwards wheel—quick march*. The companies on the right each wheel back the eighth of the circle on their left, and the companies on the left wheel the same number of paces backward on the right. The colours, at the same time that the companies are forming their echellons, move back three paces into the rear. The fourth company by the side

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step inclines to the fifth company, to close the interval that was made by the falling back of the colours. At the word *right about face*, the companies that were in echelon face accordingly. The colonel then gives the word, *in echelon, march, to form square—march*. Two serjeants or camp colours should be placed in the rear, in a perpendicular line with the outside flanks of the front face, marking out a perfect square. The companies now march in echelon, and by the turning of the left shoulders of the right companies, and the right shoulders of the left companies, they wheel in to form square. Their captains halt and front them in a correct line. The first company will wheel round the serjeant placed to mark the angle, and the grenadiers round the proper right of the first company; the light infantry at the same time wheeling round the serjeant on the opposite angle, till its right flank touches that of the grenadiers. They then, as also the first company, get the words *halt, front, dress*, from their captains. They have then formed the rear face of the square, and in this manner the proper front rank of the rear face will be outward. The square is now perfectly formed, and composed of four faces. The front face consists of the fourth, fifth, and sixth companies; the right face of the third and second; the left face of the seventh and eighth; and the rear face of the first company, the grenadiers, and light infantry. The mounted officers, colours, music, drummers, &c. and the battalion guns, are all within the square.

The colonel then gives the words *the square will march by the right angle of the front face, left and rear faces—right about face*. The two sides that form the right angle, that is, the front face and the right face, stand fast; the other two sides, viz. the left face and the rear face, go to the right about. At the word *by subdivisions four paces to the right and left wheel—march*, the whole by subdivisions wheel up one eighth of the circle, two sides to the right and two sides to the left, and are thus parallel to each other, and perpendicular to the direction in which they are to move. The pivot flanks are in this manner placed on the sides of the square, each side being thus in echelon, and the colours behind the leading angle. At the word *march*, captains, who are on the inward flank of their leading subdivisions, carefully preserve the distances they wheeled at, and from the flanks to which they wheeled. At the words *halt, front square, or reform square*, the whole wheel back into square; and the two sides that require it, that is, the left and rear faces, go to the right about. Captains dress their divisions as usual, in the same manner as is described for the square. The directions given for the march of the square by the right angle of the front face, will equally apply, should it be found necessary to march the square by any of its other angles.

The colonel then gives the words *the square will march by the right face*. The colours move up behind the centre of the named face, as do the mounted officers, &c. At the word *front and rear faces, by subdivisions to the right and left wheel—quick march*, the opposite side, that is, the left face, faces about; and the two flank sides wheel up by subdivisions, so as to stand each in open column. At the word *by right face—march*, the square marches two sides in line and by their centre, and two sides in open column, which cover and dress to their inward flanks on which they wheeled up carefully preserving their distances. The same directions that are given for marching by the right face, will apply to the march by any of the other faces. The colonel, when the square has marched as far as he sees necessary, gives the word *halt, reform square*. The square halts, the subdivisions in column immediately wheel back, and form

their sides, and the side which faced about again faces outwards. The captains give the words *halt, dress*.

On the word *prepare for firing*, the front rank kneel and present their bayonets sloped. The square is then ordered to fire in whatever manner may be judged proper; the two rear ranks to fire standing; or companies by ranks successively: or by companies independent of each other; or by subdivisions, one firing when the other has loaded; or companies by files; as ordered. The front rank remains as a reserve. Should the battalion be formed only two deep, the front rank will remain kneeling, and the other rank will fire by files. The word is now given *square will fire by companies, beginning on the right*. When the firing by companies has ceased, the command is given by the colonel *kneeling ranks, make ready, present, fire* (the men rise up after firing), *prime and load*. The word is then given *the square will form line on the three centre companies—side and rear faces—by companies, six paces to the right and left wheel, quick march*. The captains, as usual, *halt—dress* their companies. The words are then given *in echelon march and form line, march*. The whole march in echelon, except the three centre companies, the outward companies taking care not to impede the inner ones, which must form before them. This may be done by the facing and filing of each division from its inward flank to its point in the new line, where it will form up. Captains *halt—dress* their companies, as in the third manœuvre.

If the square is composed of the eight battalion companies only, then the grenadier and light company may be placed as a reserve in the rear, ready to be applied according to circumstances. In marching the square by any of its faces, some regiments have been instructed to march two sides in file instead of open column; and if the men march tolerably in file, there can be no question but that it is the best method.

FIFTEENTH MANOEUVRE.—Retiring and filing to the Rear.

When the battalion is to retire, it ought to be previously dressed with the same exactness as when it is to advance, and the same care in ascertaining the direction of its march must be taken. Therefore, before the retreat is to begin, an officer or serjeant will have placed himself thirty paces in the rear, so as to stand perpendicular to the front directing serjeant; and of course he will be in the line, or nearly so, of the directing serjeant. Whenever the battalion marches to the rear, it must cover its proper extent of ground. The rear must therefore avoid closing their files more than usual; otherwise the front rank men, who are in general larger, will be crowded in their rank. Music, drums, supernumerary officers, &c. will take care to march with exactness, and not to interrupt, but rather assist the battalion.

The colonel gives the words *the battalion will retire*. As soon as this caution is given, the three directing serjeants face about. The same centre serjeant that directs to the front, directs also to the rear. He moves on in the line of the advanced officer, six paces beyond the rear rank, and halts. The two other serjeants move up on each side of him. When the line is retiring, music is never to play. On the word *right about face*, the whole face: and the supernumerary officer, who had replaced the directing serjeant, moves up into the leading rank. A mounted field officer passes through to the rear, and the directing serjeant in the interior prolongs his line, and takes his object betwixt the feet of the posted officer. Immediately after facing about the word *march* is given by the colonel. The whole battalion instantly sets off. The replacing officer betwixt the colours preserves, during the movement, his exact distance

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of six paces from the advanced serjeant, and is the guide of the battalion, the directing serjeant conducting on his points under the correction of the colonel, who is ten or twelve paces behind the centre of the battalion. In this retreat, if the light infantry act separate, and not as a company of the battalion, at the word *march* they move quickly round by the flanks, and form in the rear of the centre, extending so as to cover it during the retreat, and following at the distance of fifty or sixty paces.

The colonel gives the words *the battalion will, from the proper right of companies, file to the rear—pass companies by files*. Each captain instantly gives the word *left, turn—quick march*, and wheels out his leading file, the rest of the files following in succession. The heads of companies must observe the proper distance from each other, and are regulated from the left. Circumstances may require that the companies should pass from their proper left, instead of the right, in which case the leaders will shift and conduct such left until the line is formed, when they will again resume their proper places. When the companies in file have marched as far as is necessary, the colonel gives the word *halt, front*. The whole now stand in open column of companies, the right in front. When the column is ordered to halt, the light infantry pass quickly through it, and take post thirty paces in the rear of the intended line. On the word *by companies, left, wheel into line—quick march*, captains, as usual, *halt, dress* their companies. When the line is formed, its centre is opposite to the general.

SIXTEENTH MANOEUVRE.—*Filing, advancing, and charging to the Front*.

The colonel, having previously placed himself ten or twelve paces behind the exact line of the directing serjeant, will remark the line of its prolongation, and thus ascertain the direction in which it should march, and in doing this, he will not at once look out for a distant object, but will hit on it by prolonging the line, from the person of the directing serjeant to the front. Or he will order the covering serjeant to run out twenty paces, and will place him in the line in which he thinks the battalion ought to advance. The directing serjeant then takes his direction along the line which passes from himself, betwixt the heels of the advanced serjeant, and remarking his object, preserves such line in advancing. The colonel then gives the words *the battalion will advance*. Before the line so advances, the light company quickly forms, in extended order, thirty paces before the centre, and preserves that distance in advancing. The front directing serjeant of the battalion moves six accurate and exact paces in ordinary time, and halts. The two other serjeants that were behind him, move up on each side of him, and an officer from the rear replaces in the front rank the leading serjeant. The centre serjeant, in moving out, marches and halts on his own observed point, and the two other serjeants dress and square themselves exactly by him. The directing serjeant, after being assured that he himself is perfectly and squarely placed in the rank, by casting his eyes down the centre of his body, from the junction of his two heels, and by repeated trials to take up or prolong a line perpendicular to himself and to the battalion, will observe and take up any accidental small spot on the ground, and within 100 or 150 paces, intermediate ones cannot be wanting, nor the renewal of such as he afterwards successively approaches to in his march. In this manner he is prepared, under the future correction of the colonel from behind, to conduct the march.

The line of direction being thus ascertained, the colonel gives the word *march*. The whole instantly step off, and without turning the head, eyes are glanced towards the

colours in the front rank. The replacing officer betwixt the colours preserves, during the movement, his exact distance of six paces from the advanced serjeant, and is the guide of the battalion. The centre advanced serjeant is answerable for the direction, and the equal cadence or length of step. To these objects he alone attends, while the other two, scrupulously conforming to his position, maintain their parallelism to the front of the battalion, and thereby present an object to which it ought to move square. They are to allow no other consideration to attract their attention, and will notice and conform to the direction of the commander only. If any small alteration in their position is ordered, it must be gradually and coolly made. When the battalion is advancing in line for any considerable distance, the music may be allowed at intervals to play for a few seconds only, and the drums in two divisions to roll; but it is the wind instruments only which play. The large drum, or any other instrument whatever, which marks time by the stroke, is not permitted.

When the battalion advances fifty paces, the colonel gives the words *the battalion will file from the right of companies—pass files to the front*. Each captain immediately gives the word *right, turn—quick march*, wheels out his leading file, and passes on direct to the front, preserving a relative distance from the left, as being the head of the column, or from the other flank, if particularly so ordered. When the column has marched fifty paces, the colonel gives the words *halt, front*. The whole now stands in open column, the left in front.

The light company passes quick to the rear, assembles half of it behind each flank, and moves relatively with the flank companies.

The words now given in succession are *column, right, wheel into line, quick march*. *The battalion will advance—march*. The battalion marches fifty paces. *The battalion will advance by alternate wings, and fire four times—left wing, halt*. The left wing halts, and the right wing continues to move on fifteen paces. *Left wing, march. Right wing, halt, ready, present, fire, load, march*. The left wing marches past them till the right wing, being loaded and shouldered, receives the order to march. *Left wing—halt, ready, &c.* as directed for the right wing, and thus they alternately proceed, till each wing has fired twice. *The left wing will form line on the right—right wing, halt*. When the line is formed, *the battalion will advance, march*. After marching fifty paces, *halt*. *The battalion will fire a volley—front rank kneeling, make ready, present, fire, prime and load*. *The battalion will advance—march*. When it has advanced twenty paces, it receives the command *halt*. *The battalion will fire a volley, and port arms*; when the battalion has fired, it immediately ports arms. *Quick march*; the battalion advances firm, dressing by the centre. When it has advanced fifty paces, *halt*; the front rank comes down to the charging position. *Shoulder arms—prime and load*. The light company, issuing from behind the flanks, pursue, return, and assemble and join on the left of the battalion. The battalion is now advanced near the general, and with its centre opposite him.

If the battalion is not very strong, the light infantry should not act as such, but only as a company in battalion. In firing by wings, that is, by half battalions, the colonel generally fires the right wing, and the next in command the left. When the battalion has charged bayonets, they may be ordered to move forward on the charge at a very quick step; but by no means to run. A very few paces only can be necessary. Care must be taken that the battalion moves in perfect dress, which it cannot do if it run. The flugel man gives the time for each wing to cast about, and shoulder.

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SEVENTEENTH MANOEUVRE.—Retiring in Line.

The colonel gives the words *the battalion will retire—right about, face—march*. While it is retiring, he gives the caution *the battalion will fire twice by alternate wings—the two first ranks, standing*. He then gives the words *right wing—halt, front*. The light infantry are not ordered by the rules and regulations for the infantry formation, to cover the regiment in this manoeuvre; but it appearing to be as requisite as in advancing, they will be formed separately. On the halt of the right wing, they file round the left flank, and cover the left wing at six paces in front, firing and retiring till they occupy the ground quitted by the left wing, dressing by the right. When the left wing has gained fifteen paces, it receives the word from the lieutenant-colonel, *halt, front*. The light infantry cease firing. The colonel orders *right wing—ready, present, fire* (the men after firing immediately come to the port, or to the recover, as may be ordered). The light infantry face to the right, and cover the right wing at six paces. On the words *right about, face—march*, the light infantry fire retiring, till they come into line with the left wing by which they dress, and continue firing. When the right wing has marched fifteen paces beyond the left, it receives the words *halt, front—prime and load*. When loaded, the signal sounds for the light infantry to cease firing. The instant the lieutenant-colonel sees that the right wing has fronted, he immediately gives the word of command, and conforms in every particular to what the right wing has done. The light infantry face to the left, and cover the left wing as they did the right, dressing by the right. In this manner each wing alternately proceeds, every due dispatch being made in reloading. When the wings have each fired twice, the colonel gives the words *the left wing will form line on the right wing—march—halt, front—prime and load*. When loaded, the light infantry ceases firing, and the signal is given by the bugle for it to form company in the rear of the centre. The colonel gives the word *the line will retire*; and when it has marched a hundred paces or more, covered by the light infantry, who file round the flanks, *halt, front*. The light infantry, upon signal, form company in the rear of the centre and afterwards resume their post on the left of the battalion.

In retiring by alternate wings, one colour remains on the inward flank of each half battalion, to which the men continue to look when they move, by which they dress, and before which a directing serjeant advances six paces. The *make ready—present—fire* of the advanced wing is instantly to succeed the *march* of the other advancing wing or the *halt, front*, of the retiring one. In the half battalion firing, advancing, and retreating, if formed two deep, both ranks will fire standing. If formed three deep, the front and centre ranks will fire standing, and the rear rank will remain shouldered in reserve.

EIGHTEENTH MANOEUVRE.—Advancing in Line.

The colonel gives the word *the battalion will advance—march*. It marches a hundred paces, and receives the *halt*. At the words *fire a volley obliquely to the right*, the men of the front rank turn one-eighth of a circle to the right; those of the rear ranks take a pace to the left, and cover their proper file leaders. The words are then given *make ready, present, fire, load*. *Fire a volley obliquely to the left—make ready, present, fire, load* (the ranks execute the reverse of what is directed in the firing to the right). *The battalion will advance—march*. When it has advanced a hundred paces, *halt*. *Fire two volleys to the front—after the last, the men will port arms, and half cock*. *Battalion—ready, present, fire, load*. *Battalion—ready, present, fire*—the men will port arms, and half cock. *Shoulder arms—about pans—rear ranks, take open*

order—march. The colonel and lieutenant-colonel now dismount, and come through the centre into the front, as do the music. Every one takes his station exactly as they had been placed when receiving the general. The colonel, with his back to the regiment, gives the words *the battalion will advance—march*. The music plays, and when the line has advanced within fifty paces of the general, the colonel gives the word *halt—general salute—present arms*. The music plays *God save the King*, and the drummers beat a march. When the music ceases, the colonel, turning the battalion, gives the words *shoulder arms—rear ranks, take close order—march*, and the review is ended.

Light infantry. The following is the method usually observed by the light infantry when required to form in extended order, as commenced at the twelfth manoeuvre. Previous to the retreat in line, the colonel directs the horn to sound the signal for their forming company, when the officer commanding it gives the words *right face—quick march* (in double quick time, to ten paces in the rear of the supernumerary rank, its centre covering the colours)—*halt, front—order arms—unfix bayonets—form two deep* (the left subdivision of the rear rank steps back one pace) *rear rank to the left face—quick march* (its left subdivision arrives between it and the centre rank, when the whole moves forward)—*halt, front, dress*, is then given by the senior supernumerary officer. The light infantry being divided into subdivisions, the right is commanded by the captain, and led by his covering serjeant; the left by the senior lieutenant, and led by the second serjeant; the second lieutenant attends the right subdivision. On the retreat of the line, at signal from the horn, the subdivisions face outward, and file, in quickest time, round the flanks of the line, forming (when the retreat is made by alternate companies) at ten paces in front. The right subdivision covering at equal distance the right wing, except the grenadiers, and the other the left wing in the same manner, dressing to the centre. When the word *march* is given to the line, the light company, at the sound of the bugle, commence firing for the first round from centre to flanks. Each man, when he has fired, retires the ordered number of paces, generally four, by the left of his file comrade, and reloads. On the fronting of the battalion, they form company, as before mentioned, round the flanks, in rear of the line, where they divide into sections. The two sections of the right subdivision form in rear of the first and third companies: those of the left in the rear of the fifth and seventh. All the sections are faced to the left, and on the retreat of the alternate companies, suppose the left move instantly into the intervals, and form as much extended as is necessary, in line with the right companies, who still remain stationary, firing independently till the companies in line receive the order to make ready. When the right companies retreat, the light infantry move to the right, cover them as they had before done the left, and fire retiring till they arrive at the intervals between the left companies, upon whom they dress. Thus they alternately continue to occupy the intervals, till the line being formed, they wheel round the respective flanks, form subdivisions in rear of the second and seventh companies, form again in front on the retreat of the whole line, in extended order, and at its halt, assemble again in company behind the centre. In advancing in line, and by wings, the movements are similar to those already explained in the seventeenth manoeuvre, with this difference, that the company moves forward instead of retiring. To re-form three deep, when re-assembled in company behind the centre of the line, the officer gives the words *form three deep* (the third section, or the whole of the proper rear rank, steps back one pace) *rear rank, to the right face—quick march* (the rear

rear rank of the section marks time till the front rank has passed it, and then moves on) at the word *halt, front*, they cover the centre rank correctly, at one pace distant from it. The company then fixes bayonets, faces to the left and resumes the proper position in line.

Observations.

The number of paces mentioned in the several movements are not so positively prescribed, but are supposed to be nearly such as will give the intended relative situations. If the ground allows the marches to the rear and front to be longer, it will be so much the better.

The colonel should give all his commands from the rear of the battalion. No commanding officer should attempt, in the face of the general, to put the regiment through any of the manœuvres without being himself perfectly and minutely acquainted with the principles on which each is performed. He will thus avoid the disgrace of calling to his adjutant for instruction, or galloping full speed to the flank of the battalion by way of rectifying a mistake which his ignorance and temerity have brought him into, and which he cannot remedy but by recurring for advice either to the other mounted officers, or to the serjeant-major in the rear.

When the reviewing general has seen the battalion go through such of the ordered manœuvres as he judges necessary, he will, that he may be able to report on the merits of its performance, among other circumstances, particularly observe and specify, whether or not the original formation of the battalion is according to order.

The marches are made with accuracy, at the required time and length of step, and on such objects as are given. The proper distances in column and echelon are at all times preserved. The wheelings are made just, and in the manner prescribed. The formations in line are made true, without false openings, or necessity of correction. The officers are alert in their changes of situation, exact in their own personal movements, and loud, decided, and pointed in their words of command. The march in line is uniformly steady, without floating, opening, or closing. The march in file close, firm, and without lengthening out. The officers and supernumeraries give the aids required of them with due quickness and precision. Hurry and unnecessary delay in the movements are equally to be avoided. In the firings, the loading is quick, the levelling just, the officers animated and exact in their commands.

Form of sending for, and lodging the colours. The battalion being in line, the commanding officer orders the grenadier drummers to beat the drummer's call; on which the two youngest ensigns recover their swords, face to the right, and march between the line of officers and the front rank, till they come to the head of the grenadiers, where they halt, front, and bring their swords to the port. The drum-major, with a party of drummers and fifers, will likewise face to the right, and march to the head of the grenadiers, placing themselves between the ensigns and the front rank. The grenadier captain then makes his company take close order, and will either wheel them by subdivisions, or march them in one. If by subdivisions, he places himself on the pivot flank of the first, the eldest lieutenant on that of the second, and the other lieutenant in the supernumerary rank of the first; but if the company is marched in one division, the two lieutenants are in the supernumerary rank. The company then marches, in ordinary time, to the quarters where the colours are lodged, when it halts, and rear ranks take open order. The drum-major unfurls the colours, and gives them out of a window to the ensigns, who on halting had sheathed their swords. The captain then orders his men to present arms. Officers salute, and the drummers beat a point of

war, which finished, he shoulders arms, closes the ranks, and marches them off in ordinary time, the drummers beating the grenadier's march. On arriving at the left flank of the regiment, the company faces to the right, the ensigns with the colours march in front of the line of officers, the grenadier officers between them and the front rank, as also the drums and music, and the grenadiers in files, between the other ranks. The commanding officer of the regiment, as soon as the colours arrive on the left flank, orders the battalion to present arms, the officers salute; the music plays *God save the king*, and the drummers beat the troop. On the colours arriving in the centre of the battalion, the ensigns halt and front, and, when the grenadiers have taken post on the right, the battalion is ordered to shoulder arms.

When the colours are to be *lodged*, on the drummer's call being beat, the ensigns, the drum-major, and a party of drummers and fifers, march and take post in the front of the grenadiers. The battalion presents arms, officers salute, music plays, and drums beat. On the captain of grenadiers marching off with the colours, drummers beat the troop. When they arrive at the house, or place where they are to be lodged, the drum-major receives them at a window, the grenadiers present arms, officers salute, and drummers beat a point of war. The ensigns on quiring the colours, draw their swords, and salute with the other officers. The captain will either march his company back, or dismiss them, as he may be ordered by the commanding officer.

When the colours are not to be received, or lodged in form, the serjeant-major, with four serjeants in the centre of the battalion, will take the colours eased, from, or to the place where they are kept, in the following manner. Serjeant-major, the two front rank serjeants carrying the colours on their shoulders, covered in the rear by two other serjeants and the drum-major, who is to receive them when they arrive at the place of their destination. No compliment is paid by the battalion in this case, and they are generally sent away when the ranks are closed. When the regiment is ordered for a field day, the colours should never be received or lodged in form, as it takes up too much time.

The following is at present the *detail* of the battalion. Field officers—one colonel, one lieutenant-colonel, one major, (by a late regulation field officers have no companies,) ten captains, twelve lieutenants, and eight ensigns. There is no captain-lieutenant. Staff officers—one adjutant, one pay-master, one quarter-master, one surgeon, one assistant-surgeon. Non-commissioned officers—one serjeant-major, one quarter-master serjeant, thirty serjeants, thirty corporals. Drummers—one drum-major, twenty-one drummers and fifers. Privates—five hundred and seventy.

Rules and regulations for his Majesty's forces. Russell's Instructions for the Drill, London, 1803, &c. &c.

BATTARDEAUX, in *bridge-building*. See *COFFER-dams*.

BATTATA, in *Botany*. See *DIOSCOREA*.

BATTATAS. See *HELIANTHUS*.

BATAWAY, in *Geography*, a town of Africa, on the Grain Coast, easily known at sea by two large rocks, two miles distant from the shore to the west, and also by some high mountains behind the town. This is one of the best built places on the coast; populous and rich, and trades extensively in pepper and ivory. The people however are addicted to thieving.

BATTEAU. See *BATEAU*.

BATTEL, in *Geography, Law, &c.* See *BATTLE*.

BATTEN, in *Carpentry*, a name which the workmen give to a scantling of wooden stuff from two to four inches broad, and

and about an inch thick ; the length being pretty considerable, but undetermined.

The term is chiefly used in speaking of doors, &c. which are not framed of whole deal, &c. with stiles, rails, and panels like wainscot, but are made to appear as if they were, by means of these pieces, or battens, bradded on the plain board round the edges, and sometimes cross them, and up and down.

Hence batten doors, or windows, are such as seem to be wainscot ones, but are not. These are said to be either single or double, as the battens are fitted on to one side, or to both.

BATTENS *of the hatches*, in *Sea-language*, are nailed along the tarpaulings, and serve to keep their edges close down to the hatches, in order to prevent the water which washes over the deck from penetrating into the lower apartments of the ship.

BATTEN, in *Geography*, a town of Germany, in the circle of the Upper Rhine, and principality of Upper Hesse ; 16 miles south west of Waldeck, and 16 north west of Marburg.

BATTENBURG. See BATENBOURG.

BATTEN Kill, a small river of America, which rises in Vermont, and after running north and north-westerly about 30 miles, falls into Hudson, near Saratoga.

BATTERBURY, or BATTERBY bay, lies on the west coast of Ireland, about two miles north east from Convitt islands. It has a narrow entrance, but is above 4 miles broad. N. lat. $53^{\circ} 19'$. W. long. $10^{\circ} 22'$.

BATTERIE, is a French term in *Music*, for that kind of *arpeggio*, or breaking of chords in a distinct and detached manner, different from common *arpeggios*, in the execution of which on keyed-instruments, no finger is taken off till the note assigned it is again wanted ; and when, on the violin the notes of a chord are not, as usual, swept up and down

in one bow, but either all to be bowed or separated by a tremulous motion of the bow.

In this article of the *Encycl. Meth.* after the definition of the term Batterie, and a necessary addition by M. Framery, are inserted, the Abbé Feyton takes the pen, and in treating the subject metaphysically, manifests deep reflexion and science in the theory of sound ; but with a total disregard to the practice of the greatest composers and performers, who have produced pleasing effects by the very means which he prohibits.

BATTERING-RAM. See ARIES.

BATTERING-Rams, in *Heraldry*, a bearing or coat of arms resembling the military engine of the same name.

BATTERING, the attacking a place, work, or the like, with heavy artillery. See BATTERY.

To BATTER in Breach, *battre en breche*, is to play furiously on a work, as the angle of a half moon, in order to demolish and make a gap or breach in it.

In this, they observe never to fire a single piece against the top of the wall, but all towards the bottom, from three to six feet from the ground ; they also fire *par camarade*, all together, till they perceive the earth fall from behind the lining of the rampart.

BATTERING Pieces, or pieces of battery. See CANNON.

BATTEROW, in *Geography*, lies on the west coast of Africa, 2 leagues from Dixcove, and 5 leagues more from cape Three points to the north of the east.

BATTERSEA, a village and parish near London, in the county of Surry ; where above 300 acres of land are occupied by the market gardeners, of whom there are about twenty, who rent from 5 or 6 to nearly 60 acres each. The gardens at Battersea pay seven shillings and sixpence per acre for tythes to their vicar. Lysons's *Environs of London*, vol. i. p. 27.





